TABLE OF CONTENTS

CHAPTER 1

WORK STRESS

CHAPTER 4

AGGRESSION IN THE WORKPLACE

CHAPTER 5

ANXIETY, DEPRESSION, AND WORRY

CHAPTER 6

COPING

xvi

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

WORK STRESS

1.1   Introduction

Stress has become an important term in everyday language, meaningful to most individuals found in industrial societies (Wainwright & Calnan, 2002: v). It not only describes a range of "pains and aches" or as Cartwright and Cooper (1997:1) put it 'a vague yet often sense of disquiet', but a legitimate concern of our modern way of life. For both lay people and researchers work stress is indicative of the 'natural' limit of human endurance and resilience (Wainwright & Calnan, 2002: v) and is part of life, unavoidable, good and bad, constructive and destructive (Jacobs, in Van Zyl, 2002: 26).

Stress costs corporations all over the world large sums of money and on an individual level it affects the physical and psychological well being of the employee. Luthans (2002:395) quotes the president of the American Institute of Stress at the New York Medical College on the cost of stress in the U.S. workplace as saying '(It)…is estimated between $200 and $300 billion annually, as assessed by absenteeism, employee turnover, direct medical costs, workers' compensation and other legal costs, diminished productivity, accidents, etc., and is spread throughout the corporation, from the mailroom to the executive suite'. Schell (1997: 4) mentions the International Labour Office in Geneva that cites that 'excessive, pathological job stress can be viewed as the end-of-the-century affliction from which no country or job stratum is spared'. It is estimated that in South Africa R500 million is lost annually through absenteeism and loss of productivity as a result of stress ("Executive stress", 1991).

All employment generates stress and strain to some degree (Koeske & Kirk, 1993: 319) and people tend to associate stress with something bad (Luthans, 2002: 395). A certain amount of stress is not automatically bad for the individual working in an organization and can enhance job performance (Luthans, 2002: 411). Stress experienced as a result of job-related stressful events, such as getting a new supervisor or being involuntarily transferred, often resulted in individuals obtaining more information about their job resulting in new and better ways of doing their work (Weiss, Ilgen, & Sharbaugh, 1982: 64). Individuals working in jobs such as in sales, journalism, or television and who are under time pressures often benefit from mild levels of stress. Other occupations, in which the individual has a high level of contact with clients such as teaching, law, policing, and medicine do not benefit from mild levels of stress and often suffer from burnout (Forshaw, 2002: 75; Luthans, 2002: 412; Van der Ploeg, Dorresteijn, & Kleber, 2003: 158).

1.2 Occupational health psychology

The field of stress falls under the spectre of health psychology. Health psychology, a relatively new branch of psychology, specifically focuses on issues of human health and illness (Forshaw, 2002: 1). Tetrick and Quick (in Quick & Tetrick, 2002: 4) state that health as defined by the World Health Organization in 1946 is not just the absence of disease but a state of complete physical, mental, and social wellbeing and in 1986 it added that health be viewed as 'resource for everyday life, not the object of living'. Health is seen as 'a positive concept including social and personal resources as well as physical capabilities' (Nutbeam in Quick & Tetrick, 2002: 4). Forshaw (2002: 1) loosely defines health psychology as 'the study of how thoughts, feelings, and behaviours stem from, interact with, or cause, physical or mental efficiency, efficacy, comfort and wellbeing'.

Occupational health psychology involves the application of both public health and health psychology to occupational settings (Quick *et al*, 1997: 15). Tetrick and Quick (in Quick & Tetrick, 2002: 4) state that '(T) the purpose of occupational health psychology is to develop, maintain, and promote the health of employees directly and the health of their families'. It achieves this goal by incorporating the preventive and therapeutic interventions developed to create safe and healthy working environments.

To appreciate the challenges facing occupational health psychology the nature of stress and the most relevant causes occurring in the workplace will be examined.

1.3 The nature of stress

Individuals usually think of stress as a negative event with negative consequences. This negative stress is called distress. However there is also a positive form of stress, called eustress where the Greek 'eu' means good (Birkenbihl, 1989: 12). Examples of eustress include, for example, a promotion, gaining recognition and getting married (Moorhead & Griffin, 1989: 195).

1.3.1 Definition of stress and work stress

Stress is derived from the Latin word *stringere*, meaning to draw tight, and was used in the 17th century to describe hardships or affliction (Cartwright & Cooper, 1997: 3). Numerous definitions of stress and job stress can be found in the literature. Moorhead and Griffin (1989: 193) define stress "as a person's adaptive response to a stimulus that places excessive psychological or physical demands on that person". Luthans (2002: 396) defines work stress as "an adaptive response to an external situation that results in physical, psychological, and behavioral deviations for organizational participants". Both definitions imply that individuals respond in different ways when subjected to certain stressors. A stressor is any stimulus, which the

individual perceives as a threat (Cotton, 1990: 28). The individual must perceive the stressor to be excessive for stress to result, whether it is physical, psychological or psychosocial. Physical stressors include such conditions as environmental pollutants, environmental pressures such as extreme changes in temperature, electric shock, prolonged exercise, injuries and other trauma to the body, and exposure to disease. Psychological stressors refer to those threats that are attributed to the individual's internal reactivity, such as thoughts, feelings, and concerns about these threats. Psychosocial stressors are those that result from interpersonal interactions, such as with colleagues at work or from social isolation.

Luthans (2002: 396) also points out what stress is not:

- Stress is not simply anxiety. Anxiety operates solely in the emotional and psychological sphere, whereas stress operates in both the aforementioned spheres, and also in the physiological sphere. Stress may be accompanied by anxiety, but the one should not be equated with the other.
- Stress is not simply nervous tension. Nervous tension, like anxiety, may result from stress, but they are not the same. Some individuals may keep their stress "bottled up" and therefore not display any nervous tension.
- Stress is not necessarily something damaging, bad, or to be avoided. Eustress is not damaging or bad and is something individuals should seek out rather than avoid. Everyone will experience stress. The important issue is how the individual is able to handle stress. Distress, however, should be prevented or effectively controlled.

Before stress can be discussed any further, the term burnout needs to be clarified as it is often used alternatively with the term stress.

1.3.2   Burnout

The first writings on burnout were by Freudenberger (in Maslach *et al*, 2001: 399) and Maslach (in Maslach *et al*, 2001: 399) a year later. Burnout is seen as a psychological syndrome that occurs in response to chronic interpersonal stressors on the job (Maslach *et al*, 2001: 400) and is commonly associated with human service occupations (Schaufeli, 2003: 4). Three factors are associated with burnout, which are emotional exhaustion, depersonalisation, and feelings of reduced personal accomplishment. Exhaustion represents the basic individual stress dimension of burnout. It describes feelings of being overextended and depleted of one's emotional and physical resources. Depersonalisation (or cynicism) refers to the interpersonal dimension of burnout, and may be described as a negative, callous, or excessively detached response to various aspects of the job (Maslach *et al*, 2001: 402). Individuals begin to lose interest in things around them (Forshaw, 2002: 75). They often start lacking sympathy for people in their

environment and can be described as being emotionally flat. The third component of reduced efficacy or accomplishment represents the self-evaluation dimension of burnout (Maslach *et al*, 2001: 402). It refers to feelings of incompetence and a lack of achievement and productivity at work.

Densten (2001: 842) found in his re-evaluation of these three factors that emotional exhaustion had two distinct aspects, i.e., psychological and somatic strain. Psychological strain referred to items such as 'really a strain' or 'too much stress' where as somatic strain referred to items such as 'emotionally drained', 'used up' or fatigued'. Personal accomplishment was found to also consist of two components, one referring to 'self' and the other to 'other'. A decline in personal accomplishment (self) may relate more to a lack of job competency, where as personal accomplishment (others) may relate to the views and expectations of others.

Luthans (2002: 398) quotes John Izzo, a former HR professional who describes burnout as "losing a sense of the basic purpose and fulfilment of your work." Luthans (2002: 412) concludes 'that performance of many tasks is in fact strongly affected by stress' and that 'performance usually drops off sharply when stress rises to high levels'. There are many causes of stress affecting the individual in the workplace.

1.4   Major causes of stress

In the 1990's major restructuring of work started to take place (Sparks, Faragher, & Cooper, 2001: 490). Organizations in countries that were hit by recession had to downsize and restructure in an effort to survive. In the United States of America 2.7 million jobs were lost between March 2001 and August 2003 (Heylin, 2004: 28). As a result an increase in subcontracting and outsourcing has taken place in order to remain competitive on the global market. A rise in short-term contracts, new patterns of working, such as teleworking, self-regulated work and teamwork, an increase in the use of computerized technology, and the development of a more flexible workforce has taken place (Cox, Griffiths, & Rial-Gonzalez in Sparks, Faragher, & Cooper, 2001: 490). An increase in the numbers of females in the workforce, as well as dual-earner couples, and an increase in part-time work has also occurred in some countries. Over the past 40 years in the United States of America Heylin (2004: 28) states "the percentage of those on payrolls who are women has risen inexorably from 37% to almost 49% today". As a result of these changes research on occupational research and employee wellbeing has focused on four major causes of stress in organizations, i.e., job insecurity, work hours, control at work, and managerial style (Sparks, Faragher, & Cooper, 2001: 490).

1.4.1 Job insecurity

The trend, where organizations are restructuring and downsizing, has led to an increase in the level of perceived job insecurity (Kivimäki, Vahtera, Pentti & Ferrie, 2000: 972). Not only blue-collar occupations are affected, but also professional and graduate jobs are being affected (Smithson & Lewis, 2000: 681). In the past the workers that were laid off were mostly young, male, blue-collar workers (Greenglass & Burke, 2001: 1). Today higher paid, white-collar workers, often at their peak of their careers, are loosing their jobs. Burchell *et al* in Sparks, Faragher, and Cooper, 2001: 491) found that the youngest and the oldest employees of an organization experienced high levels of job insecurity.

Job insecurity has been identified as a form of work-related stressor, which is potentially detrimental to the individual's psychological wellbeing, job attitudes and behaviours (Klandermans, Van Vuuren, & Jacobson in Lim, 1996: 172). Employees generally experience high levels of anxiety when their jobs are insecure, which arises from the lack of certainty regarding when layoffs or curtailment of job features will occur, and when it occurs who will be affected (Jacobson in Lim, 1996: 173). Inherent in job insecurity is the experience of ambiguity that makes this phenomenon highly stressful for the individual. Research has shown that perceived job insecurity is bad for employee wellbeing and can impact on organizations through increased absence from work due to sickness (Kivimäki *et al*, 1997: 870). Other effects include lowered morale and motivation (Worral & Cooper, in Sparks, Faragher, and Cooper, 2001: 490), diminished support of organizational goals, less effort to produce quality work, and were more actively looking for alternative employment (King, 2000: 88).

1.4.2 Work hours

In many organizations changes due to restructuring and downsizing have resulted in an increase in the number of working hours (Sparks, Faragher, & Cooper, 2001: 493). Long working hours required by certain jobs effect employee wellbeing. Shift work has been found to be a common stressor that affects blood temperature, metabolic rate, blood sugar levels, mental efficiency, and work motivation (Cartwright & Cooper, 1997: 15). Extended shifts are also associated with deaths due to coronary heart disease (Cartwright & Cooper, 1997: 15).

Rosa (1995: 54) found that workers working shifts suffered from excess fatigue, sleepiness, and significant loss of sleep. Actual incidents of falling asleep were found to occur more often during night shifts (Åkerstedt, in Sallinen *et al*, 1998: 240). The second half of the night shift is a time of increased risk because the nadir of alertness is reached during this period. Over a long period severe sleep disturbances may develop resulting in the development of chronic fatigue, anxiety, nervousness, and depression (Costa *et al* in Smith, Folkard, & Fuller, 2002: 166). Furthermore shift workers are have been found to be prone to poor lifestyle habits, such as heavy smoking,

inadequate diet, and lack of exercise (Marayuma *et al*, in Sutherland & Cooper, 2000: 72). Flexible working hours have been found to have both advantages and disadvantages (Sparks, Faragher, & Cooper, 2001: 494). Some of the advantages include lower stress levels, increased job enrichment, morale and autonomy, reduced absenteeism and tardiness, and improved job satisfaction and productivity. Disadvantages include increase costs, problems with scheduling and work co-ordination, difficulties in supervising all employees due to differing work hours, and changes in the organizational culture.

1.4.3 Control at work

The concept of perceived control or autonomy has been extensively researched over the years (Sparks, Faragher, Cooper, 2001: 498). It is essentially a cognitive phenomenon and refers to the level that individuals perceive they are in control of their lives including their work (Luthans, 2002: 275). Ganster and Fusilier (in Sparks, Faragher, Cooper, 2001: 498) define perceived control as the amount of control that individuals believe they have over their environment, whether direct or indirect, to make it less threatening or more rewarding.

Within the work environment perceived control refers to the extent to which employees are free to decide how to accomplish a task or to reach set goals (Theorell, 2002: 204). Employees who perceive themselves' as in control are more intrinsically motivated and willing to accept responsibility for the consequences of their work (Hackman & Oldham, in Sparks, Faragher, Cooper, 2001: 498). Much of the research on control at work was in terms of task, decision, physical and resource control (Hurrell & McLaney in Troup & Dewe, 2002: 338) and more recently in terms of timing control and method control (Wall, Jackson, & Mullarkey in Troup & Dewe, 2002: 338) as well as task, resource and organizational control (Carayon & Zijlstra in Troup & Dewe, 2002: 338). Research on distinguishing 'being in control' and 'the desire for control' has also been done (Burger in Troup & Dewe, 2002: 338). Mergers and acquisitions are particularly stressful because they are viewed as a crucial event over which the employee has no control and is psychologically not prepared for (Cartwright & Cooper, 1997: 33). Employees tend to fear the worst and are very pessimistic from when the merger or acquisition is announced until actual changes have taken place.

1.4.4 Managerial style

Managers are prone to high levels of work stress (Sparks, Faragher, & Cooper, 2001: 501). They are involved in decision-making and the implementation of these decisions. When large important changes occur within the organization such as a merger, they are often blamed for these changes (Campbell-Jamison, Worrall, & Cooper, 2001: 46). Employees in a study of a power company that was being privatised felt let down by the organization and they felt that the trust that had existed between them and management had been destroyed. They blamed the

organization although in actual fact it was outside the control of management. The survivors' felt highly "stressed" due to feeling overworked, under pressure, hurt by the organization, bitter and aggressive towards management.

Increased managerial pressure may impact on employee wellbeing (Sparks, Faragher, Cooper, 2001: 501). Due to their superior position in the organization, managers and supervisors, whether intentionally or unintentionally, may cause stress for their subordinates. Different managers have different management styles, which may affect their subordinates. Managers who were viewed as having an inconsiderate management style contributed to the employee's self-reports of increased job pressure (Buck, in Sparks, Faragher, Cooper, 2001: 501). A bullying management style was found to play an important role when managers were under pressure (Hoël & Cooper, in Sparks, Faragher, & Cooper, 2001: 501). They found in their survey of over 5 000 employees, that managers were the perpetrators for nearly 75 % of employees who reported being victims of bullying affecting their wellbeing.

When events in the workplace are perceived as stressful and are seen as taxing the capabilities of the individual it may have dire consequences for the individual.

1.5 Consequences of stress

Some individuals are unable to cope with these stressful situations, and for the organization this could result in high staff turnover, absenteeism, and decreased motivation. Individuals may respond in different ways to the perceived stressors, which may be exhibited on a physical, psychological, or behavioural level.

1.5.1 Physical consequences

On a physical level research has shown that physical health has been linked to stress (Forshaw, 2002: 60, Luthans, 2002: 412). Luthans (2002: 412) summarizes the physical health concerns that have been associated with stress and they include the following:

- Problems of the immune system, resulting in a lowered ability to fight off illness and infection.
- Problems of the cardiovascular system of which blood pressure and heart disease are the most common.
- Problems of the musculoskeletal system, such as tension and headaches.
- Problems of the gastrointestinal system, such as diarrhoea and constipation.

These physical ailments have a serious effect on the wellbeing of the individual and they impact on the organization (Luthans, 2002: 412; Cartwright & Cooper, 1997: 2, 8). In the U.K. the

British Heart Foundation Coronary Prevention Group has calculated that 180 000 people die each year from coronary heart disease, and that this disease accounts for 70 million lost working days to industry and commerce (Cartwright & Cooper, 1997: 10). However, not all heart disease can be linked directly to stress (Luthans, 2002: 412). Environmental conditions and the individual's general state of health, heredity factors, and medical history are known to contribute to heart disease.

1.5.2   Psychological problems

Considerable research has shown that stress impacts on physical health especially within a medical context. However, not as much attention has been given to the impact of stress on mental health (Luthans, 2002: 413). Psychological problems resulting from stress may be as important as they may impact on the day-to-day job performance of the employee.

Psychological problems that are associated with stress include feelings of helplessness, mood changes, anger, depression, anxiety, nervousness, irritability, tension, and boredom (Dormann & Zapf, 2002: 34; Moorhead & Griffin, 1989: 204; Luthans, 2002: 413; Schell, 1997: 140). Individuals reacted to the impact of stress by exhibiting aggressive acts, such as sabotage, interpersonal aggression, hostility, and complaints (Chen & Spector, 1992: 181). Job insecurity, which is associated with organizational downsizing, also elicits reactions of anxiety, insecurity, stress, and anger (Greenglas & Burke, 2001: 3). These psychological problems associated with stress impact on job performance (McGrath in Luthans, 2002: 413), decision-making, and job satisfaction (Greenglas & Burke, 2001: 3) amongst others.

1.5.3   Behavioural problems

Behavioural problems that are associated with stress include undereating or overeating, fatigue, increased smoking and drinking, and drug abuse (Luthans, 2002: 414; Hogh, Borg, & Mikkelsen, 2003: 190). Moorhead and Griffin (1989: 204) add accident proneness, and violence to the list. Cotton (1990: 45) likens the behavioural symptoms that individual's exhibit with the expectations of the fight or flight response. The stressed individual may display a pattern of either aggressive behaviour or of avoidance. The aggressive individual may strike out, or be argumentative, stubborn, or confrontational. The individual who is prone to avoidance behaviour may become passive, avoiding stressful situations, whether minor or important, to the extent of becoming immobilized.

Alcohol consumption is often a way of dealing with stress leading to absenteeism and job turnover (Luthans, 2002: 414). Chen and Spector (1992: 182) found that the most significant reaction to work stressors was the intention to quit. Staying away from work or quitting one's work due to stress is a flight response to the situation, which may be a far healthier response

than a fight reaction, in which an individual stays on in the stressful environment and becomes angry and/or aggressive.

1.6   Stress in South Africa

A large number of changes have occurred in South Africa which in turn has affected the workplace in one or another way. Political changes and affirmative action (Beeld, 22 August 1997), downsizing or rightsizing of organizations (Freight & Trading Weekly, 11 June 1999), retrenchments (Drum, February 1996) and restructuring (Marais & Schepers, 1996: 1) have all taken place over the last decade.

Peters (Saturday Star, Dec 23, 2000) reports that bullying, work overload, and staff cuts are among factors that have contributed to making stress one of the greatest health hazards in the workplace. She refers to the South Africa Federation of Mental Health (Saturday Star, Dec 23, 2000) as stating "that the majority of adults spend between 50 and 80% of their waking hours at work, and 68% of all workers will experience workplace problems severe enough to prevent them from coping with their day-to-day duties". A loss of about 200-million working days each year worldwide was attributed to employees with depression. The World Health Organization believes that "stress and depression are on the top of the list of mental health problems and that job stress is a worldwide epidemic, and stress-related disorders are becoming the most prevalent reason for worker disability" (Peters, Saturday Star, Dec 23 2000).

Research shows that approximately 30%–40% of South Africans suffer from high levels of stress (Van Zyl in Van Zyl, 1998: 22) and particularly South African managers are known to suffer from high levels of stress (Van Zyl in Spangenberg & Orpen-Lyall, 2000: 6). Sullivan (in Van Zyl & Pietersen, 1999: 74) noted that in South Africa the effects of the world recession are compounded by an unstable and rapidly changing social and political climate. The impact of stress is thought to affect all levels of society, whether at individual or national level (Van Zyl & Pietersen, 1999: 74).

Van Zyl (2002: 26) summarises a number of statistics and probable symptoms of stress, which he believes are indicative of the high stress experienced among South Africans:

- South Africa's divorce rate is one of the three highest in the world.
- The incidence of coronary diseases is among the five highest in the world.
- Until recently the suicide rate among the Indian community was the highest in the world.
- There are too many people in jail.
- The number of motor accidents is among the highest in the world.
- The use of drugs was among the highest in world, especially in the Western Cape.

Within the work situation Van Zyl (2002: 26) referring to Jacobs (in Van Zyl, 2002: 28) as well as Levert, Lucas and Ortlepp (in Van Zyl, 2002: 28) gives the following warning signs of high levels of stress:

- Frequent illness
- Persistent fatigue
- Irritability
- Nail-biting
- Lack of concentration
- Increased use of alcohol and drugs
- Poor interrelationships.

In the light of this information it becomes clear that South African workers experience high levels of work stress as well as concomitant reactions and symptoms of stress. It appears that many South African public and private companies do not realize the effect specifically chronic stress may have on their employees (Van Zyl, 2002: 27) and it appears that very little is done by the employers to develop their employees' ability to deal effectively with their stress.

1.7   Conclusion

Stress has become a major issue of our time affecting the individual and the organization in which the individual is employed. A study among 15 800 workers from 15 member states of the European Union found that after back pain (33%), stress (28%) and fatigue (23%) ranked second and third, respectively of the most frequently reported occupational health problems (Paoli in Schaufeli, 2003: 1, Sutherland & Cooper, 2000: 23). It is predicted that that the amount of stress experienced is likely to get worse (Cartwright & Cooper, 1997: 2). Increasing cross-national mergers, increasing international competition and joint ventures between organizations across national boundaries will result in reorganizations, relocations of personnel, redesign of jobs, and reallocations of roles and responsibilities. Change will be accompanied by job insecurities, corporate culture clashes and significantly different managerial styles, all of which will lead to massive organizational change and inevitable stress. Trade agreements, the influence of larger economic systems, for example the European Union, will result in organizations that will impose rules and regulations in terms of labour laws, health and safety at work, methods of production, distribution, and remuneration, which will inhibit individual control and autonomy (Cartwright & Cooper, 1997: 3). It is predicted that the ever-increasing workload with a decreasing workforce in a climate of rapid change and with control over the means of production increasingly being taken over by free-trade institutions and their bureaucracies, corporate stress is here to stay.

CHAPTER 2

RESEARCH PROBLEM AND PURPOSE OF STUDY

2.1   Introduction

Stress in the workplace is a worldwide phenomenon affecting the employee at all levels. In South Africa circumstances are continually changing with political changes, affirmative action, downsizing, mergers and acquisitions, retrenchments, lay-offs, new technology amongst others, impacting on the individual in the workplace for example in the form of job insecurity. Other sources of stress brought into the organizational context are issues such as personal and financial problems. Stressors inherent in an organization, such as task demands, role demands, physical demands and interpersonal demands, continually affect the employee.

Prior to this doctoral study the researcher having worked in industry and the public service, personally observed the effect of job insecurity as a result downsizing, and affirmative action on fellow employees. They spoke about their fear of possibly being retrenched or having to take on a job that did not ensure the income that they were used to. In some cases they had to reapply for their posts, which created a lot of uncertainty. Some did retain their old posts, others were retrenched, and a few found alternative posts within the organization. For some that found alternative posts in the organization it meant relocating to other parts of the country: the change impacted on all of their family members. A few did not wait for the company to make a decision and instead found alternative jobs outside the organization, even immigrating or starting to work for themselves. In one of the organizations a number of staff remained in their jobs at all costs to ensure an income. Some used to complain of stagnation and one particular individual reacted negatively by developing migraine headaches. The general negativity affected their interactions with colleagues, and their productivity dropped accordingly. Some individuals would come to work late and they used to leave early, something they did not do prior to the restructuring of the organization. Other possible causes of stress that the author experienced or witnessed were long working hours on the pilot plant resulting in fatigue and loss of concentration, working towards deadlines, and staying within the confines of the budget.

2.2   Research problem

In the light of the introductory remarks above, the questions that arose in the mind of the researcher was "Which major stressors were impacting on these individuals?" "Were they to be found within or outside the organization?" "How did they react to these stressful situations?" Based on these

questions the underlying research problem could be divided into two major areas, namely causes and consequences of stress in the workplace.

2.2.1 Causes of stress

Possible causes of work-related stress amongst employees, specifically senior management, middle management, and specialist staff (specialists in their field), working in organizations are related to extraorganizational stressors as well as stressors inherent in the organization. Extraorganizational stressors refer to factors such as affirmative action, downsizing, retrenchments, restructuring, technological changes, and job sharing. Other factors include personal and financial problems. Stressors inherent in the organization, refers to factors such as the functioning of the organization, task characteristics, physical working conditions, equipment, career matters and social issues. Van Zyl (in Van Zyl, 2002: 26) found in an investigation in South Africa that 34.7% of Coloureds, 38.1% of Whites and Asians, and 35% of Black South Africans experienced high levels of stress. An investigation into the sources of job satisfaction and work stress amongst middle management in South Africa found that the main sources of work stress were work demands and expectations, working conditions, subordinates, interpersonal relationships, person responsibility, and working hours (Strydom & Meyer, 2002: 19).

The current economic situation in the country, new legislation, for example the Employment Equity Act, affirmative action and the quota system are all placing increasing demands on South Africans, both inside and outside of the work situation leading to high levels of stress (Van Zyl, 2002: 26). For some these changes have lead to the fear of retrenchment and lower income. The main concern that was reported to a suicide prevention centre in the past was relationship problems. However this has changed to issues related to the lack of money, for example losing one's home or car by repossession (Van Zyl, 1997: 138). High levels of stress are carried over to the non-work environment such as to other people the individual interacts with, for example the spouse and children (Kruger in Van Zyl, 2002: 26). Stress experienced outside the work environment can again impact on the work situation.

The problem of stress and the related health problems impact on the direct and indirect costs of the organization. One way of addressing this problem is to report research findings reflecting the present situation affecting the employees in the workplace. The findings may then be used to make organizations aware of the problem and allow for the development of an effective stress management strategy.

2.2.2 Consequences of stress

Individuals in the workplace may respond in different ways to both the extraorganizational and inherent stressors in the organization. This may manifest itself on a physical, psychological, and/or behavioural level. On a physical level it could manifest for example as hypertension, on a psychological level as anger, depression, anxiety and worry, and/ or on a behavioural level smoking and drinking, sleeplessness, overeating or undernourishment, and aggression. Van Zyl (1993: 37) found that a group of black South African high-level employees reported that they experienced passivity, uncertainty, and loneliness when subjected to high levels of stress. Research conducted with a group of lower level black and white employees involved in manual tasks showed that these black employees were inclined to lack self-confidence, to be dependant on others, to be passive, to feel uncertain, to be dissatisfied, frustrated, and to feel helpless (Van Zyl, 1996: 129). The white counterparts on the other hand, had higher scores on overload and tended to worry much more. However, it is not always easy to detect the symptoms of high levels of stress, as employees tend to hide these to protect their reputations and to appear as if nothing is happening (McGarvey in Van Zyl, 2002: 28).

However not everybody is unable to cope with stressful situations, some individuals seem to thrive under stress. A number of factors moderate the impact that various sources of stress have on the individual. These factors include job experience, social support, locus of control, learned helplessness, and problem solving ability amongst others. Spangenberg and Orpen (2000: 8) investigated the relationship between stress and coping strategies and found that an avoidant coping strategy probably contributed to an increase in stress levels amongst a group of managers. No other literature reporting on coping with stress in the workplace in the South African context with respect to management could be found.

In the light of this it is important to investigate not only the causes of stress but also the consequences of stress. Van Zyl (2002: 30) echo's this sentiment and states that 'a system of stress measurement and management – at all levels – is not a luxury in South Africa, or something "nice" to do for humanistic reasons. It is a matter of physical, psychological, economic, and social survival. Stress measurement in particular, can help to address the real problems in a preventative manner.'

2.3   Aim of the study

The study aims to determine the level and causes of stress that subjects experience in the workplace. These may both be extraorganizational and those inherent in the organization.

Furthermore the stressors and demands that contribute to the individual's experience of stress are expected to impact the individual both on a psychological, physiological, and behavioural level. A further aim of the study is to focus on specific psychological and behavioural consequences the experience of stress may lead to. At a psychological level the aim is to measure the levels of anxiety, depression, and worry. At a behavioural level the aim of the research will be to ascertain the extent of workplace aggression. However these consequences are dependant on the ability inability of the employee to deal with the demand and stressors inside and outside the workplace. Thus the third aim of the research is to determine how effective or ineffective the subjects cope with the demands or stressors they have to deal with in terms of social problem solving.

Very little research is available on the consequences of work stress with respect to anxiety and depression in South Africa. No research could be found within the South African context on the impact stress has on aggression in the workplace, worry, and on social problem solving as a way of coping with stress.

As circumstances in South Africa are continually changing it is believed that is essential to not only to determine the causes but also to continue studying the impact stress has on the wellbeing of the individual in the workplace. Management is prone to excessively high levels of stress due to overloading because they are regularly promoted to position levels, which their American and European counterparts only reach at a later stage (Van Zyl, 1997: 138). A further aim therefore was to focus on senior management, middle management, and on specialist staff where specialist staff refers to specialists in their specific work areas.

2.4 Research objectives

The objective of the research is to determine the individual's experience of stress in terms of normal, high, or very high. The causes of the stress as experienced by the employees, whether within or outside the organisation, will also be determined. Outside the organisation this includes factors such as the political, and social changes that have and are continuing to take place in South Africa, as well as technological changes, personal and financial problems. Within the organisation these include organisational functioning, task characteristics, physical working conditions and job equipment, career opportunities, social matters, and remuneration, fringe benefits and personnel policy of the organisation. To achieve this, the Experience of Work and Life Circumstances Questionnaire will be used. With regard to the impact of stress in terms of the specific psychological consequences, specifically depression, anxiety and worry, and behavioural consequences, specifically aggression as it manifests itself in the workplace the Aggression in the

Workplace Questionnaire, the IPAT Anxiety Inventory, the Beck Depression Inventory and the Penn State Worry Questionnaire will be employed. The extent to which and individual is able to cope effectively or for that matter ineffectively with experienced stress, will be assessed by employing the Social Problem Solving Inventory-Revised.

The aim was to determine the causes of stress arising outside and originating within the work situation, the impact that these stressors had on the individual's experience of stress, the individual consequences in terms of workplace aggression, worry, anxiety and depression as well as the ability of the individual to cope with the situation through social problem solving (Figure 2.1).
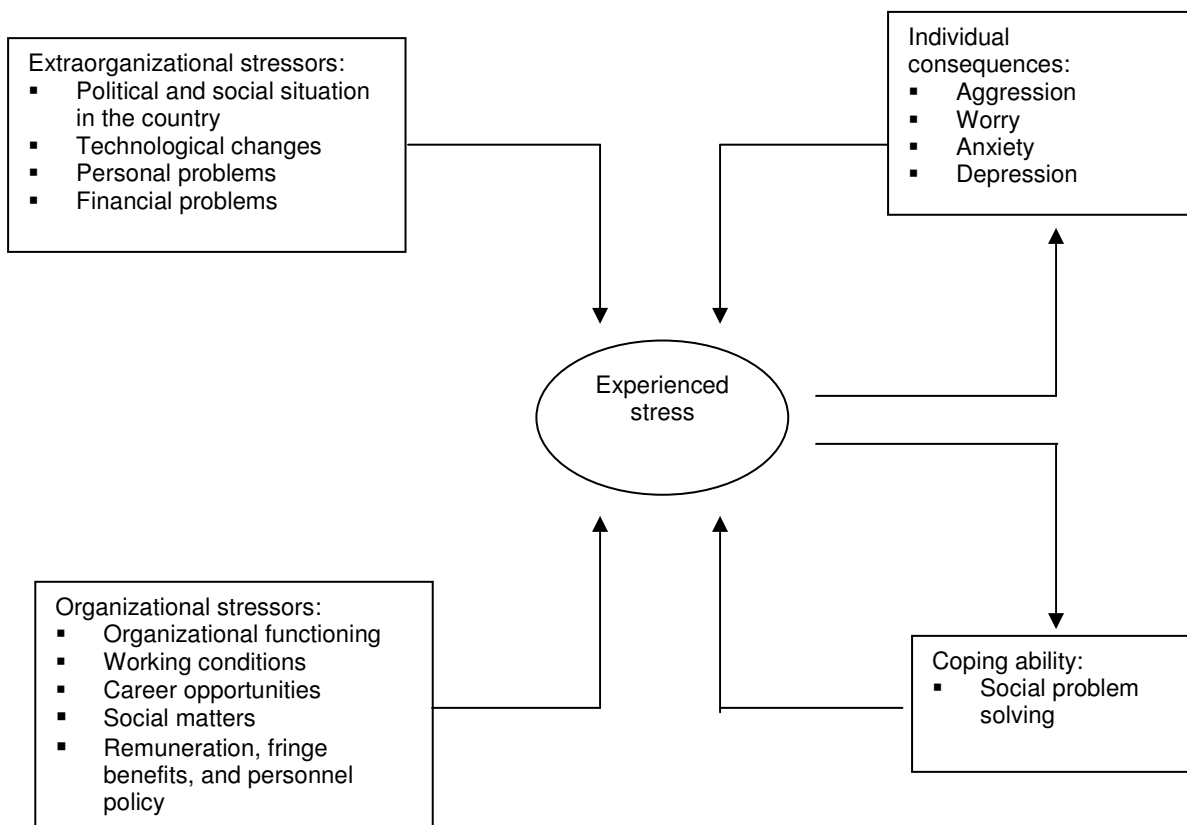
Figure 2.1: Causes and consequences of workplace stress

CHAPTER 3

STRESS IN THE WORKPLACE

3.1   Introduction

Stress is a natural part of everyday living. Individuals experience varying levels of stress in and outside the workplace. In the workplace stress results in lost productivity due to absenteeism, work related accidents, stress claims, a demotivated work force, sabotage and even bankruptcy (Schell, 1997: 5). Schell (1997:4) reports that in Japan 60% of the approximately 120 million adults employed claim to be adversely affected by excessive job stress. The collective cost of stress to U.S. organizations for absenteeism, reduced productivity, compensation claims, health insurance, and direct medical expenses has been estimated at approximately $150 billion per year in the 1980's (Karasek & Theorell in Cartwright & Cooper, 1997: 2).

In the United Kingdom, stress-related absences were 10 times more costly than all other industrial relations disputes put together. In terms of sickness, absence and premature death or retirement due to alcoholism, stress costs the U.K. economy a staggering £2 billion per annum. Heart disease, the single biggest killer, is estimated by the British Heart Foundation to cost an average U.K. company of 10 000 employees 73 000 lost working days each year; additional costs include the annual death of 42 employees between 35 and 64 years of age and lost value in products or services of more than £2.5 million. Of all absence for sickness in the United Kingdom, 21% was due to stress-related heart disease. Similarly, in Norway, the economic costs of work-related sickness and accidents amount to more than 10% of the gross national product (GNP) (Lunde-Jensen, in Cartwright and Cooper, 1997: 2).

3.2   Models of stress

A number of different approaches to the conceptualisation of stress can be found of which the response-based or medico-physiological approach, the stimulus-based or engineering approach, the more psychological-based approach exemplified by transactional, and cybernetic theories of stress are relevant to the conceptualisation and definition of stress (Cox, 1978:3; Cox & Mackay, 1981: 94; Cummings & Cooper, 1998: 101).

3.2.1   *Response-based model*

The response-based approach regards stress as a response or a pattern and is treated as a dependant variable (Cox, 1978: 3; Cox & Mackay, 1981: 94; Sutherland & Cooper, 1990: 11). The study of stress tends to be concerned with the response of an individual when the individual is

exposed to an environmental stimulus or demand. The focus of the model is the manifestation of stress.

The response-based approach to stress is exemplified in the writing of Hans Selye who was one of the first researchers to attempt to explain the process of stress-related illness in terms of the general adaptation syndrome (GAS) (Cox & Mackay, 1981: 94; Cartwright & Cooper, 2002: 48). The response-based model of stress is represented schematically below (Figure 3.1).
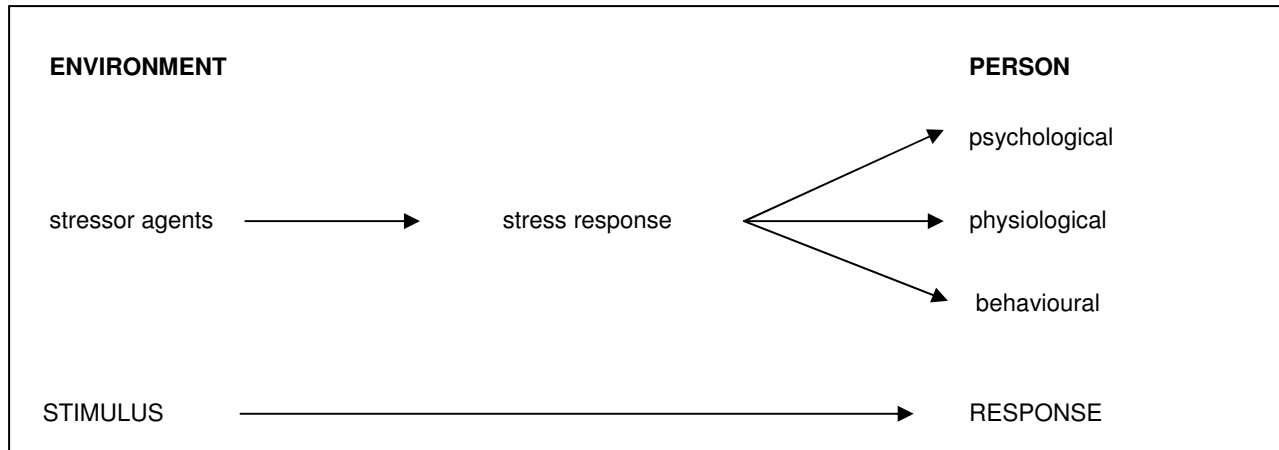
Figure 3.1: A response model of stress (Sutherland & Cooper, 2000: 47)

3.2.2 *The general adaptation syndrome*

Endocrinologist Hans Selye, widely considered the father of stress research, during his search for a new sex hormone discovered that a wide range of stimuli, such as exposure to temperature extremes, physical injury, or injection of toxic substances resulted in tissue damage in laboratory rats (Selye, in Schell, 1997: 131; Wainwright & Calnan, 2002: 38). He found that the cortex of the adrenal gland became enlarged; the thymus and lymphatic structures in turn became involuted; and deep-bleeding ulcers developed in the stomach and intestines.

He called this non-specific response to harmful stimuli the general adaptation syndrome (GAS). About a decade later he introduced the term "stress" in his writings. In 1910, Sir William Osler investigated the connection between stress and strain-causing disease when he found a relationship between angina pectoris and a hectic pace of life (Hinkle in Cartwright & Cooper, 1997: 4). In the early 1900s Cannon (in Quick *et al*, 1997: 6; Wainwright & Calnan, 2002: 35) had described an emergency reaction exhibited by an organism when it was confronted with a threat or danger. This reaction prepares the organism to respond to a threat by either facing it (fighting) or by avoiding it (fleeing). The reaction has become known as the "fight or flight" response. This response

17

involves the arousal of the autonomic nervous system, which is associated with secretion of adrenaline by the adrenal glands. The sympathetic aspect of the autonomic nervous system mobilizes a number of reactions throughout the body (Table 3.1) (Guyten, in Cotton, 1990: 40).

Table 3.1: Examples of the effects of the autonomic (sympathetic) arousal on organs.

Organ	Effect
Eye	Pupil dilates; ciliary's muscle relaxes
Glands – including • Nasal • lacrimal • parathyroid • submaxillary • gastric • pancreatic	Vasoconstriction and slight secretion
Sweat glands	Copious sweating
Heart muscle	Increased rate, increased force of contraction
Lungs: • bronchi • blood vessels	Dilated Mildly constricted Decreased peristalsis and tone in lumen
Gut	Increased sphincter tone
Liver	Glucose released
Kidney	Decreased output
Blood	Coagulation increased, glucose increased
Basal metabolism	Increased up to 100%
Adrenal cortical secretion	Increased
Skeletal muscle	Increased strength
Piloerector muscles	Excited

Murphy (1996: 113) states that the response includes "elevated heart rate and blood pressure, a redistribution of blood flow to the major muscle groups and the brain and away from the distal parts, and a decrease in vegetative functions". In this way the organism prepares to deal with a threat. Selye (in Cotton, 1990: 41) incorporated some of Cannon's ideas into his physiological model of stress, the general adaptation syndrome (GAS). The question that Selye posed in the 1930's was that what would happen to living systems if they could not cope with the stressor either by flight or fight (Schell, 1997: 131). Selye described the GAS as occurring in three distinctive phases:

Phase 1: The alarm reaction

This stage is activated when the individual is exposed to sustained and excessive stress. In the alarm phase the body's defensive forces are 'called to arms' and has two sub- phases for dealing with the impact of the stressor, the phase itself and the counter-shock phase (Carson, Butcher & Mineka, 2000: 129; Cotton, 1990: 41; Schell, 1997: 132).

- Shock phase: this phase is immediate and is associated with outward signs of distress such as loss of muscle tone, decreased body temperature, and decreased blood pressure.
- Counter-shock: this phase immediately follows upon the shock phase and is associated with the release of adrenaline and noradrenaline. These are secreted to ensure that energy is made available from the body stores, the pulse rate is increased, the blood pressure is increased with a corresponding increase in the rate at which the blood circulates through the body, and to stimulate the central nervous system.

Phase 2: Resistance stage

After the alarm reaction subsides and the stress continues a decrease in adrenocortical secretions occur. Most of the changes that take place during the alarm reaction are reversed. This is associated with an increase in cortisol secretion with concomitant heightened metabolism, increased muscle strength, decreased swelling and inflammation and decreased immunity. Although this stage is viewed as a stage at which coping and adaptation occurs, the individual's capacity to resist stressors is limited. The body's resources are depleted and the body's defence mechanisms will weaken if the stress is not removed. Schell (1997: 133) states that it is often argued that the resistance stage is associated with the development of psychosomatic disorders, gastric ulcers, hypertension, colitis, asthma, migraine headaches and arthritis in some cases.

Phase 3: Exhaustion stage

When the stressor is excessive and prolonged, the individual's adaptive resources are depleted. High levels of cortisol begin to have detrimental effects that become noticeable as psychological, physiological, and behavioural maladaptation such as chronic depression, lowered resistance to infection and alcoholism. In most extreme cases, it may lead to death. The general adaptation syndrome is presented schematically (Figure 3.2).
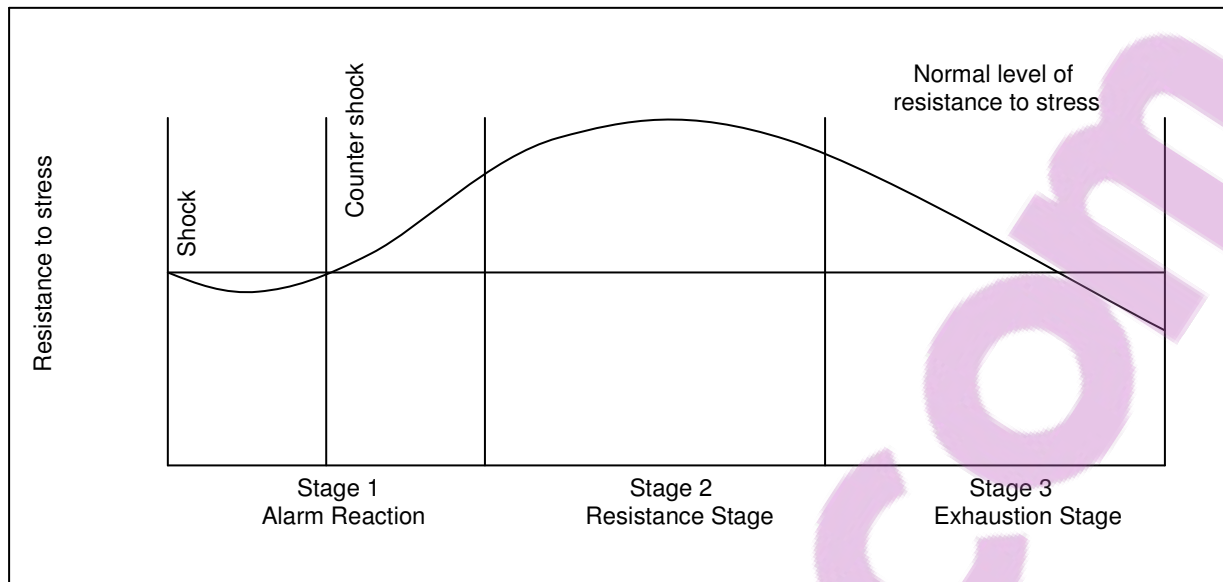
Figure 3.2: The General Adaptation Syndrome

3.2.2.1 Physiological processes

Selye (in Schell, 1997: 132) states that during the counter shock phase the 'presence of a distressor' signals the hypothalamus, a complex bundle of nerve cells in the brain, to act as a crisis-survival bridge between the brain, the endocrine system (which releases life-saving hormones into bloodstream to help body organs adapt to the crises), and the autonomic nervous system (which regulates the cardiovascular, respiratory, temperature, and water regulatory subsystems at all times), specifically the sympathetic nervous system.

To aid the body in coping with the crises, a complex series of biochemical and body changes are stirred into action (Cotton, 1990: 41). Quick *et al* (1997: 43) call this the stress response. For example, the resulting nervous signals reach certain neuroendocrine cells in the hypothalamus, where they are transformed into a chemical messenger for releasing corticotrophin hormones. A message is relayed to the pituitary gland (a small, rounded gland at the base of the brain, causing a discharge of adrenocorticotrophic hormone (ACTH) into the bloodstream. Upon reaching the adrenal cortex, ACTH triggers the conversion of cholesterol to steroid hormones and the secretion of glucocorticoids, particularly cortisol. Many anti-inflammatory corticoid hormones supply a readily available source of energy for meeting the demands made by the stressor, facilitate other adaptive enzyme responses, and suppress immune reactions and inflammation, thereby helping the body to temporarily coexist with the presenting distressor. Usually secreted in lesser amounts, the proinflammatory corticoid hormones stimulate the reactivity of the body's connective tissue, protecting the body against possible physical invasion by the stressor. The major effect of cortisol is

20

to increase the supply of glucose and fatty acids in the bloodstream by stimulating the liver to release glucose and fat cells to release fatty acids.

Several short-loop and long-loop biofeedback mechanisms existing within the body continually monitor the existing levels of hormones and compare these levels to those required for adaptation. If it finds that there is abundance of for example ACTH, a short-loop feedback mechanism returns some of it to the hypothalamus-pituitary axis, which stops further ACTH production. Parallel to these processes, the catecholamines, primarily adrenaline and noradrenaline, are liberated as another means of adaptation. Catecholamine release has a direct, activating effect on the central nervous system particularly the reticular activating system (RAS). This leads to an increase in alertness through sharpening of the sensory processes.

Selye (in Schell, 1997: 135) recognized that stressors affect individuals differently. The ways in which individuals respond to these stressors depend upon many endogenous factors, such as genetic and hereditary predispositions, gender, age, and early childhood conditioning and patterning. Exogenous factors such as food intake, physical environment, health and safety also play a role in determining which system, whether respiratory, cardiovascular, mental for example, may be affected. Henry and Stephens (in Schell, 1997: 135) showed that the perceived inability of the individual to control the stressor/s caused the human system to move into the resistance phase. Animal research studies that they did, indicated that when living systems could control the environment and the stressor found in it, they showed increased activity, showing aggression with activation of the adrenergic system. However when they could not exert control, they showed a withdrawal response, with activation of the adrenocortical hormones. Critics of Selye's research say it ignores both the psychological impact of stress on an individual and the individual's ability to recognize stress and act in various ways to change his or her situation (Cartwright & Cooper, 1997: 4).

3.2.3 Stimulus-based model

The stimulus approach views stress as an independent variable whereas the response-based approach does not. Thus the stimulus characteristics of the environment are considered as disturbing or disruptive in some way (Cox, 1978: 12; Cox & Mackay, 1981: 97; Sutherland & Cooper, 1990: 15).

This model is essentially an engineering one incorporating Hooke's Law of Elasticity from physics. Hooke's Law states that a load or a demand (the stress), which is exerted on the metal, causes a

strain resulting in deformation in the metal. Each material has an elastic limit and if the strain produced by a given stress falls within this limit, when the stress is removed, the metal will return to its original condition. Only when the strain is greater than the given elastic limit then permanent damage will occur.

Applying this analogy to humans it implies that different individuals have different breaking points. Individuals are able to tolerate certain levels of stress but once this is exceeded permanent damage, either physiological or psychological will occur. The stimulus-based approach is shown (Figure 3.3).
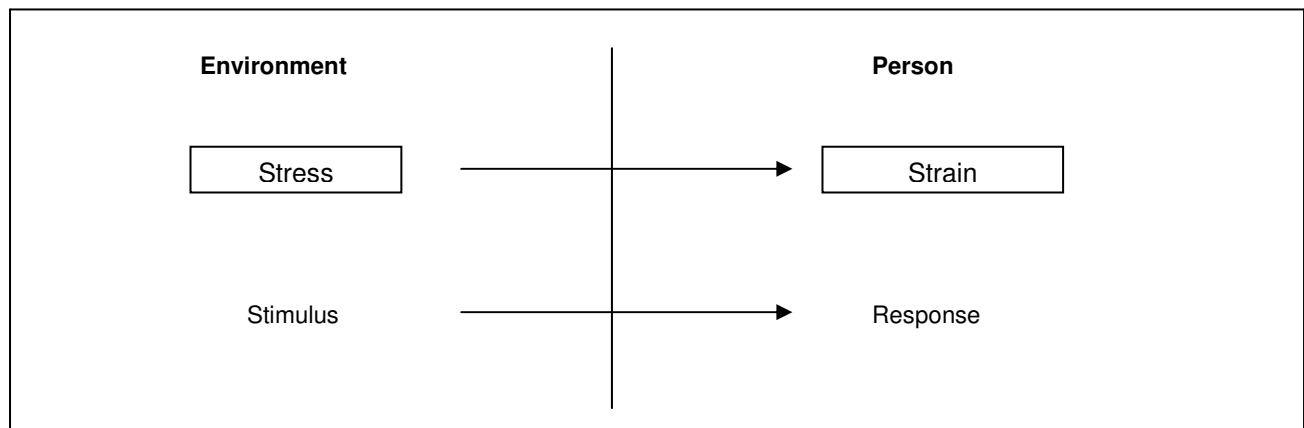
Figure 3.3: Cox's stimulus-based model of stress

The research based on this model includes identifying the sources of stress in the work environment. Common sources involve extremes of sensory stimulation, such as noise, heat, cold, humidity, isolation and crowding and extreme workloads, such as overwork, underwork and boredom (Cox, 1978: 15).

When studying stressful life events, Dohrenwend *et al* (in Cotton, 1990: 87) as well as Holmes and Rahe (in Cotton, 1990: 31), based their work on the stimulus-based model. They viewed stressors as discrete life events that when experienced in sufficient amounts, gave rise to serious effects on both psychological and social wellbeing. A good example is Holmes and Rahe's Social Readjustment Rating Scale (in Schell, 1997: 75), which showed that life changes had a very stressful impact on people.

The stimulus-based approach has a number of weaknesses. Cox (1978: 17) asserts that "the major one is that of identifying with some surety what is stressful about particular real-life situations". In some cases it is easy to see why a situation is stressful, for example stoking a blast furnace, but in others such as teaching it may not be as obvious. Also the methodology to study these real-life

situations, for example the first case is relatively easy, but in other cases such as the second example, is doubtful as it often is based on retrospective verbal reports, which is often inaccurate. Also a real-life situation may be viewed as stressful by some and not by others.

3.2.4 Psychological-based approaches

The psychological models of stress emphasize the role of perceptual and cognitive characteristics, which are important in explaining individual differences regarding their response to stress (Cox & MacKay, 1981: 99). A psychological model of stress is given (Figure 3.4).
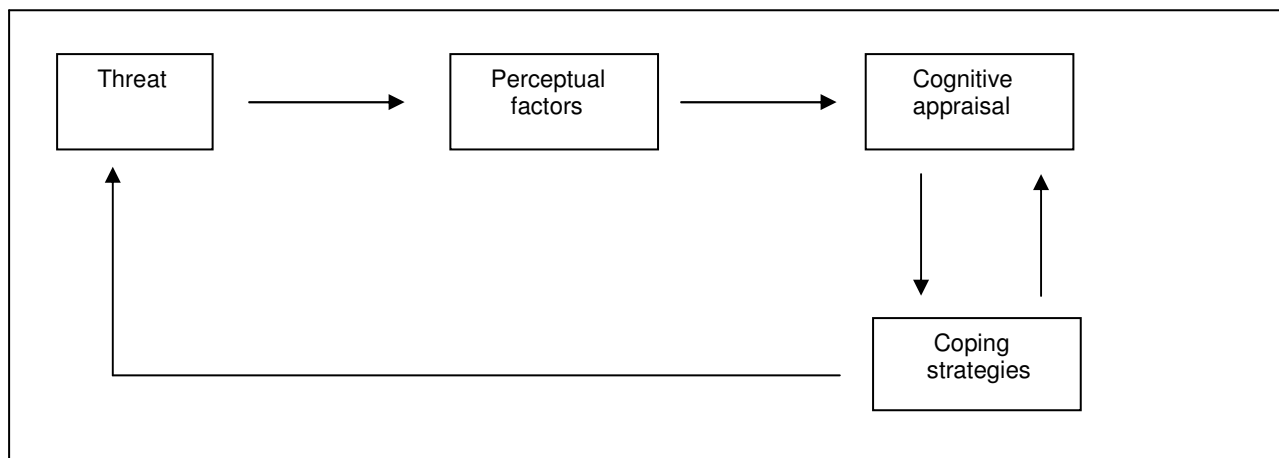
Figure 3.4: A psychological model of stress with the emphasis on perceptual and cognitive processes
(Cox & MacKay, 1981: 99)

The transactional (Cox & MacKay, 1981: 101) and cybernetic models of stress (Cummings & Cooper, 1998: 101) further exemplify the psychological-based approaches to stress.

3.2.4.1 Transactional models of stress

Two variations of the transactional models of stress will be discussed, namely Lazarus's and Cox's models. Cox and MacKay's transactional model is used as the framework by the developers of the Experience of Work and Life Circumstances Questionnaire.

1)   Lazarus's transactional model of stress

Lazarus (in Cox & MacKay, 1981: 99; Cummings & Cooper, 1998: 105) has developed an important psychological model of stress in which he suggests that 'stress occurs when there are demands on the person that tax or exceed his adjustment resources'. Thus if the individual views the situation as stressful it is due to his or her cognitive appraisal of the environment.

23

The objective characteristics of the situation are not considered. Lazarus and Folkman (1984: 53) have identified three kinds of cognitive appraisal: primary, secondary, and reappraisal where primary appraisal consists of the judgment that an encounter is irrelevant, benign-positive, or stressful, secondary appraisal refers to a judgment concerning what might and can be done and reappraisal is when the appraisal is changed based on new information from the environment and/or the person. Stress is not induced but is viewed as a process between the individual and his or her environment in which threat and coping play a role. Questions that a person may ask are such as "What choices do I have?"; "Can I implement a particular option?"; and "Will it work?" (Wainwright & Calnan, 2002: 61). The process of appraisal explains why some individuals are able to cope or even thrive under stressful conditions, whereas others won't.

2)   Cox and MacKay's transactional model of stress

Cox and MacKay (Cox, 1978: 18; Cox & MacKay, 1981: 101) have outlined another important psychological model of stress in which they define stress as an individual phenomenon and the 'result of a transaction between the person and his situation'. Cox uses the word transaction to 'emphasize the active and adaptive nature of the process'. Thus stress is described as 'part of a complex and dynamic system of transactions between the person and his environment' (Cox, 1978: 18).

This model includes both the response-and stimulus-based definitions of stress and emphasizes that stress is 'an individual perceptual phenomenon rooted in psychological processes' (Cox, 1978:18). Emphasis is also placed on the feedback aspects implying that the system is cyclical rather than linear. The system consists of five stages.

Cox (1978: 19) describes the first stage as representing 'the sources of demand relating to the person' and it forms part of the individual's environment. These demands are either external, derived from the environment, or internal in the form of psychological and physiological needs, the fulfilment of which determines the individual's behaviour.

The second stage consists of the individual's perception of the demands and his or her ability to cope with the demand. Cox (1978: 18) states that 'stress may be said to arise when there is an imbalance between the perceived demand and the person's perception of his capability to meet the demand'. It is important to realize that the important balance or imbalance is between the perceived demand and the individual's perceived capability and not between the demand and the individual's actual capability. The individual's cognitive appraisal of the potentially stressful situation and his or

her capability to cope is important here. When a high demand is made on an individual, he or she will not experience stress until he or she has reached his or her limitations. At this point the individual realizes he or she cannot cope anymore and then experiences stress due to the recognition of his or her limitations and the imbalance between the demand and capability. This imbalance will be experienced on a subjective or emotional level coupled with changes on a physiological level as well as cognitive and behavioural attempts to 'reduce the stressful nature of the demand' (Cox, 1978: 20). The third stage is associated with the psychophysiological stages, which correspond to the response to stress. Cox (1978: 20) feels that 'these responses are sometimes thought of as the end point of the stress process' and 'should be regarded as methods of coping available to the person'. The fourth stage which Cox (1978: 20) feels is frequently ignored and is 'concerned with the consequences of the coping responses', whether actual or perceived. The fifth and last stage of the model revolves around feedback and is found to occur at all of the other stages determining the outcome at each of the stages.

Cox (1978: 20) states that 'inappropriate and ineffective response strategies will invariably prolong or even increase the experience of stress'. If inappropriate coping occurs at this point it can result in further physiological and psychological damage. This model, according to Cox (1978: 20), 'treats stress as an intervening variable, the reflection of a transaction between the person and his environment' and 'it is part of a dynamic cybernetic system'.

3.2.4.2 Cybernetic theory of organizational stress

Cummings and Cooper (1998: 101) present a cybernetic theory of stress derived from the framework and concepts of cybernetics or systems control. They state that 'the basic premise of this theory is that behaviour is directed at reducing deviations from a specific goal-state'. They use Miller's application of cybernetics to living systems, which explains how living systems, whether plants or animals, maintain themselves in steady states or homeostasis (Cummings & Cooper, 1998: 102). Homeostasis is maintained by keeping a variety of variables in balance such as those that have to do with the import, transformation, and export of matter/energy and information. When homeostasis is disrupted from either inside or outside the system by forces, they are counteracted so as to restore the original balance.

Stress as well as threat incorporates environmental factors affecting the individual, the resultant effects, and the individual's reactions (Appley & Turnbull, in Cummings & Cooper, 1998: 104). The environmental factors refer to those factors that impact the individual's normal functioning. Cummings and Cooper (1998: 104) feel that stress 'signifies those external factors that are

currently affecting the person', while threat in turn 'represents those conditions that the individual perceives are likely to affect him or her in the future'. The example they give is when 'a person's present employment status may not affect his or her behaviour adversely; yet the rumour that company downsizing is likely to occur and may result in job loss' which can be stressful.

The immediate effects or disruption is seen as a strain within the individual and his or her attempt to reduce it is termed the individuals adjustment process. Strain includes indicators such as rapid pulse rate or job dissatisfaction, whereas adjustment processes include behaviours such as smoking, excessive drinking or long-term effects of ineffective coping such as raised blood pressure or high cholesterol levels. Stress or threat can be viewed as the independent variable, strain as the intervening variable and the adjustment process as the dependant variable.

Cummings and Cooper (1998: 104) state that cybernetic theory allows stress to be depicted as an information-feedback cycle. This process or stress cycle has four distinct phases, the detection of strain, choice of adjustment processes, implementation of adjustment processes, and affects of adjustment processes on the stress or threat situation.

3.3   Main causes and sources of workplace stress

There are a number of approaches to discussing the main causes and sources of workplace stress (Luthans, 2002: 397; Cartwright & Cooper, 1997: 13; Quick *et al*, 1997: 21). The categories most often alluded to include extraorganizational stressors, organizational stressors, group stressors, and individual stressors (Luthans, 2002: 397)

3.3.1   *Extraorganizational causes and sources of stress*

Luthans (2002: 398) feels that people often ignore the important role, which factors outside the organization can play in workplace stress. When the organization is viewed as an open system, then it can be expected that forces outside of the organization will contribute towards workplace stress, affecting individuals inside the organization. These are societal/technological change, globalisation, the family, relocation, life changes, and race, sex, and social class (Luthans, 2002: 398).

3.3.1.1 Rate of social and technological change

The rate at which social and technological change is taking place all over the world, has and is having a great impact on the way people live, which in turn has an impact on their work (Luthans, 2002: 398). Political change and the introduction of affirmative action programmes affect the

individual in the workplace increasing their levels of reported stress (Van Zyl, 1998: 24). The fast pace of modern living has 'increased stress and decreased personal wellness' where wellness refers to 'a harmonious and productive balance of physical, mental, and social wellbeing brought about by the acceptance of one's personal responsibility for developing and adhering to a health promotion program' (Reiter, in Luthans, 2002: 398). Due to the 'rat-race' and the fast pace of life, wellness has deteriorated and the potential for stress occurring in the workplace has increased.

3.3.1.2 Family

An individual's family situation, which can include crises such as a squabble or illness of a family member or a strained relationship with the spouse or one or more of the children, has the capacity to generate stress for employees (Luthans, 2002: 398). Employees may find it increasingly difficult to balance work and family due to longer working hours and late-night shifts (Atkinson, 1999: 57) thus putting more strain on work-family relationships (Carlson & Perrewé, 1999: 521; Sutherland & Cooper, 2000: 105). In firms with strong work performance norms conflict due to family-work demands led to job stress (Hammer *et al*, 2004: 89). The co-ordination of work and vacation schedules, and the search for child and elder care has become prominent and highly stressful (DeFrank & Ivancevich, 1998: 57). Dual-career couples may experience stress due to conflict with society's expectations concerning family roles resulting in feelings of guilt (Cartwright & Cooper, 1997: 148). Social support plays an important role in moderating the effects of time demands and role stressors in both the family and work domain reducing the level of work-family conflict (Carlson & Perrewé, 1999: 528).

Other factors that contribute to the employee's experience of stress due to the family situation include life changes such as a divorce, the general economic situation in the country, facilities at home, social situations, and status, amongst others.

3.3.1.3 Relocation

Relocation of the family due to a transfer or a promotion can lead to stress (Cartwright & Cooper, 1997: 153; Luthans, 2002: 398). The labour force is becoming more mobile, which is particularly the case for managers and other professionals (Cartwright & Cooper, 1997: 15). It is estimated that managers in the U.K. change jobs about once every three years. Moving can be traumatic and stressful because the individual has to give up his or her job, family, and outside activities. Further the age, qualifications, job skills, and the personality of the individual influences the way the move is viewed and interpreted. According to the U.S. Department of Labor, the 'typical American family' consisting of a working husband, a homemaker wife, and an average of two children, represents

only 7% of the families in the U.S.A. In Britain, nearly 65% of all women work, mostly full-time (Cartwright & Cooper, 1997: 21). Not only do dual-career families affect women but also men, as part of their career, are expected to be mobile and move to different localities, whether within their country or abroad. If the man was the sole breadwinner, this may have occurred more easily. Now, such a decision will create problems for both working members of the family (Cartwright & Cooper, 1997: 22). Expatriate managers may experience a culture shock when assigned to a foreign country for a specific length of time and when they return to their home country after their contract has expired they may experience isolation, both significant sources of stress (Sanchez, Spector, & Cooper, 2000: 103).

3.3.1.4 Life changes

Changes that an individual may experience over the life span may be slow such as getting older or may be sudden such as the death of a spouse (Luthans, 2002: 398). Age is something that creeps up on a person and suddenly he or she becomes aware that 'old' is no longer a label that applies to others but now applies to him or herself (Cartwright and Cooper, 1997: 64). Certain life events remind one of one's own mortality such as the loss of one's parents, the death of a member of one's peer group or the birth of a grandchild.

Cartwright and Cooper (1997: 65) state that 'the most vulnerable group are executives in their late 40s and 50s, who are likely to be abusing alcohol and coping with alienated children, aging parents, and extensive financial commitments'. There is a definite correlation between the extent of these life changes and the quality of the individual's health (Rahe & Holmes, in Cotton, 1990: 32). The greater the number of life changes, the greater the risk of illness or accident attributable to stress becomes, which in turn may impact on the work situation. Divorce is one life change that interferes with work more than any other life change, especially in the first three months after the one spouse has left the other (Crosby, in Luthans, 2002: 398).

3.3.1.5 Race, sex, and social class

Sometimes minority groups may experience more stressors than majority groups (Luthans, 2002: 398). Stress-inducing issues include differences in beliefs and values, differences in opportunities with regard to rewards and promotions, and perceptions by minority employees that they are being discriminated against or lack of fit between them and the organization (Schneider & Northcraft, 1999: 1451). Individuals are likely to avoid contact with others they perceive as different (Brewer, in Schneider & Northcraft, 1999: 1452). Those that do not fit in become alienated and may decide to leave.

Affirmative action may cause high level of stress when individuals are promoted to high level positions when they have not been adequately trained for these positions (Moerdyk in Van Zyl, 1998: 22).

A review of 19 studies showed that women seem to experience more psychological distress than men, whereas men are more susceptible to severe physical illness (Jick & Mitz, 1985: 418). Professional women experience stressors similar to those of men, such as role, job and environmental demands (for example physical setting), interpersonal demands (relationships with superiors), and extraorganizational demands (e.g., relationships with spouse and children). Unique stressors specific to professional women include discrimination, stereotyping, conflicting demands of both marriage and family with work and career, as well as social isolation (Nelson & Quick, 1985: 207).

Social class is recognized as playing a large part in shaping individual's health behaviours including stress (Chin, Monroe, & Fiscella, 2000: 318). Behavioural risk factors such as smoking, high fat diet, inadequate physical activity, drug and alcohol use, and unsafe sexual behaviour are strongly associated with lower social class.

3.3.2   *Organizational stressors*

Not only does the individual have to contend with potential stressors outside the workplace, but also with those that are generated within an organization. These stressors are unique to the organization and occur at the macrolevel dimension of the organization (Luthans, 2002: 399). The macrolevel comprises four categories of potential stressors, which include administrative policies and strategies, organizational structure and design, organizational processes, and working conditions (Figure 3.5).

Cartwright and Cooper (1997: 14-21), Luthans (2002: 399), Moorhead and Griffin (1989: 197-201; Quick *et al*, 1997: 21; Sutherland & Cooper, 2000: 101) focus on a number of factors within the organization that may cause stress. These include task demands, physical demands, role demands, interpersonal demands, and career stress.

3.3.2.1 Task demands

Task demands refer directly to the specific job an individual is performing and includes the type of occupation, job security, workload, and new technology. Moorhead and Griffin (1989: 198) state that 'some occupations are simply more stressful than others' and mention occupations such as

that of a surgeon, air traffic-controller, and professional football coach being more stressful than occupations such as a general practitioner, airplane baggage-loader, and team trainer. Shift work (Cartwright & Cooper, 1997: 15) is a common occupational stressor that influences metabolic rate, blood sugar levels, and work motivation amongst others.

ADMINISTRATIVE POLICIES AND STRATEGIES
Downsizing
Competitive pressures
Merit pay plans
Rotating work shifts
Bureaucratic rules
Advanced technology

ORGANIZATIONAL STRUCTURE AND DESIGN
Centralization and formalization
Line-staff conflicts
Specialization
Role ambiguity and conflict
No opportunity for advancement
Restrictive, untrusting culture

ORGANIZATIONAL PROCESSES
Tight controls
Only downward communication
Little performance feedback
Centralized decision making
Lack of participation in decisions
Punitive appraisal systems

WORKING CONDITIONS
Crowded work area
Noise, heat or cold
Polluted air
Strong odor
Unsafe, dangerous conditions
Poor lighting
Physical or mental strain
Toxic chemicals or radiation

JOB STRESS

Figure 3.5: Macrolevel stressors of an organization (Luthans, 2002: 399)

Job security also can influence an individual's perception of stress. Moorhead and Griffin (1989: 199) feel that someone 'in a relatively secure job is not likely to worry a lot about losing that job', whereas if 'job security is threatened, stress can increase dramatically' due to layoffs or immediately following a merger. Reengineering, restructuring, and downsizing have become

regular occurrences in order to stay competitive in a global market (DeFrank & Ivancevich, 1998: 56). Research on downsizing has been shown to be highly stressful for employees (Jick in Sutherland & Cooper, 2000: 10). Survivors often 'experience tremendous pressure from the fear of future cuts, the loss of friends and colleagues, and an increase in workload' (DeFrank & Invancevich, 1998: 57). Armstrong-Stassen (2002: 10) observed that when an employee was declared redundant but remained in the organization after the downsizing was complete, she reported a significant increase in organizational trust, commitment, and job satisfaction.

Workload can be perceived as either too much or too little, for example work-underload or work-overload. Work-underload often refers to routine jobs 'that demand too little in terms of demonstration of skills or use of knowledge and experience' and are as stressful as jobs with high role overload and that required high levels of responsibility (Quick *et al*, 1997: 27). This is often associated with boredom, apathy and lack of motivation to work (Sutherland & Cooper, 2000: 174). Work-overload 'occurs when a person simply has more work to do than he or she can handle' (Moorhead & Griffin, 1989: 199). This can refer to too many tasks to do or to little time to complete the tasks in (quantitative overload), or the subjective feeling that the individual may feel incompetent to do the job (qualitative overload). Quantitative overload leads to long working hours which may take a toll on employee health (Cartwright & Cooper, 1997: 15). Research has established a link between extended shifts and deaths due to coronary disease (Breslow & Buell, and Russek & Zohman, in Cartwright & Cooper, 1997: 15).

The introduction of new technology 'has required management and workers alike to continually adapt to new equipment, systems, and ways of working' (Cartwright & Cooper, 1997: 16). Keeping up with new technology in order to maintain technological superiority or having a boss trained in the "old ways" or not adapting to new technology is a great source of pressure at work. A new term was coined for the adverse reactions some individuals show when confronted with new technology: it is called technostress (Genco, 2000: 42). These individuals feel inadequate and frustrated because they are not up-to-date with the new technology. The stress they experience leads to feelings of helplessness, loss of motivation, mood swings, and even depression.

3.3.2.2 Physical demands

Physical demands refer to the working conditions, which include the physical surroundings, and the design or physical setting of the workplace (Cartwright & Cooper, 1997: 14; Moorhead & Griffin, 1989: 199; Quick *et al*, 1997: 21).

Physical surroundings refer to aspects such as noise, humidity, lighting, smells, and temperature. Excessive noise, vibrations, heat, cold, humidity dry air, poor lighting, extremely bright lighting or other rays such as ultraviolet light and electromagnetic radiation can result in stress. The design or physical setting of the workplace may be another source of stress. A poorly designed office could make it difficult for individuals to have privacy, or could result in too much or too little social interaction (Moorhead & Griffin, 1989: 200). Too much interaction may distract the individual from the task at hand, while too little could result in boredom or even loneliness. Typical managers in organizations mainly function within an office environment and are therefore not being exposed to hazardous situations and noxious agents that blue-collar workers are subjected to.

3.3.2.3 Role demands

Role demands refer to a set of behaviours associated with a particular position or particular role the individual has in a group or organization (Moorhead & Griffin, 1989: 200). When these are clearly defined and understood and the individual experiences expectations as clear and non-conflicting, stress should be at a minimum (Cartwright & Cooper, 1997: 16). Although individuals bring different roles into the organization the most important role they have at work is their organizational one (Luthans, 2002: 408). An individual may experience stress as a result of role ambiguity and conflict, and responsibility for others.

1)   Role conflict and ambiguity

Role conflict and ambiguity develops when an individual is uncertain about his or her job definition, work objectives, co-workers' expectations, and responsibilities of his or her job (Cartwright & Cooper, 1997: 17; Luthans, 2002: 408). Role conflict and ambiguity may result in lowered self-esteem, depressed mood, life dissatisfaction, low motivation to work, and job turnover.

Role conflict can be experienced as incongruence between two or more roles (Moorhead & Griffin, 1989: 200) or when an individual experiences conflicting job demands (Cartwright and Cooper, 1997: 17). Role ambiguity can be defined as a lack of clarity regarding the exact nature of a particular role (Moorhead & Griffin, 1989: 250). This can result from having a poor job description, obtaining unclear instructions from the supervisor, or unclear cues from fellow workers.

The literature on organizational development describes three different types of role conflict often experienced by both mangers and their fellow workers (Luthans, 2002: 408):

- Interrole conflict, which can happen when a person experiences conflict among two or more roles that must be played at the same time. Work roles and non-work roles are often found to be the cause.

- Intrarole conflict may be created by contradictory expectations as to how a given role should be played. Luthans (2002: 408) gives the example of a manager, who is unsure whether he or she should be autocratic or democratic when dealing with his or her subordinates.

- Person-role conflict may result from a basic incongruence between the person and the expectations of the role. Moorhead and Griffin (1989: 251) illustrate this by a peace activist working for a weapons factory, although it goes against this person's beliefs.

Chen and Spector (1992: 179) gathered self-report data from 400 white-collar employees found in a number of different occupations. Among the variables measured they found that work stressors such as role ambiguity and role conflict gave rise to interpersonal aggression and sabotage.

2)   Responsibility for others

According to Cartwright and Cooper (1997: 17) there are two types of responsibility, one for people and one for things such as budgets, equipment, and buildings. Individuals taking responsibility for people would have to spend more time dealing with people, going to meetings, and trying to meet deadlines, were more likely to experience stress than those not working with people.

3.3.2.4 Interpersonal demands

Interpersonal demands refer to pressures, which are experienced by individuals as exerted by co-workers. Group pressures and relationships at work create demands on the individual resulting in an increase in stress (Moorhead & Griffin, 1989: 200; Cartwright & Cooper, 1997: 18).

1)   Group pressures

Group pressures according to Moorhead and Griffin (1989: 200) 'include such things as pressure to restrict output, pressure to conform to the group's norms', as well as exerting pressure on individuals to conform. If the individual varies from the group's expectations, he or she may experience high levels of stress.

2)   Relationships at work

Relationships at work may also be a major source of stress. When poor relationships exist between colleagues, this may lead to irritation which over time leads to a decrease in self-esteem and an

33

increase in anxiety (Mohr in Dormann & Zapf, 2002: 34). Anxiety leads to depressive symptoms further impacting self-esteem. Social isolation may occur exacerbating the depressive symptoms. Psychosomatic complaints may also be reported. Cartwright and Cooper (1997: 18) mention that emotional problems may result 'when the relationship between a subordinate and a boss is psychologically unhealthy for one reason or another'. Employees that experienced high levels of work stress also had a negative perception of the group that they worked in (Jex & Thomas, 2003: 166) and thus possibly impacting on group effectiveness.

Buck (in Cartwright & Cooper, 1997: 18) found that 'when a boss was perceived as "considerate", the subordinates felt that there was "friendship, mutual trust, respect, and a certain warmth" between boss and subordinate". Those subordinates that felt that their bosses were inconsiderate experienced more job pressure. The reverse also holds true. Relationships with subordinates can also be stressful particularly for those in managerial positions with technical and scientific backgrounds as they may lack people skills (Cartwright & Cooper, 1997: 18). Competition and personality conflicts among co-workers may also result in stress (Cartwright & Cooper, 1997: 19; Moorhead & Griffin, 1989: 200). Abrasive, hard-driving individuals cause stress for co-workers because they ignore the others' feelings and their way of interacting (Levinson, in Cartwright & Cooper, 1997: 19).

3.3.2.5 Career stress

For many individuals a career spanning a lifetime is of great importance. Being promoted, gaining increased status, getting higher salaries, and finding better opportunities has all been associated with career development (Moorhead & Griffin, 1989: 638). Today however, lack of job security, fear of job loss, and obsolescence or retirement are common features of working life (Cartwright & Cooper, 1997: 19). Job opportunities are becoming scarce due to downsizing to create smaller, flatter and more effective organizations. Organizational downsizing is associated with a significant decline in job satisfaction (Ashford, Lee & Bobko in Campbell-Jamison *et al*, 2001: 42), as well as motivation and loss of commitment towards the organization (Campbell-Jamison *et al*, 2001: 42). The resultant job insecurity is experienced as highly stressful. Uncertainty about future career possibilities may be another source of career stress (Möller & Spangenberg, 1996: 348). A study conducted on stress and coping amongst South African dentists found that nearly half of the respondents were uncertain about their future career direction and options.

3.3.3 Group stressors

The group is a great potential source of stress, which includes the lack of group cohesiveness and social support.

Lack of group cohesiveness refers to the sense of "togetherness" the employee's experience, especially at the lower levels of the organization. When the employee does not experience a sense of cohesiveness, it can lead to high levels of stress (Luthans, 2002: 400). Cohesiveness is very important to employees, specifically at the lower levels of the organization. If the employee cannot be part of the group due to either the task design, the supervisor preventing it, or when other members of the group shut the individual out, a lack of cohesiveness can be experienced as highly stressful. Lack of social support can be very stressful, as the individual cannot share their ups and downs with others. Quick *et al* (1997: 197) conclude that there is a strong connection between social support and health. For example, socially isolated individuals are less healthy both physically and psychologically and they are more likely to die (House *et al* in Quick *et al*, 1997: 196). In a cohesive group this is not expected to happen.

3.3.4 Individual stressors

Individual dispositions tend to moderate the affect that stressors have on the person (Luthans, 2002: 401; Schell, 1997: 222; Quick *et al*, 1997: 47). These include individual dispositions such as Type A and B personalities, learned helplessness, self-efficacy, psychological hardiness and optimism.

3.3.4.1 Type A and B personalities

Type A personality refers to an individual that Friedman and Rosenman (in Luthans, 2002: 401) define as 'an action-emotion complex that can be observed in any person who is aggressively involved in a chronic, incessant struggle to achieve more and more in less and less time, and if required to do so, against the opposing efforts of other things or other persons'.

Schell (1997: 226) describes them 'as individuals that walk fast, talk fast, think fast, have relatively loud voices, are job- and task-fixated, use sarcasm, have forced rather than natural smiles, and talk over others if others take too long to come to the point'. They are highly competitive, work under constant pressures such as deadlines, are easily frustrated and unable to relax (Schell, 1997: 226; Luthans, 2002: 402). Type A personalities are associated with cardiovascular disease, specifically heart attacks. Most modern thinking associates type A personalities with anger and hostility that

leads to cardiovascular disease (Baron & Byrne, 2003: 449; Luthans, 2002: 402; Schell, 1997: 226). Type B personalities are in a sense the opposite to Type A, in that they are less competitive, less concerned about time, are more patient, have a lower sense of urgency, are more relaxed, and not typically associated with anger and hostility (Baron & Byrne, 2003: 449; Luthans, 2002: 402; Quick *et al*, 1997: 49).

3.3.4.2 Learned helplessness

Learned helplessness is a concept coined by Seligman (Luthans, 2002: 403) based on research over the feeling of loss of control initially conducted on dogs. Seligman and his colleagues have expanded this research to explaining individuals' sense of lack of control. Individuals are more likely to experience a sense of helplessness when they perceive the cause of loss of control:

- To be related to something about their personal characteristics (as opposed to outside, environmental forces;
- As stable and enduring (rather than just temporary);
- To be global and universal (cutting across many situations, rather than in just one sphere of life) (Luthans, 2002: 403).

When individuals feel that they do not have the ability to control their work situation, they will experience stress (Jackson, 1983: 17). When they are included in decision-making that affects them, their work stress decreases because their sense of control over their work environment increases. Any organizational change, such as a merger, is perceived as highly stressful as it is a situation over which the employee feels he or she has no control (Cartwright & Cooper, 1997: 33).

3.3.4.3 Self-efficacy

Self-efficacy refers to the individual's self-perception of his or her controllability over action and a specific perception of one's capacity to execute a particular task (Bandura in Maddi, 1996: 458). This disposition plays an important role in the ability to handle stress (Luthans, 2002: 311). Bandura *et al* (1985: 412) found that individuals with high self-efficacy had a relatively low physiological arousal level displayed by low epinephrine and norepinephrine secretion, whereas those individuals experiencing high levels of stress had high physiological arousal levels and displayed high catecholamine reactivity. Therefore those individuals with a high self-efficacy tended to remain more in control when faced with a stressful situation.

3.3.4.4 Psychological hardiness

When individuals are faced with extreme stressors, some may disintegrate at the slightest provocation, whereas others seem unfazed (Luthans, 2002: 403). Those individuals, who can cope well with extreme stressors, are viewed as being hardy. Kobasa (in Kobasa *et al*, 1982: 174) proposed that hardiness is a constellation of personality characteristics that function as a resource of resistance in the encounter with stressful life events and involves a commitment disposition, a control disposition, and a challenge disposition. A study of middle- and upper–level managers who were under considerable stress found that the hardy executives had a lower rate of stress-related illness and were found to be more involved in what they were doing (Kobasa *et al*, 1982: 174). They were committed, they viewed change as normal and challenging, and they felt that they could influence the events around them, giving them a sense of control.

3.3.4.5 Optimism

Optimism and pessimism reflect alternative styles of peoples' expectations of the future (Carver & Scheier, 2002: 231). People use these styles to predict whether future outcomes will be good or bad. The expectancies people have generally pertain to their entire life. Optimistic people expect to have positive outcomes even when circumstances are difficult. Pessimistic people expect negative outcomes under the same circumstances. Quick *et al* (1997: 52) state that optimists moderate stress by realizing that bad events and hard times 'are temporary, limited, and caused by something other than they them self'. Optimism is related to emotional wellbeing, quality of life and to lower levels of depression. Optimism was also related to problem-focused coping especially when the situation was viewed as controllable (Scheier, Weintraub, & Carver in Carver & Scheier, 2002: 235). Furthermore it was to the use of positive reframing and with the ability to accept the reality of the situation when the situation was viewed as uncontrollable.

3.4   Conclusion

Stress is a phenomenon that is here to stay. Since Selye first coined the term 'stress' in 1956, researchers find it a term that is not easily defined and conceptualised. The sources and causes of stress are many and varied, whether found within or without the organization, which were discussed extensively in this chapter. They include amongst others job insecurity, work-hours, control at work, managerial style, physical and role demands, as well as group stressors and career stress.

Stress is not necessarily bad for the individual but depending on the ability of the individual to cope with the perceived stressors, it may have detrimental consequences for both the individual and the organization. The ability to deal with the stressor effectively is mediated by the personality characteristics of the individual, which may for example include factors such as A type personality, hardiness, learned helplessness, and self-efficacy. For those individuals that appraise stress as harmful and difficult to cope with, their inability to do so has dire consequences for them, such as affecting him or her on a physical, psychological, and behavioural level. Cardiovascular disease and chronic bouts of depression are two of the main consequences of chronic work stress. Other stress-related disorders include short-term depression, anxiety, insomnia, migraine headaches, stomach ulcers, asthma, arthritis, and substance abuse. Stress may give rise to a demotivated workforce, absenteeism, work-related accidents, frequent or prolonged sick leave, decreased productivity, and costly disability claims costing the organization millions of Rand.

Organizations need to be aware of the hazards and stressors that may exist in the workplace and to take measures, that allows the organization to manage these effectively so as to protect the wellbeing of the employee but also to cover themselves against any potential legal action from affected employees. By taking appropriate measures organizations may enhance not only employee well being but also employee commitment and performance.

The present research makes use of the stimulus-response approach to stress in which workplace stress is viewed as a transaction between the individual and his or her environment. Although the stimulus-response approach allows for the use of different models, the present study will use Cox and McKay's five stage model (see section 3.2.4.1). The reason for this choice was that according to this model stress is described as a dynamic process in which the physical as well as the psychological characteristics of the individual play a role. Furthermore, the focus is on the important role of specific demands and the individual's ability to deal with them.

Cox (1978: 19) describes the first stage as representing 'the sources of demand relating to the person' and it forms part of the individual's environment. The demands and stressors impacting on the individual both within and without the organization will be measured. The second stage consists of the individual's perception of the demands and stressors and his or her ability to cope with these. When a high demand is made on an individual, he or she will not experience stress until he or she has reached his or her limitations. Thus the experience of stress whether high or low will again be assessed. The third stage is associated with the physical changes as well as cognitive and behavioural responses. These purport to reduce the immediate impact of the demands and stressors. Here the role of coping through social problem solving will be assessed. The fourth stage

focuses on the consequences of the coping responses, whether actual or perceived. These include the effect of the response both on a cognitive and behavioural level. In terms of the study this would include the experience of anxiety, depression, worry as well as expressions of workplace aggression. The fifth and last stage of the model revolves around feedback and is found to occur at all of the other stages influencing the outcome at each of the other stages.

The changing demographics and the corresponding changes occurring within organizations in South Africa necessitates continuing research on the causes and consequences of stress in the workplace. As the major causes of stress have been discussed affecting the individual in the workplace some of the specific consequences need to be discussed in more depth. Research on the phenomenon of aggression in the workplace has only mushroomed recently and no research at the time of writing has been reported in South Africa.

CHAPTER 4

AGGRESSION IN THE WORKPLACE

4.1   Introduction

In Pretoria a male walks into one of the offices at his workplace. He shoots and kills three of his female colleagues before he kills himself with a 7.65 pistol (Beeld, 22 August 1997).

Likewise similar incidences in other countries such as the United States of America, have been the focus of the media. Baron and Neuman (1996: 162) report that each week, on average of 15 people are murdered at work. However it must be noted that not all individuals who are murdered are as a result of an angry employee who shoots and kills his co-workers or supervisors. Instead, it usually occurs when outsiders enter the workplace for criminal purposes and attack workers. Workplace homicides were the second leading cause of death in the workplace for all employees by 1993 in the United States (Bureau of Labor Statistics in Neuman & Baron, 1998: 392). Other harmful but less dramatic aggressive acts occur with substantially greater frequency but are often not reported. Aggression as well as any form of violence in the workplace, whether physical or psychological in nature, is capable of causing harm to both the individual and the organization (Leather *et al*, 1998: 162).   The true extent of workplace aggression is often underacknowledged (Randall, in Leather *et al*, 1998: 162) and the extent of its consequences is understated (Barling, in Leather *et al*, 1998: 162).

Baron and Neuman (1996: 162) state that very limited numbers of individuals report that they have been threatened with physical harm or actually experienced such incidences by others at work. These researchers report incidences of 3% and 7%, respectively. Violence in the workplace may be sensational but is actually part of a greater problem, namely that of workplace aggression. Although some employees may be the victim of physical violence resulting in bodily harm and even death, most employees are the targets of less dramatic forms of aggression, such as 'aggression that is verbal in nature, or physical actions that are far less extreme than attacks with deadly weapons' (Baron & Neuman, 1996: 163).

Workplace aggression has been the focus of research over the last two decades with the majority of articles published after 1994 (Neuman & Baron, 1998: 392) with the emphasis on workplace homicides perpetrated by outsiders. The focus of this study is on acts of aggression that can be called covert (for example writing an anonymous letter, withholding of co-operation, spreading of rumours) and overt (for example consistent arguing, intense arguments with supervisors or co-workers, physical fights, destruction of property).

No literature at the time of writing could be found on aggression in the workplace for the South African context.

4.2   Aggression

The term aggression is firmly established in everyday language and in the 'technical vocabulary' of psychologists (Krahé, 2001: 10). Aggression comes from the Latin *aggressio* meaning to attack (Reader's Digest Complete Wordfinder, 1997) and is defined by the dictionary as 1) the act or practice of attack without provocation, especially beginning with a quarrel or war; 2) an unprovoked attack; 3) self-assertiveness; forcefulness; and 4) psychologically a hostile or destructive tendency or behaviour. This definition overlaps with the general definition given by Buss (in Geen, 2001: 2), which states that aggression is 'a response, that delivers noxious stimuli to another organism'. Aggression as used in ordinary day-to-day language does involve 'aversive stimulation of some sort and intensity, whether it be in the form of a bullet, a bomb, a physical blow, or some subtle act like an insult or an undeserved criticism' (Geen, 2001: 2). However some critics assert that this definition is too broad as it includes many forms of behaviour that should not be categorized as aggression, such as what is called "good aggression", and some assert it is too narrow as it excludes all non-behavioural processes, such as thoughts and feelings (Krahé, 2001: 10). Aggression is more complex as a purely behavioural definition would indicate. Additional elements need to be added to arrive at a more balanced definition. The first element that needs to be included is the intent to harm the victim, which, in turn presupposes the expectancy that the action will lead to a specific outcome (Geen, 2001: 2; Krahé, 2001: 10). The second element considers the motivation of the victim to avoid the harmful treatment. A person might tolerate, and even want to be punished to atone for guilt. This helps to exclude aggression, which is self-directed as in suicide or as a result of an injury inflicted in the context of sadomasochistic sexual practices. In the context of the discussion the definition that takes these elements into account is that proposed by Baron and Richardson (1994: 7), which states that aggression is 'any form of behavior directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment'. It leaves sufficient room for a range of factors that characterize different forms of aggression (Krahé, 2001: 11) (Table 4.1).

Often researchers classify aggressive behaviour according to two categories, hostile or affective aggression, and instrumental aggression. The former refers to the harming of the target as the main motive for the act, and the latter which 'may or may not involve strong emotions' (Geen, 2001: 4) refers to 'the aim to reach an intended goal by means of the aggressive act (Krahé, 2001: 11).

Table 4.1: Factors that characterize different forms of aggression

Aspects of a typology of aggressive behaviour	
Response modality	**Verbal vs. physical**
Response quality	**Action vs. failure to act**
Immediacy	**Direct vs. indirect**
Visibility	**Overt vs. covert**
Instigation	**Unprovoked vs. retaliatory**
Goal direction	**Hostile vs. instrumental**
Type of damage	**Physical vs. psychological**
Duration of consequences	**Transient vs. long-term**
Social units involved	**Individuals vs. groups**

Aggression has long been an extensively researched topic in social psychology (Edwards, 1999: 129). A number of theories have been developed to try and answer the question why individuals aggress against one another. These include the instinct theories, biological theories, drive theories, social learning theories, cognitive theories, and personal causes of aggression. The role of anger in aggression will also be discussed and the difference between aggression and violence will be highlighted.

4.2.1 Instinct theories

Instinct theories are the oldest and possibly the best-known explanation for human aggression, which states that 'human beings are somehow programmed for violence by their basic nature,' (Baron & Byrne, 2003: 435). Aggression is therefore viewed as part of ones physical nature (Edwards, 1999: 133). Freud (Baron & Byrne, 2003: 435) suggested that aggression stems mainly from the death wish or instinct, which he called Thanatos. This instinct inherent in all people is initially aimed at self-destruction, but to prevent that, it is redirected outward, towards others. If the hostile impulses that are generated over a period of time are not released and reach high levels, it could lead to dangerous acts of violence.

Konrad Lorenz (Baron & Byrne, 2003: 436; Edwards, 1999: 138) held that aggression was derived from a '*fighting instinct*' common to both human beings and many other species. This instinct probably 'developed during the course of evolution because it yielded important benefits–for example, dispersing populations over a wide area'. He explained aggression as behaviour triggered by specific external stimuli following a progressive accumulation of aggression-specific energy (Geen, 2001: 10, Krahé, 2001: 29). Aggression will be released followed by a new build-up of energy. If the energy level becomes too high without prior release by an external stimulus, it will overflow, with spontaneous aggression the outcome. Lorenz (Baron & Byrne, 2003: 436) also saw aggression as closely related to mating as it assured that the 'strongest and most vigorous individuals' would 'pass their genes on to the next generation'. Sociobiologists view aggression as an aid to the male of the species in obtaining mates. Higher levels of aggression, at least among males, would increase the chances of passing on its genes

to the next generation thus favouring the principles of natural selection (Baron & Byrne, 2003: 436).

Lorenz's application of animal studies to human aggression has been criticised on conceptual and empirical grounds. Mummendey (in Krahé, 2001:29) believes that it is impossible to measure the amount of aggressive energy found in an individual at a given time. This assertion is debatable as the Szondi test may be used to measure the amount of aggressive energy (Szondi, 1972: 307-311). The assumption that the available energy is used up in an aggressive act is also problematic, as it would imply that it is not possible to trigger another aggressive response before the reservoir is sufficiently filled. Research has shown that humans can act aggressively in quick succession as the first aggressive act precipitates further acts of aggression.

4.2.2   Biological theories

Biological theories view the role of biological factors as important in the understanding of aggressive behaviour (Baron & Byrne, 1997: 394; Edwards, 1999: 133). Brain functions have been studied in animals, which show the limbic system is associated with fragments of aggressive acts (Edwards, 1999: 134). However it is difficult to study human brain function in the same manner and the only information is typically obtained from accidents, disease, and exploratory surgery. Neuroscientists have shown that the amygdala, found in the limbic system is associated with emotions such as anger, rage and the fight or flight response (LeDoux in Goleman, 1996: 16).

Neurotransmitters, hormones, and chemical poisoning are believed to play a role in aggression (Baron & Byrne, 1997: 394; Edwards, 1999: 135). Neurotransmitters that are thought to be associated with acts of aggression are serotonin, norepinephrine, and dopamine, when present in high concentrations in the limbic system. However no direct link between neurotransmitters and aggressive acts has been found. Higher levels of serotonin have been found in persons that attempted suicide and those who were institutionalised since childhood because of extremely high levels of aggression (Baron & Byrne, 1997: 395).

Sexual hormones are thought to be associated with aggressive acts (Edwards, 1999: 136). Men are more likely to be aggressive and violent than women. This difference is thought to be due to the relative proportions of male and female sex hormones. In a meta-analysis of 45 independent studies Book *et al* (2001: 581) found a weak positive relationship between testosterone and aggression which was consistent with past meta-analysis (Archer in Book *et al*, 2001: 581). They also found that two variables moderated this relationship. The one variable referred to the age of the participant, where the effect size was largest in the 13- to 20-year old males and it

declined with age. The other variable was the time of day the testosterone was measured as this influenced the reliability of the testosterone levels. For males, the observed relationship between testosterone and aggression was highest in the afternoon with the measurement being the most reliable.

Chemical poisoning that is induced by abnormal brain chemistry is sometimes found to be associated with aggression (Edwards, 1999: 136). Some individuals with low blood sugar (hypoglycaemia) behave aggressively whereas others may become depressed and withdrawn. Alcohol in some individuals may weaken their moral and social controls and they may act aggressively.

These findings indicate that biological factors do play a role in human aggression but are mediated by social and cognitive factors. Baron and Byrne (1997: 395) put it aptly stating 'where human aggression is concerned, biology may be important, but it is definitely *not* destiny'.

4.2.3 Drive theories

Drive theories of aggression view that aggressive acts stem from the presence of a drive called aggression (Edwards, 1999: 142). The most well known of these theories is the frustration-aggression hypothesis, which proposes that when people become frustrated, because their ongoing, goal-directed behaviour is blocked or thwarted, a strong motive to respond aggressively is aroused (Baron & Byrne, 2003: 436; Dollard *et al.*, in Huessmann, 1994: 3). The aggressive behaviour is directed towards the person or object perceived as the cause of the frustration, with the intent to harm (Baron & Byrne, 2003: 436; Edwards, 1999: 142; Krahé, 2001: 34). However, research shows that not all kinds of frustration lead to aggression, and that aggression sometimes does not stem from situations that are frustrating. Sometimes frustrated individuals may rather withdraw from the situation or become depressed.

Miller modified the original theory (in Krahé, 2001: 34) and converted it from a deterministic relationship between frustration and aggression into a probabilistic one, which states that 'frustration produces instigations to a number of different types of response, one of which is an instigation of some form of aggression'. Aggression is not the only response to frustration, but one a number of possibilities.

Whether or not frustration will lead to an aggressive act will depend on the role of moderating variables (Krahé, 2001: 35), for example fear of punishment for overt aggression or the unavailability of the frustrator will inhibit aggression. In some instances the aggression is "displaced" away from the frustrator onto a more easily accessible or less intimidating target.

4.2.4 Social learning theory

The social learning theory views that aggression is mainly learnt either through direct experience or by observing and modelling aggressive behaviours (Baron & Byrne, 1997: 396; Martinko & Zellars, 1998: 2). Bandura (in Eron, 1994: 5) proposed that an understanding of aggressive acts was dependant on how they were learnt and maintained through direct or vicarious experiences and the effect that factors such as role-reinforcement contingencies and punishment had on this learning. Eron (1994: 5) mentions that he demonstrated in his research that aggressive behaviours are learnt by "training" from 'various socializing agents, specifically parents, teachers, and peers'. Baron and Byrne (1997: 396) also mention that through both direct and vicarious learning, individuals learn who or what to direct their aggression towards, what actions by others justify or require an aggressive response, and when an aggressive response is called for or not.

4.2.5 Cognitive theories

Cognitive theories focus on cognitive factors that help determine how an individual will react towards environmental events impacting on him or her (Baron & Byrne, 1997: 396; Eron, 1994: 7). The first factor that plays a role is what Huesmann (in Eron, 1994: 7) described as cognitive scripts, likened to programs for social behaviour that developed during an individual's early development. These programs are stored in memory and act as guides for behaviour.

Another cognitive factor that influences behaviour is how the individual interprets the situation. This interpretation consists of an initial appraisal of the situation, which occurs very fast to assess if malice was intended, and which may be followed by a reappraisal, taking a little longer to assess the consequences if one responds in various ways (Anderson, in Baron & Byrne, 1997: 397).

Baron and Byrne (1997: 397) mention another factor that plays a role, namely the individual's current mood. Unpleasant or aversive experiences result in negative affect, which in turn influences a person's cognitive processes. This affect is associated on a primitive level with fight or flight tendencies, but also to thoughts and memories related to similar experiences which could result in aggressive behaviour (Berkowitz, in Edwards, 1999: 144). Baron and Byrne (1997: 398) summarize the complex interplay between cognitive appraisals, present moods, and the thoughts and memories associated with these experiences that may lead to aggressive behaviour (Figure 4.1).

45
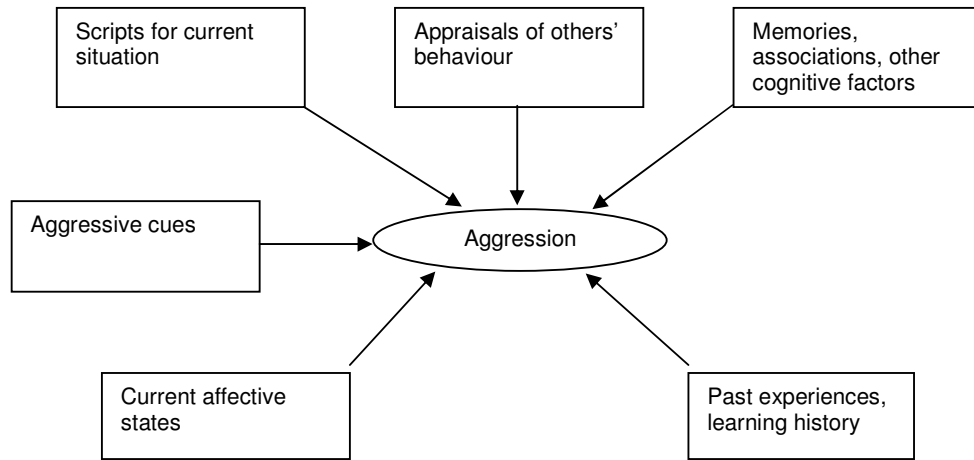
Figure 4.1: Cognitive theories of aggression

Modern theories of aggression do not focus on a single factor to explain the main cause of aggression and instead draws upon the advances in many fields of psychology. Anderson (in Lindsey and Anderson, 2000: 535) has proposed such a model of aggression, the general affective aggression model (GAAM), which depicts aggression as triggered by a wide range of input variables. It outlines the interplay of affective states, cognitive processes, and behavioural choices that lead to an aggressive act (Figure 4.2).
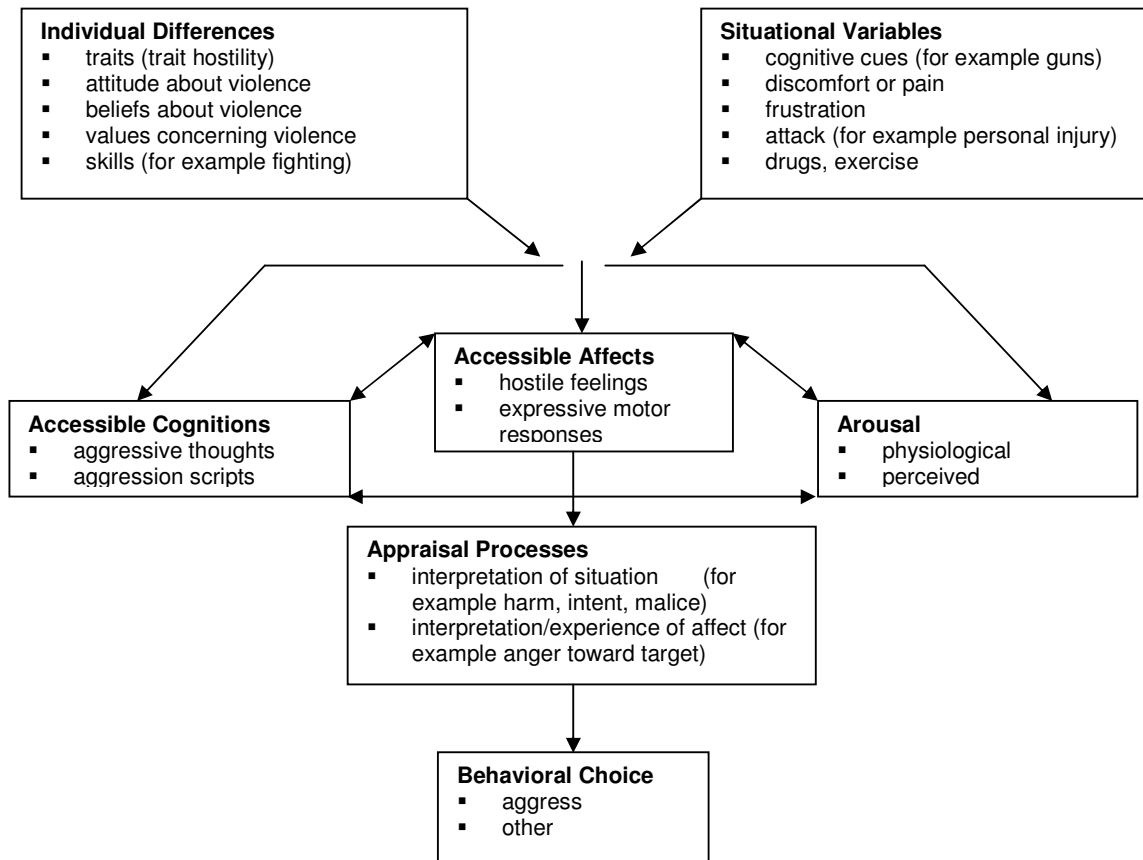
Figure 4.2: The General Affective Aggression Model

4.2.6 Personal causes of aggression

Research has shown that certain personal characteristics inherent in an individual may predispose him or her to engage in aggressive acts (Baron & Byrne, 1997: 411; Geen, 2001: 70; Krahé, 2001: 54). Type A personalities, hostile attribution bias, the "Big Five" dimensions of personality, antecedents of aggression, i.e., irritability, emotional susceptibility, and dissipation-rumination, and gender differences all are thought to play a role.

4.2.6.1 Type A personality

Type A, and B personalities have been discussed previously (see section 3.3.4.1.). Type A personalities tend to be more aggressive than type B personalities associating them with hostility and anger (Baron & Byrne, 2003: 449; Luthans, 2001: 402; Schell, 1997: 226). Type A personalities are more likely to engage in hostile aggression, in which the main goal of the A-type person is to inflict some kind of harm on the victim (Strube *et al* in Baron & Byrne (2003: 450). However, they are not more likely to engage in instrumental aggression than other personality types.

4.2.6.2 Hostile attribution bias

Hostile attribution bias refers to the individual's habitual tendency to interpret the actions or intentions of others as hostile even when there is no evidence for this (Baron & Byrne, 2003: 451; Krahé, 2001: 56). Dodge and his colleagues (in Baron & Byrne, 1997: 412) showed in their research with adolescents and adults in a prison setting that the 'tendency to perceive malice in the actions of others, even when it doesn't exist, is one personal characteristic closely related to high levels of aggression against others'. Krahé (2001: 56) notes that attribution style not only affects the way in which individuals interpret actions directed at them, it also shapes their social perceptions in general. She quotes Dill *et al* (Krahé, 2001: 56) who describe them as people who 'tend to view the world through tinted glasses'.

4.2.6.3 Antecedents of aggressive behaviour

Caprara *et al* (in Geen, 2001: 70) have found that a number of personality variables may act as antecedents of aggressive behaviour. Their research was able to delineate three constructs, namely irritability, emotional susceptibility, and dissipation versus rumination. Irritability refers to the habitual 'tendency to react impulsively, controversially, or rudely at the slightest provocation or disagreement'. Individuals that were habitually irritable showed increased levels of aggression compared to non-irritable individuals. When these individuals had been previously been frustrated the level of aggression was more pronounced.

Emotional susceptibility is defined as a tendency 'to experience feelings of discomfort, helplessness, inadequacy, and vulnerability' (Caprara *et al*, in Geen, 2001: 70). It is thought to be indicative for a generally higher readiness for aggressive behaviour. Individuals that were emotionally susceptible showed more aggressive behaviour, and similarly to irritability, more pronounced after being frustrated. These two constructs are examples of hostile or affective aggression (Krahé, 2001: 55).

Dissipation versus rumination refers to a tendency to 'retain or augment feelings of anger over time following provocation, as opposed to a tendency to dissipate such feelings and become less angry' (Caprara in Geen, 2001: 70). Individuals that are high dissipaters but low ruminators get over a provocative or hostile encounter in a short time without spending much time and effort in thinking about the encounter. However ruminators remain cognitively pre-occupied with the provocative or hostile encounter and are likely to retaliate.

Caprara and his colleagues (in Baron & Byrne, 1997: 413) found that certain characteristics including irritability, emotional susceptibility, and rumination were all related to aggression, which in turn were related to two dimensions of the "Big Five", i.e. agreeableness and emotional reactivity.

4.2.6.4 *"Big Five" dimensions of personality*

Research in recent years has shown that there are only five basic personality dimensions with respect to the human personality (Costa & McCrae, and Funder & Sneed, in Baron & Byrne, 1997: 413), which Baron and Byrne (1997: 413) describe as follows:

- Extraversion: A dimension ranging from sociable, talkative, fun-loving, affectionate, adventurous at one end to retiring, sober, reserved, silent, and cautious at the other.
- Agreeableness: A dimension ranging from good-natured, gentle, co-operative, trusting, and helpful at one end to irritable, ruthless, suspicious, unco-operative, and headstrong at the other.
- Conscientiousness: A dimension ranging from being well organized, careful, self-disciplined, responsible, and scrupulous at one end to being disorganized, careless, weak-willed, and unscrupulous at the other.
- Emotional Stability: A dimension ranging from being poised, calm, composed, and not hypochondriacally at one end to being nervous, anxious, excitable, and hypochondriacally at the other.
- Openness to Experience: A dimension ranging from being imaginative, sensitive, intellectual, and polished at one end to being down-to-earth, insensitive, crude and simple at the other.

The five-factor model is a version of trait theory, which asserts that individuals differ in their enduring emotional, cognitive, and behavioural styles along a mental-health continuum ranging from low to high (Schell, 1997: 211).

4.2.6.5 Gender differences

Gender differences regarding aggression are thought to be complex (Baron & Byrne, 1997: 414). It appears that males are more likely to perform aggressive acts and to be the recipients of such acts (Bogard & Harris, in Baron & Byrne, 1997: 414). Males, more than females, are more likely to aggress against others although not having been provoked in any way (Bettencourt & Miller, in Geen, 2001: 63). When provocation does occur, gender differences tend to disappear. Males are more likely to than females to be involved in physical acts of aggression such as hitting, punching, kicking, and use of weapons, amongst others. Females tend to be involved in verbal and various forms of indirect aggression that make it difficult for the victim to identify the aggressor or to even to realize that they have been the target of aggressive behaviour (Lagerspetz *et al*, in Björkqvist, Österman, & Lagerspetz, 1994: 31).

4.2.7   Anger

Anger is defined as 'extreme or passionate displeasure' (Reader's Digest Oxford Wordfinder, 1997) and is linked, but not always, to aggression. Aggressive acts are often associated with angry people, but some aggressive acts occur in the absence of anger (Edwards, 1999: 145). Anger is thought to be the result of brain activity specifically in the limbic system and specifically the amygdala (Edwards, 1999: 146; Goleman, 1996: 15). Edwards (1999: 146) explains that 'sensory information of events comes from cortex processing and is compared with space-time memories in the hippocampus and compared with affective meaning in the amygdala'. The amygdala can trigger an emotional response, which has a survival value such as the fight or flight response (Goleman, 1996: 299). Anger prepares the body from a physiological point of view for vigorous action by enabling blood to flow to the hands so as grasp a weapon or strike at an enemy, to increase the heart rate and to release hormones such as adrenaline.

Anger produces elevated levels of testosterone for men, and also epinephrine, norepinephrine, and cortisol (McKay *et al*, 2003: 21). Within a social context, anger can function as a way to correct violations of social rules (Edwards, 1999: 146). Averill (in Berkowitz, 1994: 14) found that individuals became angry when they were frustrated only to the extent that they regarded the behaviour of the person thought causing the frustration as unjustified. The frustrations were primarily unwarranted and violated some social rule.

The way anger is actualised by an individual is varied and can either be retained or projected outward (Schell, 1997: 153). Buss and Durkee (in Schell, 1997: 153) have outlined seven classes of anger and hostility:

- Assault: presents as physical violence against others. This outward sign of anger includes getting into fights with others but not destroying objects.
- Indirect Hostility: presents as both roundabout and undirected aggression. Roundabout aggression, like malicious gossip or practical jokes, is indirect in the sense that the "hated object" is not attacked directly but by devious means. Undirected aggression, like temper tantrums and door-slamming, consists of a discharge of negative affect against no one in particular; it is a diffuse kind of rage that has no target or direction.
- Irritability: presents as a readiness to explode with negative affect at the slightest provocation. This kind of aggression includes quick temper, grouchiness, exasperation, and rudeness.
- Negativism: presents as oppositional behavior, usually directed against authority. This kind of aggression involves a refusal to co-operate that may vary from passive non-compliance to open rebellion against rules or conventions.
- Resentment: presents as jealousy and hatred of others. This kind of aggression refers to a feeling of anger at the world over real or fantasized "mistreatment."
- Suspicion: presents as projection of hostility onto others. This kind of aggression varies from merely being distrustful and wary of people to beliefs that others are being derogatory or are planning harm against them.
- Verbal Hostility: presents as negative affect expressed in both the style and content of speech. Style includes arguing, shouting, and screaming. Content includes threats, curses, and being overcritical.

4.2.8   Violence

It is necessary to distinguish between aggression and violence as these two terms are often used interchangeably in ordinary language. Aggression is described as the actual act or process, whereas violence is seen as the consequence or outcome of the aggressive act (O'Leary-Kelly *et al*, 1996: 227). Violence is considered an extreme form of physical aggression and defined as 'the infliction of intense force upon persons or property for the purposes of destruction, punishment, or control' (Geen in Krahé, 2001: 13). The actions of an individual who attempts to physically injure a co-worker would be seen as aggression, whereas the resulting injury would be defined as violence. Tobin (2001: 100) defines violence as 'a severe, extreme, negative, and harmful disturbance to person or property, which includes violation of the rights of those involved.' He views the action taken at this level as 'terminal by the individual.' Mattaini *et al* (in Krahé, 2001: 13) identified six potential functions of violent behaviour:

50

- Change of, or escape from, aversive situations.
- Positive reinforcement, i.e., attainment of a particular goal.
- Release of negative affective arousal.
- Resolution of conflict.
- Gaining of respect.
- Attack on a culturally defined "enemy', i.e., a member of a devalued outgroup.

4.3 Aggression in the workplace

O'Leary-Kelly *et al* (1996: 228) propose a distinction between aggressive acts that are "organization motivated" and those that have their bases in factors outside the organization. They define organization-motivated aggression as 'attempted injurious or destructive behaviour initiated by either an organizational insider or outsider that is instigated by some factor in the organizational context'. Adopting this position allows the underlying motivation for an act to be the defining issue instead of the specific location where the act occurs, and this approach puts the focus on the individuals presently or previously, employed by the organization thereby limiting the nature of the relationship between the aggressor and the victim. Neuman and Baron (1998: 393) conclude that all forms of intentional harm doing in organizations would qualify as workplace aggression. The term violence would describe only serious instances of physical assault. They define workplace aggression as efforts by which 'individuals' harm others with whom they work, or have worked, or the organizations on which they are presently, or were previously, employed'.

An extensive body of research has become available over the past two decades investigating aggression in the workplace. Baron *et al* (1999: 282) write that less than 50 articles on workplace violence were published during the period 1987-1993, whereas more than 200 were published in the period 1994-1996 alone. Flannery (1996: 57) has reviewed a number of research studies published in the period 1970-1995 focusing on physical forms of violence such as homicide, assault, and rape, as well as exposure to danger and man-made disasters and their impact on psychological health. These incidents of violence do not typically occur between fellow workers but occur when individuals from outside the workplace attack the employees. Considerably fewer studies have investigated less extreme forms of aggression taking place between co-workers, producing mainly psychological damage (Kaukiainen *et al*, 2001: 367). These types of aggressive actions may permit the aggressors to conceal their identity and in some instances their malevolent intentions (Baron *et al*, 1999: 282).

Björkqvist *et al* (1994: 31) conclude that aggressors generally seek behaviours that maximize the harm done to victims, while at the same time minimizing the danger to themselves. Physical aggression, for example, is effective but also risky, and if unsuccessful, the aggressor him- or

herself may get hurt. The effect/danger ratio describes the aggressors' subjective estimates of these two aspects. Generally aggressors prefer a large effect/danger ratio. This tendency of aggressors to disguise their identity and intentions has been described as covert, where as aggressors who do reveal their identity and their aggressive intentions have been called overt.

A number of factors in the workplace tend to further strengthen a high effect/danger ratio. Firstly, individuals in a given work environment are generally in repeated and prolonged contact with one another over an extended period of time. This may increase the probability of retaliation from these individuals Secondly, individuals in work settings often get to know one another well, and as they have to co-ordinate their activities, they often pay close attention to each other's behaviour (Baron & Richardson, in Neuman & Baron, 1998: 395). Anonymity, which has been shown to increase aggression, is found to be absent (Prentice-Dunn & Rogers, in Baron *et al*, 1999: 282). Thirdly, work settings have many potential witnesses who may observe aggressive actions. This may encourage aggressors to use forms of aggression that may conceal their identity from intended victims and other individuals so as to avoid disapproval of such behaviours. These reasons may motivate the aggressors to use covert forms of aggression rather than overt forms. Combining these three dichotomies, results in eight types of aggression, which can be applied to the workplace (Table 4.2).

Table 4.2: Types of aggression in the workplace

Types of aggression	Examples
Verbal-Passive-Indirect	Failing to deny false rumours about the target. Failing to transmit information needed by the target.
Verbal-Passive-Direct	Failing to return the target's phone calls. Giving the target the silent treatment.
Verbal-Active-Indirect	Spreading false rumours about the target. Belittling the target's opinions to others.
Verbal-Active-Direct	Yelling, shouting, making insulting remarks. Flaunting status or authority; acting in a condescending, superior manner.
Physical-Passive-Indirect	Causing others to delay action on matters of importance to the target. Failing to take steps that would protect the target's welfare or safety.
Physical-Passive-Direct	Purposely leaving a work area when the target enters. Reducing targets' opportunities to express themselves (for example scheduling them at the end of a session so that they don't get their turn).
Physical-Active-Indirect	Theft or destruction of property belonging to the target. Needlessly consuming resources needed by the target.
Physical-Active-Direct	Physical attack (for example pushing, shoving, hitting). Negative or obscene gestures toward the target.

A framework was developed by Buss (in Baron & Neuman, 1996: 163) to describe covert aggression. According to Buss (in Baron & Neuman, 1996: 163) aggressive acts can be classified in terms of three dichotomies: verbal-physical, direct-indirect, and active-passive. Verbal forms of aggression refer to efforts by the aggressor to inflict harm on others through

words rather than deeds, where as physical forms of aggression refer to overt actions with the intention to harm the recipient in some or other manner. Direct forms of aggression refer to aggressive acts in which harm is delivered directly to the victim, where as indirect forms of aggression seek to deliver harm through the actions of agents or through assaults on people or objects valued by the target. Active forms of aggression describe the harm achieved through the performance of some act, whereas passive forms of aggression describe the harm resulting from withholding of some action.

Research done by Baron and Neuman (1996: 169) using the eight combinations within the Buss framework showed that respondents reported witnessing verbal forms of aggression more frequently than physical forms. They also reported witnessing more passive forms of aggression than active forms, and indirect forms more than direct forms of aggression.

Exploratory factor analysis of this data revealed 33 variables subsumed by three dimensions, which were expressions of hostility, obstructionism, and overt aggression (Baron *et al*, 1999; 286; Neuman & Baron, 1998: 397). Expressions of hostility include behaviours that are primarily verbal or symbolic in nature (for example gestures, facial expressions, and verbal assaults) and occurred more often than any other form of aggression. Obstructionism includes actions that are aimed at impeding an individual's ability to perform his of her job or interfere with an organization's ability to achieve its objective. These tend to be passive or covert forms of aggression such as withholding some behaviour or resource. Obstructionism was significantly more prevalent in work settings than overt aggression. Overt aggression refers typically to workplace violence, which includes workplace homicide, but also non-fatal physical or sexual assault. However, the vast majority of employees never witness or experience these forms of assault. Sabotage and vandalism which includes property damage, destruction of machinery and goods, passing on defective work, flattening of tyres, scratching cars, planting computer viruses, deletion of important computer records, and writing on company furniture, as well as theft may also occur.

Kaukiainen *et al* (2001: 363) measured four types of observed and experienced aggression: direct overt, indirect manipulative, covert insinuating, and rational-appearing aggression. They found that indirect manipulative and rational-appearing aggression was perceived to be the most widely used aggression styles in the work place. These studies support the view that much of the aggression found in the workplace is covert rather than overt in nature.

4.3.1 *Causes of workplace aggression*

Aggression stems from the complex interplay of social, situational, and individual or personal factors (Douglas & Martinko, 2001: 548; Neuman & Baron, 1998: 402). These same factors may

be applied to organizational settings to understand workplace aggression and aid in the development of models of workplace aggression.

4.3.1.1 Social determinants of workplace aggression

Neuman and Baron (1998: 402) examined the potential effects of several social factors that seem especially relevant to aggression in the workplace. They included unfair treatment, frustration-inducing events, increased workforce diversity, and aggression-related norms of behaviour. The perception of unfair treatment, depending on the circumstances, is associated with conflict (Cropanzano & Baron in Neuman & Baron, 1998: 402), workplace aggression (Baron *et al*, 1999: 289), employee theft (Greenberg in Neuman & Baron, 1998: 402) and negative reactions to employee layoffs (Brockner *et al*, 1994: 402). Frustration-inducing events refer to the interference of ongoing, goal-directed behaviour (Neuman & Baron, 1998: 405). Frustration has been found to be positively correlated with aggression against others, interpersonal hostility, sabotage, strikes, work slowdowns, stealing, and employee withdrawal (Spector in Neuman & Baron, 1998: 403; and Storms & Spector in Neuman & Baron, 1998: 403).

Increased workforce diversity refers to the fact that the workplace is becoming increasingly diverse (Neuman & Baron, 1998: 403). This increased diversity may lead to heightened tension and interpersonal conflict because it places individuals with many differences such as age, gender, ethnicity, culture, and physical and/or mental capabilities, in close proximity of one another. When these differences are perceived as repulsive, it may generate feelings of negative affect, resulting in decreased levels of interpersonal attraction and increased potential for aggression. Aggression- related norms of behaviour refer to normative behaviour and norm violations that occur in an organization such as the wide held belief that aggression is just a normal part of the job, the fostering of a contentious organizational climate or the promotion of the appearance of toughness (Neuman & Baron, 1998: 403).

4.3.1.2 Situational factors

Over the last several years many organizations have undergone far-reaching changes, and a number of these changes appear to contribute to increased levels of workplace aggression. Some of the most important changes include downsizing and concomitant layoffs, mergers and acquisitions, restructuring, reengineering, budget cuts, pay cuts or freezes on salary increases, technological change, change in management, increased diversity in the workforce, implementation of affirmative action policies, computer monitoring of employee performance, increased use of part-time workers, and job sharing (Arnold, 1997: 21-28; Baron & Neuman, 1996: 168; Cartwright & Cooper, 1997: 25,31,47; Luthans, 2002: 12). When downsizing and layoffs occur, both the victims and the survivors experience considerable general distress,

anxiety and stress (Greenglass & Burke, 2001: 3), depression, resentment, and hostility (Catalano *et al* in Neuman & Baron, 1998: 404) as well as uncertainty (Pollard, 2001: 25) and low morale (Campbell-Jamison *et al*, 2001: 53). Downsizing, layoffs, budget cuts, pay cuts or freezes, change in management, restructuring, and reengineering are significantly related to expressions of hostility and obstructionism (Baron & Neuman, in Neuman & Baron, 1998: 404). Computer monitoring of employees has been linked to increased levels of stress (Aiello & Shao in Neuman & Baron, 1998: 404). Evidence suggests that the use of part-time workers and job-sharing are associated with workplace aggression (Baron & Neuman, 1996: 169). Environmental conditions such as hot temperatures, high humidity, extreme cold, poor lighting and air quality, high noise levels, and overcrowding, have all been linked to an increase of aggression (Geen, 2001: 32; Neuman & Baron, 1998: 404).

4.3.1.3 Individual differences

Douglas and Martinko (2001: 547) feel that although a number of frameworks have been put forward discussing individual and situational factors as antecedents to workplace aggression (e.g, Neuman & Baron, 1998: 401; O'Leary-Kelly *et al*, 1996: 233) they point out that 'there are some inconsistencies as to the importance of individual differences as independent predictors of aggressive workplace behavior'. Mainly organizational or group level factors as predictors of workplace aggression, although not thoroughly articulated, are emphasized.

Douglas and Martinko (2001: 547) state that the literature on aggression describe numerous individual differences associated with workplace aggression, which include but is not limited to trait anger, emotional susceptibility, negative affectivity, impulsivity, self-control, perceived controllability, hostile attribution bias, Type A behaviour, emotional reactivity, attitudes towards revenge, egotism, agreeableness, anxiety, gender, and past history. Baron *et al* (1999: 289) studied perceived injustice (for example unfairness) and Type A behaviour as these two factors seemed relevant to aggression in the workplace. They did find that perceived injustice was related to aggression in the workplace, whether being the aggressor or being the victim of workplace aggression. Those individuals that exhibited Type A behaviour were found to engage in a higher frequency of workplace aggression than Type B. Interestingly Type As were also more frequently the target of workplace aggression than Type Bs.

Neuman and Baron (1998: 405) add self-monitoring behaviour and hostile attribution bias to their list of factors that contribute to individual differences. They use the classification of self-monitoring by Snyder and Gangestad (in Neuman & Baron, 1998: 405) that states that 'persons classified as high in self-monitoring possess considerable social sensitivity and alter their words or deeds to produce favourable impressions on others. When individuals are low in self-monitoring, they seem less aware of others' reactions or for that matter less concerned with them. They behave in a manner 'consistent with their lasting attitudes and values and do not

readily adjust their actions to changing situational conditions' (Snyder, in Neuman & Baron, 1998: 405). Neuman and Baron (in Neuman & Baron, 1998: 405) found a significant relationship between self-monitoring and obstructionism. Hostile attribution bias occurs when individuals interpret another person's behaviour as hostile, feel aggrieved and retaliate. Some may perceive hostile intent by others even when this is not the case. They may develop an expectancy that others will respond to them in hostile ways before any interaction has taken place and are therefore more likely to behave aggressively in response to even minor provocations (e.g., Dodge & Coie in Neuman & Baron, 1998: 405).

Douglas and Martinko (2001: 548) in their research design, selected trait anger, attitude toward revenge, negative affectivity, self-control, attribution style, and past history as they felt it was based on theory and research and it appeared to have a reasonable possibility of accounting for a significant proportion of the variability in the incidence of workplace aggression. They did find that in general the variables they selected accounted for more than 60% of the variance. Neither negative affectivity nor low self-control could be independently associated with workplace aggression. They conclude that individual differences are as important in predicting workplace aggression as organizational or group level variables. It should be kept in mind that it is impossible to determine which types of variables account for more variability in predicting the incidence of workplace aggression. They argue that both individual differences and situational causes should be included in any model of workplace aggression.

4.3.1.4 Models of workplace aggression

A number of models have been developed to understand aggression in the workplace that is based on contemporary theories of aggression. The first theoretical model that will be outlined is that put forward by Neuman and Baron (1998: 401). It combines social factors, situational factors, personal determinants, internal states, and cognitive appraisal, which may lead to either an aggressive or a non-aggressive response by the individual (Figure 4.3).

Social factors, situational factors, and personal factors (individual differences) have been discussed previously (confer 4.3.1.3.). Internal states includes unpleasant feelings and hostile or aggressive thoughts. Neuman and Baron (1998: 406) state that regardless of the source, negative affect may evoke unpleasant thoughts and memories, which may lead to irritation, annoyance, and anger. Further, the converse is also true. Aggression-related thoughts and memories might elicit unpleasant feelings and arousal. Thus both subtle feelings and thoughts may predispose individuals to particular forms of behaviour. Cognitive appraisal describes the response to internal stimulation, which is an attempt to understand these thoughts and feelings. It may happen that especially in an ambiguous situation, a person may be incorrect in his or her causal attribution. Neuman and Baron (1998: 406) give an example based on Zillmann (in Neuman & Baron, 1998: 406) where an individual may misattribute a state of physiological

arousal to an unpleasant interaction with a co-worker when it was really due to the extra cup of coffee he or she had at breakfast. Further cognitive appraisal occurs upon having made an hostile attribution, which may result in either an aggressive or a non-aggressive response.

Social factors
-Provocation
-Frustrating events
-Unfair treatment
-Increased diversity
-Aggressive norms

Situational factors
-Layoffs/Downsizing
-Re-engineering
-Restructuring
-Computer monitoring
-Physical environment
-Organizational culture/ climate

Personal determinants
-Type A behaviour pattern
-Self-monitoring behaviour

Internal states
-Unpleasant feelings
-Hostile/aggressive thoughts

Cognitive appraisal
-Why am I feeling/thinking this way?
-Was I just attacked or treated unfairly?
-Was this act intentional?
-Are there mitigating factors?
-What can/should I do?
-What will happen if I do that?

Aggressive response

Non-aggressive response

Figure 4.3. Neuman and Baron's theoretical model of workplace aggression

Baron (2004: 36) has proposed the extension of the General Affective Aggressive Model (GAAM, confer 4.2.5) which has been used as a framework to understand human aggression in general. But because the workplace is a very specific setting it differs from many other settings in which aggression may occur. Work settings differ from public places such as bars, parks, sports arenas, or beaches in which acts of aggression often occur between strangers. In a work context the employees know each other well and are part of an organizational culture which may differ somewhat from society at large. Baron (2004: 36) feels 'whereas the same basic processes are at work, these occur against a background of *contextual* factors that are relatively specific to workplaces, or at least loom larger in them than in other settings'.

The proposed model he calls the General Workplace Affective Aggression Model (GWAAM, Figure 4.4). It divides situational factors into categories, namely organization related situational factors and general situational factors. Furthermore it divides individual difference factors into two similar categories, namely organization related and general categories. Baron (2004: 36) includes under organization related situational factors organizational culture, abusive supervision, organizational politics, and reward systems. Under organization related factors he includes individual difference factors relevant to the workplace, such as stress tolerance, machiavellianism, and sensitivity to fairness. The GWAAM also includes the possibility that when aggression occurs it can be directed against other working in the organization or against individuals outside the organization, or even against the organization itself.
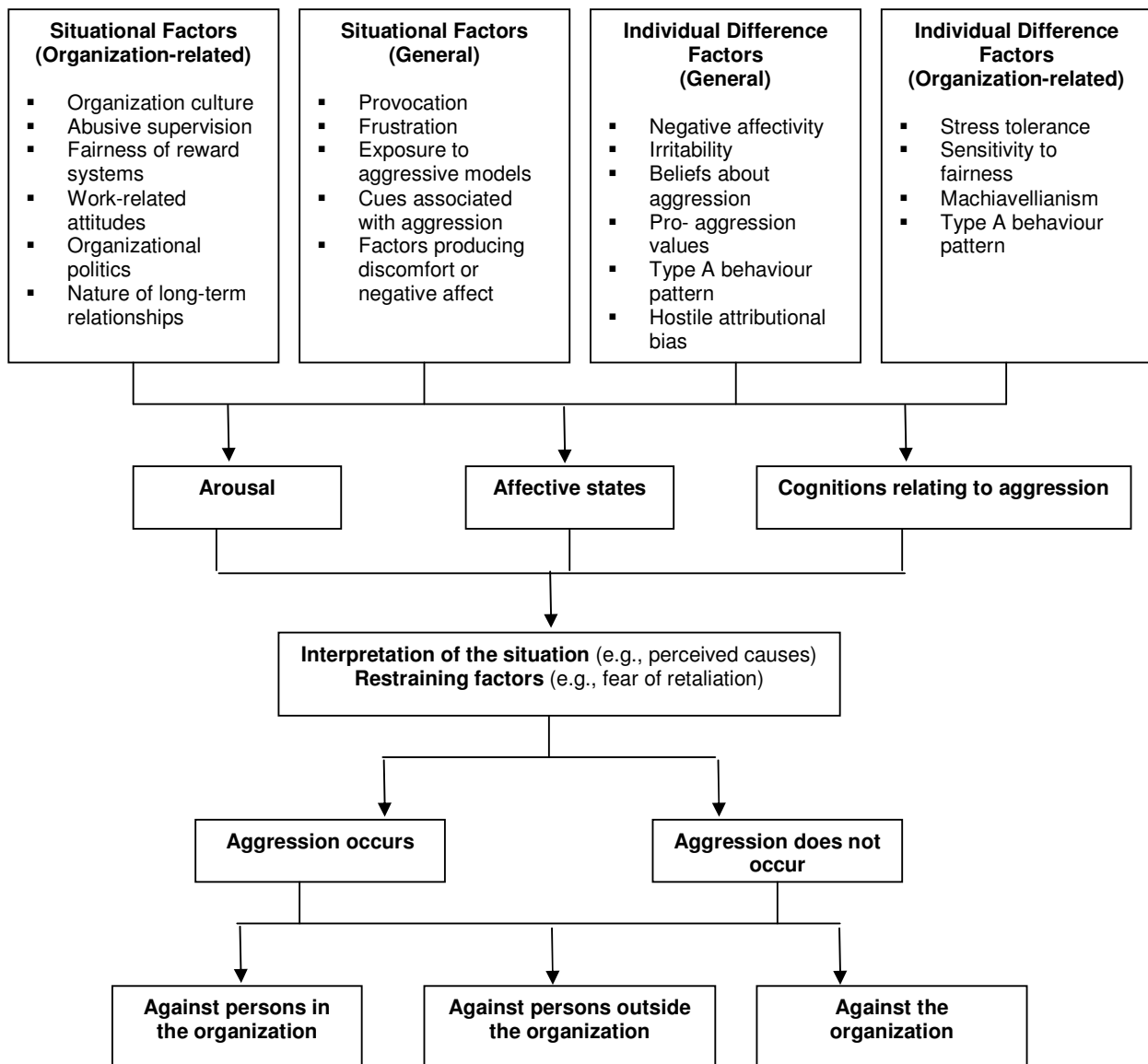
Figure 4.4. Baron's General Workplace Affective Aggression Model

Martinko and Zellars (1998: 5) have developed a cognitive appraisal model of workplace aggression based on cognitive appraisal theories developed amongst others by Smith and Lazarus (in Martinko & Zellars, 1998: 7) and Weiner (in Martinko & Zellars, 1998: 7), Bandura's theory of aggression (in Martinko & Zellars, 1998: 7) and their knowledge of the literature regarding workplace aggression (Figure 4.5).

Their model has been designed in the form of a path diagram. The arrows in the model depict the causal sequence that represents the hypothesized model that would be most appropriate for testing. The researchers refer to workplace violence and workplace aggression as to 'retaliatory aggression by an employee or former employee of an organization against individual(s) within the organization, with the intent to do harm'. Further they explain that 'the onset of violent behaviour is often triggered by a specific negative outcome such as being fired or severely disciplined. This outcome results in a primary appraisal that increases the individual's overall level of arousal and a causal search is initiated. This search (for example, secondary appraisal) is influenced by the organizational context and individual difference factors that affect the probability of specific causal attributions. If the specific cause is internal such as lack of effort or ability, it usually leads to an emotional response such as shame or guilt and a non-violent response is likely. On the other hand, if the cause is attributed to an external cause which is perceived to be stable, controllable, and intentional, without mitigating circumstances, anger is likely and aggression or violence may occur'.

They feel that the cognitive appraisal, thus the attribution interpretation of the outcomes in the workplace, play a critical role in determining both the emotions and behaviours associated with acts of aggression. As the model only refers to retaliatory aggression, the black box has been included to allude to instrumental and other forms of aggression not mentioned in the model and which lead directly to violent behaviours.

4.4   Conclusion

Aggression and violence in the workplace has become an important topic over the last two decades. Workplace aggression may be defined as actions by individuals that "harm others with whom they work, or have worked, or the organizations on which they are presently, or were previously, employed'. Although the media highlights acts of violence such as homicide, it is clear that the vast majority of aggressive acts in work environments do not involve aggressive acts that are overt, such as physical or sexual assaults, but are covert, verbal and passive in nature.
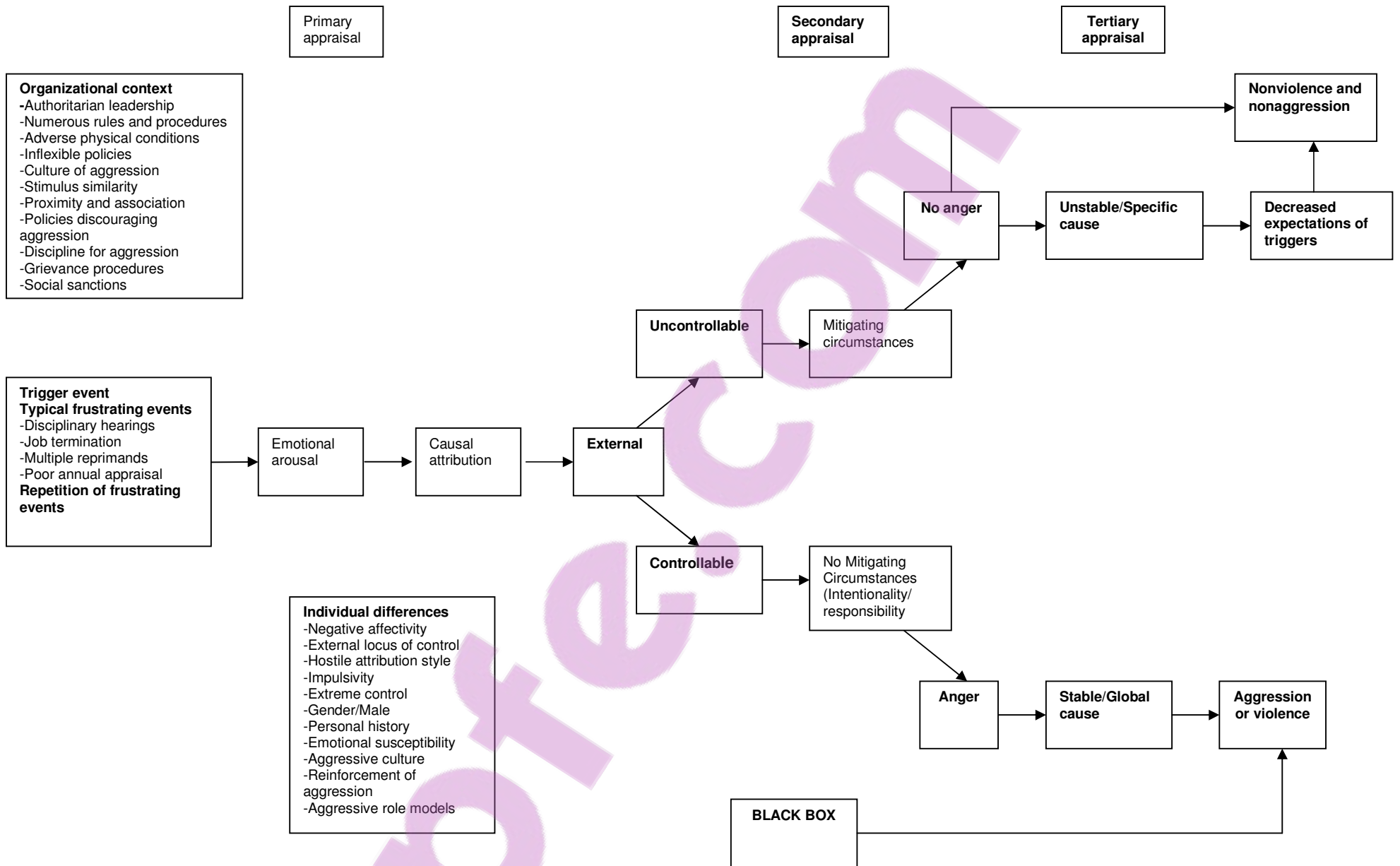
Figure 4.5: A cognitive appraisal model of workplace aggression

Baxter (in Duvenhage, Rapport, Sunday 10 February 2002) states that a study in the USA showed that 10% of the workers have seen the use of force in their work environment, nearly half feel that workers shout at one another, and 30% state that they experience sleep disturbances as a result of the tension at work.

The present research is concerned with the potential causes of workplace aggression, which are numerous. They include social determinants (for example frustration, unfair treatment), situational factors (for example downsizing, increased workforce diversity), and individual differences (Type A personality, attribution style). The purpose of the present research is to determine the role that stress generated outside and within the organization has on the individual in terms of both overt and covert aggression in the workplace. Little evidence currently exists that relates sources of stress to aggression in the workplace. The research is also aimed at presenting empirical evidence on the different forms and relative frequency of workplace aggression within the South African context based on the work of Baron and Neuman (1996: 161).

Research of stress experienced in the workplace has repeatedly shown negative psychological reactions by the employees, which include anxiety, worry, and depression. The next chapter will focus on these three factors and the role they play in the lives of individuals affected by stress.

CHAPTER 5

ANXIETY, DEPRESSION, AND WORRY

5.1   Introduction

When some individuals experiences one or more stressors over a period of time, whether they occur at work or outside the work context, they are not able to cope with these stressful situations. This may have negative consequences on a behavioural, physical, and psychological level for them.

Behavioural consequences may include overeating, undernourishment, sleeplessness, smoking, drinking, and aggression. Physical consequences may refer to medical conditions such as headaches, migraine, hypertension, and heart disease. Psychological consequences are associated with feelings of helplessness, mood changes, anger, anxiety, and depression (Cartwright & Cooper, 1997: 2, 8; Luthans, 2002: 411; Quick *et al*, 1997: 71). The psychological consequences of stress, specifically anxiety, worry, and depression, are the focus of this chapter. Anxiety, worry, and depression will be discussed in general terms, together with a brief discussion of the most relevant theories applicable. The role of anxiety, worry, and depression due to stress found in the workplace will complete the discussion.

5.2   Anxiety

The term anxiety has a long history and is difficult to define and distinguish from fear. There has never been complete agreement as to whether these two words are indeed distinct from each other. Historically, fear has been distinguished from anxiety by whether there is a clear and obvious source of danger that would be regarded as real by most people (Butcher *et al*, 2004: 174). When anxiety is experienced, the danger frequently cannot be clearly specified. Butcher *et al* (2004: 174) state that 'anxiety seems to be experienced as an unpleasant inner state in which we are anticipating some dreadful thing happening that is not predictable from our actual circumstances'.

Anxiety includes feelings of uneasiness or distress, often associated with apprehension of misfortune and danger (Edwards, 1999: 178). A more recent distinction between fear or panic, and anxiety views fear or panic as a basic emotion that involves the activation of the "fight or flight" response, allowing the individual to react quickly when faced with and immediate threat. Butcher *et al* (2004: 175) adhere to Barlow's view that anxiety 'is best thought of as a complex blend of emotions and cognitions that is much more diffuse than fear'. Further 'at the cognitive/subjective level, anxiety involves negative mood, worry about possible future threat or danger, self-

preoccupation, and a sense of being unable to predict the future threat or to control it if it occurs'. Anxiety therefore involves preparing for the fight or flight response should it become necessary. Together with the cognitive/subjective component a physiological and a behavioural component of anxiety are found. The physiological component reflects a state of chronic excessive arousal, which may indicate a state of readiness for dealing with danger should it occur. The behavioural component according to Barlow (in Butcher *et al*, 2004: 175) refers to a 'strong tendency to avoid situations where the danger or threat might be encountered, but there is no immediate urge to flee associated with anxiety as there is with fear'. Butcher *et al* (2004: 175) find that 'the adaptive value of anxiety may derive from the fact that it helps us plan for and prepare for possible threat, and in mild to moderate degrees, anxiety actually enhances learning and performance'.

Anxiety may often be adaptive in mild or moderate degrees, but it can be maladaptive when it becomes chronic and severe. Mild or moderate anxiety and chronic and severe anxiety are also referred to as normal and pathological anxiety respectively (Kaplan *et al*, 1994: 573).

5.2.1   *Normal anxiety*

Anxiety is a sensation that is experienced by virtually all human beings. Kaplan *et al* (1994: 573) describe anxiety as characterized by a feeling of 'a diffuse, unpleasant, vague apprehension, often accompanied by autonomic symptoms, such as headache, perspiration, palpitations, tightness in the chest, and mild stomach discomfort'. Sometimes such an individual may feel restless, often reflected in his or her inability to sit or stand still for long periods. The exact way these symptoms present varies from person to person.

5.2.2   *Pathological anxiety*

When anxiety becomes chronic and severe it becomes pathological. Kaplan *et al* (1994: 573) describe it as 'an inappropriate response to a given stimulus by virtue of either its intensity or its duration'. On a practical level it is differentiated from normal anxiety by the feedback given by the person, his or her family, friends, and the assessment of the medical practitioner. The DSM-IV-TR recognizes seven primary types of anxiety disorder: specific and social phobias, panic disorder with or without agoraphobia, generalized anxiety disorder, obsessive-compulsive disorder, and post-traumatic stress disorder (Butcher *et al*, 2004: 173).

5.2.3   Theories of anxiety

One way to better understand anxiety is to look at the most relevant theories that have contributed to the understanding of the causes of anxiety. Each theory has a somewhat different conceptual approach and practical usefulness. The most relevant theories include the psychoanalytic, learning, existential, and biological theories.

5.2.3.1 Psychoanalytical theories

Freud (in Kaplan *et al*, 1994: 575; Edwards, 1999: 179) developed his theory of anxiety over a period of time. Initially he proposed that anxiety came from a blocked libido, which meant that when it was not possible to carry out a sexual urge, feelings of anxiety were experienced. Later he modified his theory and in 1926 he proposed that anxiety was a signal to the ego that an unacceptable drive was pressing for conscious representation and discharge. The ego then has to take defensive action including repression. If the defensive action was inadequate, the anxiety may emerge as a fully blown panic attack. Other defense mechanisms may result in symptom formation producing a classic neurotic disorder such as hysteria, phobia, and obsessive-compulsive neurosis.

Kaplan *et al* (1994: 575) state that within psychoanalytic theory anxiety is seen as falling into four major categories, depending on the nature of the feared consequences. The first being id or impulse anxiety, the second separation anxiety, the third castration anxiety, and the fourth superego anxiety. Generally these categories are hypothesized to develop at various stags of growth and development. Kaplan *et al* (1994: 576) explain:

> Id or impulse anxiety is related to the primitive, diffuse discomforts of infants when they feel overwhelmed with needs and stimuli over which their helpless state provides on control. Separation anxiety occurs on somewhat older but still pre-oedipal children, who fear the loss of love or even abandonment by their parents of they fail to control and direct their impulses on conformity with their parents' standards and demands. The fantasies of castration that characterize the Oedipal child, particularly in relation to the child's developing sexual impulses, are reflected in the castration anxiety of the adult. Superego anxiety is the direct result of the final development of the superego that marks the passing of the Oedipus complex and the advent of the pre-pubertal period of latency.

5.2.3.2 Learning theories

Learning or behavioural theories view anxiety as a conditioned response brought about by the conjunction on one or more occasions of an initially neutral stimulus with a painful event (Edwards, 1999: 179; Kaplan *et al*, 1994: 576; Maddi, 1996: 448). Kaplan *et al* (1994: 576) give the example where a person who does not have food allergies may become sick after eating contaminated

shellfish. He or she may be exposed to shellfish again on numerous occasions and this may cause him or her to feel sick. This person may come to distrust all food prepared by others through the process of generalization. Others may learn to respond to certain situations with anxiety through vicarious learning often from their parents.

Cognitive approaches have proposed alternative theories to explain the causes of anxiety. Faulty, distorted, or counterproductive thinking patterns accompany or occur just before the experience of anxiety, which may lead to or be associated with any of the anxiety disorders (Edwards, 1999: 180; Kaplan *et al*, 1994: 576).

5.2.3.3 Existential theories

Søren Kierkegaard (in Edwards, 1999: 178) in the early part of the nineteenth century thought that anxiety was part of the human condition. Anxiety would be the result of having the freedom to choose, without knowing if the choice was correct. He saw choice as a burden.

Existential theorists define anxiety more broadly than other theorists (May & Yalom, 1989: 364). They see anxiety as arising from the personal need to survive, to preserve and to assert one's being (May & Yalom, 1989: 364). When persons become aware of a profound nothingness in their lives, they may experience feelings that may be even more profoundly discomforting than an acceptance of their inevitable death. Anxiety results from this vast void of existence and meaning (Kaplan *et al*, 1994: 576).

5.2.3.4 Biological theories

Biological theories of anxiety have developed out of animal studies, studies of patients with known anxiety inducing biological factors, neuroscience, and the actions of psychotherapeutic drugs (Kaplan *et al*, 1994: 576). Two schools of thought exist regarding the role of biological factors in anxiety. One school proposes that measurable biological changes in individuals are psychologically induced, whereas the other school proposes that biological changes precede the occurrence of psychological problems.

The autonomic nervous system is thought to play a role in the manifestation of anxiety. Stimulation of the autonomic nervous system causes cardiovascular, muscular, gastrointestinal, and respiratory symptoms often associated with the subjective experience of anxiety. Neurotransmitters are associated with anxiety on the basis of animal studies and these include norepinephrine, serotonin, and γ-aminobutyric acid. Kaplan *et al* (1994: 576) explain the role of norepinephrine as follows:

The general theory regarding the role of norepinephrine in anxiety disorders is that affected patients may have a poorly regulated noradrenergic system that has occasional bursts of activity. The cell bodies of the noradrenergic system are primarily localized to the locus ceruleus in the rostral pons, and they project their axons to the cerebral cortex, the limbic system, the brainstem, and the spinal cord. Experiments in primates have demonstrated that stimulation of the locus ceruleus produces a fear response in the animals and that ablation of the same area inhibits or completely blocks the ability of the animals to form a fear response.

Interest in serotonin was initially due to observation that serotonergic antidepressants had therapeutic affects in some anxiety disorders, which stimulated the search for serotonin receptor types. Kaplan *et al* (1994: 577) explain:

The cell bodies of most of the serotonergic neurons are located in the raphe nuclei in the rostral brainstem and project to the cerebral cortex, the limbic system (especially the amygdala and the hippocampus), and the hypothalamus. Although the administration of serotonergic agents to animals results in behavior suggestive of anxiety, the data on similar effects in humans are less robust.

The role of γ-aminobutyric acid (GABA) in anxiety disorders is most strongly supported by the observation that benzodiazepines, which are known to enhance the activity of GABA, are effective in the treatment of some types of anxiety. Researchers hypothesize that some patients with anxiety disorders have abnormal functioning of their GABA$_A$ receptors. However, this connection is difficult to prove (Kaplan *et al*, 1994: 577).

Brain-imaging studies have revealed that some patients had an increase in the size of cerebral ventricles, whereas others reported abnormal findings in the right hemisphere but not in the left hemisphere. These abnormal findings suggested that some type of cerebral asymmetry might be important in the development of anxiety in specific patients (Kaplan *et al*, 1994: 577).

Finally, genetic studies have shown that some genetic linkage, which plays a role in the development of anxiety disorders. Kaplan *et al* (1994: 477) reports that almost half of all patients diagnosed with panic disorder have at least one relative who also suffers from panic attacks. The figures for the other anxiety disorders are not as high, but also indicate a higher occurrence amongst first-degree relatives.

5.2.4   *Stress and anxiety*

The term stress is often used interchangeably with anxiety and Lazarus (in Cotton, 1990: 29) acknowledges a great deal of overlap between the two concepts. Anxiety may be seen as a sign of stress, or it could be part of the stress response. Cotton (1990: 29) views anxiety as a trait or individual personality characteristic, and stress as a function of a particular set of circumstances.

An individual may experience stress when exposed to a stressor, exhibiting a stress response. Anxiety may be part of the stress response. Edwards (1999: 189) sees anxiety as a mildly stressing part of life, which can come to dominate and interfere with ones functioning.

Stressful life events are often associated with both panic attacks and generalized anxiety disorder (Schell, 1997: 141). For both anxiety disorders, stressful life events that are perceived by the individual as a threat that involve a future crises or danger often occur around the time of onset.

5.3 Depression

Depression is a term that is not only used to describe an individual's mood, but also a disorder. When used to describe a mood, depression is seen as part of the normal range of human experience, often a result of some frustration or disappointment. These include painful but common life events, such as significant personal, interpersonal, or economic losses (Butcher *et al*, 2004: 218; Schell, 1997: 150). Individuals may experience feelings of sadness, discouragement, pessimism, and hopelessness. Depression is unpleasant when one is caught up in it, but it does not last long. Butcher *et al* (2004: 218) calls this experience of depression normal, as it is brief and mild. Normal depressions are almost always triggered by recent stress such as the loss of a loved one, loss of a favoured status or position, separation or divorce, financial loss, the break-up of a romantic affair, retirement, separation from a friend absence from home for the first time, or even the loss of a cherished pet (Butcher *et al*, 2004: 218).

At a certain point normal depression becomes a mood disorder, where depression is associated with significant functional impairment. However, there is a grey area where the mood disorder does not fulfil the criteria for normal depression and clinical depression. Two categories are included in the DSM-IV-TR and they are dysthemic disorder and adjustment disorder with depressed mood (Butcher *et al*, 2004: 219). Both are characterized by the presence of symptoms that are less severe than those of major depressive disorder. When an individual exhibits more symptoms than required for the diagnosis of dysthemia, and the symptoms are more persistent then a diagnoses of major depression can be made. Kaplan *et al* (1994: 516) describe individuals who have been diagnosed with major depression as having 'a loss of energy and interest, feelings of guilt, difficulty in concentrating, loss of appetite, and thoughts of death or suicide'. Other signs and symptoms of mood disorders mentioned include 'changes in activity level, cognitive abilities, speech, and vegetative functions (such as sleep, appetite, sexual activity, and other biological rhythms)'. Depressive illness occurs all over the world and does not differ from country or culture (Schell, 1997: 151; Kaplan *et al*, 1994: 517). Approximately twice as many women are diagnosed with

major depressive disorder than men. The possible reasons for this difference is thought to be found in hormonal differences, possible effects of childbirth, differing psychosocial stressors for women than men, and the role of learned helplessness (Kaplan *et al*, 1994: 517).

5.3.1 *Causal factors of depression*

The causes of depression can be divided into biological and genetic factors, as well as psychosocial factors (Butcher *et al*, 2004: 223; Kaplan *et al*, 1994: 518). Kaplan *et al* (1994: 518) feel that this division is artificial because of the probability that these different factors interact with one another. The example they give is that psychosocial and genetic factors can affect biological factors such as neurotransmitters, biological and psychosocial factors can again affect gene expression, and finally biological and genetic factors can affect an individual's response to psychosocial factors.

To further understand the causes of depression it is necessary to turn to those theories that have received much attention over the years, which include psychodynamic theories, cognitive theory, learned helplessness and interpersonal effects of mood disorders (Butcher *et al*, 2004: 237).

5.3.1.1 Biological and genetic factors

Researchers who have attempted to find the biological factors that cause depression have investigated genetic and constitutional factors, as well as neurophysiological, neuroendocrinological, and biochemical factors (Butcher *et al*, 2004: 224).

1)   Genetic and constitutional factors

Research has shown that genetics does play an important role in the development of depression. Family studies have shown that the prevalence of mood disorders is higher amongst first-degree relatives. Butcher *et al* (2004: 224) caution that because of the difficultly of disentangling hereditary and environmental influences, a higher rate of disorder among family members can never in itself be taken a conclusive proof of genetic causation.

Twin studies have shown that there may be a moderate genetic contribution to unipolar depression. Monozygotic twins are about twice as likely to develop major depression, as are dizygotic twins of a depressed twin. The concordance rate varies from 33 to 90 percent depending on the particular study (Butcher *et al,* 2004: 224, Kaplan *et al*, 1994: 522).

Adoption studies, although limited in number, have also provided evidence for the genetic basis of mood disorders. Two studies have found a strong genetic component for the inheritance of major depressive disorder (Butcher *et al*, 2004: 224; Kaplan *et al*, 1994: 522). One study estimated that genes contribute about 50 percent of the variance in the tendency to develop unipolar depression.

2)   Neurophysiological and neuroendocrinological factors

Research on potential neurophysiological and neuroendocrine correlates of mood disorders has shown that the hypothalamus is central to the regulation of the neuroendocrine axes. The one axis focuses on the hypothalamic-pituitary-adrenal axis, and in particular the hormone cortisol, which is excreted by the outermost portion of he adrenal glands. Butcher *et al* (2004: 225) mention that blood plasma levels of cortisol are known to be elevated in from 50 to 60 percent of seriously depressed patients, indicative of a possible cause. The other axis focuses on the hypothalamic-pituitary-thyroid, as it is known that disturbances to this axis are linked to mood disorders. Individuals with low thyroid levels often tend to be depressed. About 30 percent of depressed patients who have normal thyroid levels, show deregulation of this axis upon the infusion of thyrotropin-releasing hormone (Butcher *et al*, 2004: 225; Kaplan *et al*, 1994: 520).

Other neurophysiological research has shown that lesions of the left anterior or prefrontal cortex, often lead to depression. Even when no lesions were present lowered levels of brain activity in this region was linked to depression (Butcher *et al*, 2004: 225).

Another interesting area of research focuses of the role sleep abnormalities and circadian rhythms play in the aetiology of depression (Butcher *et al*, 2004: 226; Kaplan *et al*, 1994: 520). Problems with sleeping such as early morning awakening, multiple awakenings during the night, and hypersomnia are typical symptoms of depression. Research using EEG recordings has found that many depressed patients show a shorter than expected latency to the first period of REM sleep as well as greater amounts REM sleep early in the night than non-depressed individuals. Thus a depressed person is subjected to a lower amount of deep sleep (Butcher *et al*, 2004: 226).

Sleep, body temperature, the secretion of cortisol and thyroid stimulating hormones, as well as melatonin, are all part of circadian cycles that humans have (Butcher *et al*, 2004: 227). Two related central "oscillators" (also described as internal biological clocks), one strong and the other one weak, control these circadian rhythms. The strong oscillator, which is relatively impervious to environmental influences, controls the regulation of body temperature, the secretion of hormones, and REM sleep rhythms. The weak oscillator, which responds readily to environmental influences,

controls the rest-activity and sleep-wake cycles (Goodwin & Jamison, in Butcher *et al*, 2004: 227). Some abnormalities have been found in all of these rhythms in depressed patients, although not all patients show abnormalities in all rhythms (Howland & Thase; Thase & Howland; in Butcher *et al*, 2004: 227).

3)   Biochemical factors

Biogenic amines, specifically norepinephrine and serotonin, are neurotransmitters that are implicated in the cause of mood disorders (Butcher *et al*, 2004: 224; Kaplan *et al*, 1994: 518). Depression is thought to result from the disruptions in the delicate balance of these neurotransmitters that regulate the activity of the brain's nerve cells or neurons. When they are released by the activated presynaptic neuron, they mediate the transfer of merge ompulaes across the synaptic cleft from one neuron to the next on a neuronal pathway. They may either stimulate or inhibit the firing of the next neuron in the chain (Carson *et al*, 2000: 214). A low concentration of these neurotransmitters at the synapse may precipitate depression.

5.3.1.2 Psychosocial factors

Psychosocial factors play an equally important role in the aetiology of depression as biological factors of which the most important factor is stress.

Research has demonstrated that stress has been implicated in the onset of depression and specifically unipolar depression (Butcher *et al*, 2004: 228; Kaplan *et al*, 1994: 522). Stressful life events most often serve as the precipitating factor for mood disorders. Beck (in Carson *et al*, 2000: 217) presented a broad classification of those factors that most frequently precede the onset of depression:

- Situations that tend to lower self-esteem;
- The thwarting of an important goal or the posing of an insoluble dilemma;
- A physical disease or abnormality that activates ideas of deterioration or death;
- Single stressors of overwhelming magnitude;
- Several stressors occurring in a series;
- Insidious stressors unrecognised as such by an affected person.

Paykel (in Carson *et al*, 2000: 217) added that in particular separations, whether through loss or other causes from people important in ones life are strongly associated with depression. Data suggests that when an individual looses a parent before the age of 11, the likelihood of depression

70

developing later in life is very good. The loss of a spouse is the life stressor most associated with the onset of depression (Kaplan *et al*, 1994: 523). Care giving to a spouse with a debilitating disease such as Alzheimer's is known to precede the onset of mood disorders for the caregiver (Russo *et al*, in Butcher *et al*, 2004: 228).

5.3.2 Theories of depression

A number of theories have been developed to try and explain why individuals become depressed. These include psychodynamic theories, cognitive theories, learned helplessness, and the role that interpersonal effects have on mood disorders.

5.3.2.1 Psychodynamic theories

Freud (in Butcher *et al*, 2004: 231) observed the similarity between the symptoms of clinical depression and the symptoms of someone in mourning. He postulated a relationship between the loss of someone or some object and melancholia. Butcher *et al*, (2004: 231) explain that 'upon the loss of a loved one, the mourner regresses to the oral stage of development (when the infant cannot distinguish self from other) and introjects or incorporates the lost person, feeling all the same feelings toward the self as toward the lost person'. These were believed to include both anger and hostility because the person unconsciously holds negative feelings toward the loved one partly due to their power over him or her. In the case of depression, which was due to imagined or symbolic losses, the person's anger and hostility would be directed towards the self. Also depressed people showed lower self-esteem and were more self-critical.

Melanie Klein (in Butcher *et al*, 2004: 231) later emphasized more than Freud did the importance of the quality of the mother-infant relationship. According to her, depressed individuals had failed to establish loving introjects during childhood (Kaplan *et al*, 1994: 523). Bowlby (in Butcher *et al*, 2004: 231) also found that there was a relationship between the child's need for a secure attachment to parental figures as to be resistant to depression.

5.3.2.2 Cognitive theory

One of the most prominent theories of depression for more than 35 years is Beck's cognitive theory of depression (Butcher *et al*, 2004: 232). This theory maintains that how one thinks largely determines how one feels and behaves. This thinking is often expressed as the individual's 'negative automatic thoughts' or appraisals of a specific situation (Wills & Sanders, 1997: 10). These appraisals are often dysfunctional and involve cognitive distortions such as all-or-nothing thinking, overgeneralizations, jumping to conclusions, 'should' statements, and mind reading to

mention a few. In the case of depression the negative thinking revolves around the theme of loss, whether it involves loss of a loved object or loss of a sense of self-esteem (Wills & Sanders, 1997: 12). Important to depression is the loss of a sense of hopefulness about the world and the future. Negative automatic thoughts are those cognitions closest to the surface of consciousness. However, there are also deeper cognitions, which predispose an individual to interpret events in a relatively specific way (Wills & Sanders, 1997: 12). These deeper cognitions are also known as dysfunctional beliefs. These beliefs are thought to originate during childhood and adolescence as a result of specific experiences with one's parents and significant others and may lie dormant for years before triggered by significant stressors (Butcher *et al*, 2004: 232).

5.3.2.3 Learned helplessness

The learned helplessness theory was first proposed by Seligman (in Butcher *et al*, 2004: 234) and was based upon laboratory experiments in which dogs were repeatedly exposed to electric shocks from which they could not escape. The dogs, when placed in new situations made no attempt to escape even when they could, as they had given up. They learnt that they were helpless. When applied to depressed humans who were experiencing stressful life events over which they had no control, they showed the same reaction of helplessness as seen with the dogs (Butcher *et al*, 2004: 234; Kaplan *et al*, 1994: 523). A major revision of the learned helplessness theory by Abramson *et al* (in Butcher *et al*, 2004: 234) introduced the concept of a pessimistic attribution style, which in conjunction with one or more negative life events put a person at risk for depression. A further revision by Abramson *et al* (in Butcher *et al*, 2004: 235) known as hopelessness theory, proposed that 'having a pessimistic attributional style in conjunction with one or more negative life events was not sufficient to produce depression unless one first experienced a state of hopelessness'. An expectancy of hopelessness was defined as ' the perception that one had no control over what was going to happen and by absolute certainty that an important bad outcome was going to occur or that a highly desired good outcome was not going to occur'.

5.3.2.4 Interpersonal effects of mood disorders

A considerable amount of research has shown the importance of interpersonal factors in the aetiology of depression (Butcher *et al*, 2004: 235). One factor refers to people who lack social support and this is associated with vulnerability to depression. Interestingly, depressed individuals have smaller and less supportive social networks than non-depressed individuals (Hammen, in Butcher *et al*, 2004: 235). Another factor refers to the evidence that depressed persons have social skills deficits. They tend to speak slowly and monotonously; they maintain less eye contact and are poorer at interpersonal problem solving (Gotlib & Hammen, in Butcher *et al*, 2004: 235).

Marital distress may lead to depression because research shows that marital distress often occurs before a depressive episode (Gotlib & Hammen, in Butcher *et al*, 2004: 237). The opposite also holds true in that a depressed person may induce negative affect in their spouse, which leads to marital distress (Butcher *et al*, 2004: 237).

5.4   Worry

Worry was not well researched until in the second half of the twentieth century when Liebert and Morris (in Fresco *et al*, 2002: 313) discovered that responses in a test anxiety questionnaire consisted of two distinct factors, which they called Worry and Emotionality. Fresco *et al*, (2002: 314) explain that the Worry factor represented self-evaluative negative cognition about test performance, where as the Emotionality factor appeared to focus on awareness of feeling states and physiological activity. Worry was found to have a stronger relationship than Emotionality to actual test performance, task-generated interference of attention, and grade point average.

Borkovec (in Fresco *et al*, 2002: 314) was the first to research the experience of worry in its own right when he sought a treatment for insomnia. Borkovec found that many individuals who had difficulty in sleeping had engaged in excessive cognitive activity with a negative valence and he termed this state as worrying.

Worry is a universal phenomenon, which was defined by Borkovec, Robinson, Prusinsky, and DePree (in Borkovec, 1994: 7) as 'a chain of thoughts and images, negatively affect-laden and relatively incontrollable; it represents an attempt to engage in mental problem-solving on an issue whose outcome is uncertain but contains the possibility of one or more negative outcomes; consequently, worry relates closely to the fear process'.

Borkovec (1994: 7) later modified this definition by stating that worry predominantly involves thought activity rather than imagery, which can be described as a type of internal verbal-linguistic activity, for example thinking.

Borkovec, Alcaine, and Behar (in Fresco *et al*, 2002: 314) propose that the most important function of worry is its use as 'an avoidance response as it allows individuals to process emotional topics at an abstract, conceptual level and thus to avoid aversive images, autonomic arousal, and intense negative emotions on the short-run'. Therefore worry most likely prevents full access to fear structures in memory and may inhibit emotional processing necessary for anxiety reduction.

Worry is associated with all the anxiety disorders (Barlow, in Fresco *et al*, 2002: 314) and is the main feature of generalized anxiety disorder (Butcher *et al*, 2004: 200). Butcher *et al* (2004: 197) describe people suffering from generalized anxiety disorder as living in a constant state of tension, worry, and diffuse uneasiness. The fundamental process is described as one of anxious apprehension, which is defined as a 'future-orientated mood state in which a person attempts to be constantly ready to deal with upcoming negative events' (Barlow *et al*, in Butcher *et al*, 2004: 197). It is a highly significant contributor to the maintenance of anxiety (Borkovec, 1994: 6). Worry also appears to be a common aspect of depression (Andrews & Borkovec in Molina *et al*, 1998: 110).

Davey (1994: 38) alludes to the fact that worry is also associated to problem solving and coping. Davey *et al.* (in Davey, 1994: 38) initially found no significant correlations between frequency of worrying and the frequency of problem-focused coping activities. When the effect of anxiety was partialled out, they found that worrying was significantly associated with problem-focused coping activities. These included active cognitive coping, active behavioural coping, information seeking and problem solving. This suggests that although anxiety and worry are correlated, they have separate effects. Davey (1994: 38) argues that worry is essentially made up of two components. The first component that is unique to worry is associated with constructive problem solving, whereas the second that is shared with anxiety is pathological. This does not deny the adaptive functions of anxiety.

Borkovec *et al* (in Borkovec, 1994: 9) report that worry correlates most highly with social evaluation and little with non-social items. Molina and Borkovec (1994: 265) found that individuals high in social anxiety report the highest levels of worry. Self-consciousness is also associated with worry and people who worry tend to score significantly higher on the self-conscious scale (Pruzinsky & Borkovec, in Borkovec, 1994: 9). Fenigstein (in Keogh, French, & Reidy, 1998: 68) asserts that self-consciousness is either private, focusing inwardly towards thoughts, or public, focusing on outside factors.

5.5 Work-related stress, anxiety, depression and worry

Work-related stress is found in all areas of work and both depression and health problems increase as the stress continues (Baron & Byrne, 1997: 527). In times of stress the individual may experience depression, worry, and anxiety (e.g, Campbell-Jamison *et al*, 2001: 45; Dormann & Zapf,2002: 34; Terluin *et al*, 2004: 195), which in turn may not only interfere with health-related behaviours such as eating a balanced diet, exercising, and getting sufficient sleep (Wiebe &

McCallum, 1986: 436), but when high, may adversely affect the body's immune system resulting in stress-related illnesses (Quick *et al*, 1997: 42).

Campbell-Jamison *et al*, (2001: 45) examined the psychological affects of downsizing and redundancy on those remaining behind within the organization after large-scale redundancy programs. They felt amongst others, vulnerable and stressed expressing worry and anxiety about their future. With downsizing there is an increase in job insecurity that can result in an increase in general distress, anxiety, and depression. Roskies and Louis-Guerin (1990: 356) found that managers who were insecure about their jobs showed poorer health and their levels of distress rose proportionally with their level of insecurity. Worrall and Cooper (in Sparks *et al*, 2001: 490) for example, found that over 60% of a national sample of 5 000 British managers had experienced a major restructuring during the previous year involving downsizing and outsourcing. Nearly two out of three experienced increased job insecurity, lowered morale, and a loss in motivation and loyalty. Electronic monitoring, which is used to monitor employees by many organizations, invades the privacy of the employee and leads to increased worker stress (Ross in Alder &Tompkins, 1997: 262). Nussbaum and Du Rivage (in Alder & Tompkins, 1997: 262) found that highly monitored employees showed a higher degree of depression, anxiety, instability, fatigue, and anger than employees that were not monitored. The effect of affirmative action amongst a group of black employees in South Africa showed that amongst the symptoms of stress they experienced, both anxiety and depression were found (Van Zyl, 1998: 24). Schonfeld (2000: 366) in an update on depressive symptoms and job satisfaction in first-year women teachers found that depressive symptoms were the highest amongst those women who experienced the most adverse work environments.

5.6   Conclusion

Anxiety, depression and worry all play a role in the stress process. Anxiety can be adaptive when mild, but when it becomes extreme and pervasive it may interfere with the individual's functioning. Stress and anxiety are sometimes used interchangeably Most individuals that may experience high levels of stress who exhibit symptoms of anxiety will not meet the formal criteria for a diagnosis of an anxiety state.

Depression is clearly associated with the stress response especially when the individual is confronted with loss of some kind, whether it is a loss of a relationship, status, or competence. Individuals who suffer from depression are often unable to work or are able to work at a reduced level of efficiency.

Worry is an area that has been associated with anxiety, more specifically generalized anxiety. It is a phenomenon that involves 'a chain of thoughts and images, negatively affect-laden and relatively uncontrollable' and is an attempt at problem solving. It also is associated with depression, social evaluation, and correlates significantly with coping.

Within the work context the relationship between stress, anxiety and depression is well documented. However research specifically correlating stress and worry within the workplace does not abound. The purpose of the present study is to determine consequences of stress experienced by employees in the workplace within the South African context in terms of anxiety, depression and worry. This information is important in the context of developing awareness within organizations of the extent of the health problems that exist as a result of stress and the costs that are associated with the resultant poor performance of their employees. This knowledge should be used in the development of stress management policies and programmes within the organization.

Not all individuals react negatively to stress. Some are able to deal effectively with the impact of the stressor and even thrive as a result of it. The next chapter considers the role that coping plays in dealing with stress.

CHAPTER 6

COPING

6.1   Introduction

Stress and coping are two interrelated and dependent processes (Butcher *et al*, 2004: 140). When one considers the different possible events or situations that might be viewed as stressful, it is not difficult to conclude that everything is potentially stressful. However this is not the case and is dependent not only on the amount of stress experienced by the individual, but also on the ability of the individual to cope with the stressor (Cotton, 1990: 39). The importance of coping has not only been supported by research in psychology but other disciplines such as epidemiology, sociology, and physiology (Parkes, 1994: 111). Coping will first be defined in this chapter, hereafter the focus will be on a number of specific coping strategies that individuals use to deal with stress within and outside of the work context as well as on organizational coping strategies designed by management to prevent or reduce work stress.

6.2   Coping defined

Individuals will often state that "they are coping", implying that they are able to deal with a perceived situation successfully (Stone & Neale in Cox & Ferguson, 1991: 19). The Reader's Digest Oxford Complete Wordfinder (1993) defines the word cope a: 1) to deal effectively or contend successfully with a person or a task; and to 2) manage successfully; deal with the situation or problem. However, for research purposes, definitions of coping need to be independent of outcome (Lazarus and Folkman, 1984: 142).

 Lazarus and Folkman (1984: 141) define coping as 'constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person'. This definition addresses certain limitations of traditional approaches, which according to Lazarus and Folkman (1984: 141) are as follows:

- It is process-oriented rather than trait-orientated, as indicated by the use of the words "constantly changing" and "specific" demands and conflicts.
- This definition implies that there is a distinction between coping and automatic adaptive behaviour by limiting coping to demands that are appraised as taxing or exceeding a person's resources. Therefore coping is limited to conditions of psychological stress, which requires mobilization and excludes reflexive behaviour and thoughts that do not require any effort.

- Defining coping as efforts to manage, which permits the inclusion of all actions and thoughts without taking account how effective they are, bypasses the problem of confounding coping with outcome.
- The use of the term manage helps to avoid equating coping to mastery. Managing can include minimizing, avoiding, tolerating, and accepting the stressful conditions as well as attempts to master the environment.

Cox (in Cox & Ferguson, 1991: 19) offers a simple definition of coping in terms of ' the cognitions and behaviors adopted by the individual, following the recognition of a stressful transaction, that are in some way designed to deal with that transaction.'

6.3   Coping strategies

Lazarus and Folkman (in Forshaw, 2002: 62; Wainwright & Calnan, 2002: 59) developed a transactional model of stress, which highlighted the role of appraisals and coping in the experience of stress (see sec 3.2.3.1). To understand the individual's interpretation of a specific stressor one must distinguish between primary and secondary appraisals. Primary appraisal requires the individual to decide whether an event poses a threat or not. Secondary appraisal refers to the individual person's perception of his or her self-efficacy regarding his or her ability to deal with the perceived stressor. If the individual believes that he or she is not able to deal with the situation, it will be perceived as a threat and the individual will then likely experience high levels of stress. If however the individual believes he or she can deal with the situation then this person will not experience stress (Figure 6.1).
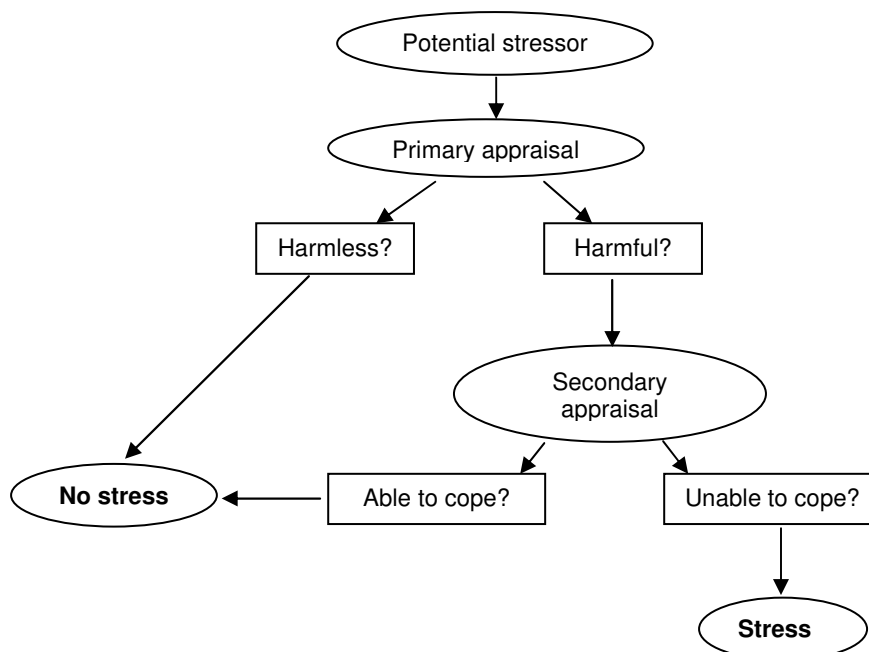
Figure 6.1: Appraisal model of stress and coping

Folkman *et al* (in Forshaw, 2002: 64) delineated eight types of coping strategies used by individuals exposed to perceived stressors.

- Confrontational coping: this type consists of aggressive efforts to alter the situation by standing ones ground and fighting for what one wants. It also involves a degree of hostility by expressing one's anger to the person who caused the problem and risk-taking by taking a chance and by doing something.
- Distancing: this type is characterised by efforts to detach oneself from the situation by not letting it get to one and by not thinking about it. It also refers to creating a positive outlook by making situation appear trivial and by trying to look at the bright side of things.
- Self-controlling: this type involves keeping one's feelings to oneself and not telling others about the situation. It also refers to actions involving restraint by not burning proverbial bridges or acting too hastily.
- Seeking social support: this type requires efforts to seek informed support by talking to someone to obtain more information. It also includes seeking tangible support by talking to someone who could do something about the situation and emotional support by obtaining sympathy and understanding from someone.
- Accepting responsibility: this approach acknowledges one's own role in the situation and attempts to put things right by deeds, for example by apologizing or trying to do something about the situation.
- Escape-avoidance: this type entails escapism by either wishful thinking or real efforts to escape or avoid the situation, by for example eating, smoking, drinking, sleeping, or avoiding people.
- Planned problem solving: this type refers to one's deliberate efforts to change a situation, linked to an analytic approach to solve the problem and by finding a workable solution.
- Positive reappraisal: this strategy centres on one's efforts to find positive meaning through personal growth, which may include a religious component.

Most coping behaviour falls into one or more of these eight categories. An individual may use one or more of these coping strategies even when these strategies may give rise to contradictory cognitions. An individual may for example employ contradictory coping strategies, sometimes being confronting and sometimes being escape-avoidant.

In addition to the above eight categories Lazarus and Folkman (1984: 150) divide coping strategies into two main categories which they call either emotion-focused or problem-focused. Emotion-focused coping is centred on the emotional reaction to the problem, whereas problem-focused

coping is concerned with directly addressing the problem. The above strategies of escape-avoidance, distancing, self-control, positive appraisal, and accepting responsibility are viewed as emotion-focused coping strategies, whereas planned problem solving and confrontational coping are problem-focused coping strategies (Scheck & Kinicki, 2000: ; Forshaw, 2002: 65). Seeking social support can be both emotional-focused (sharing of feelings) and problem-focused (getting advice to help dealing with the problem).

Nolen-Hoeksema *et al* (1997: 859) describe two other classifications of coping based on the personalities of the individuals themselves. Individuals can either be ruminators or non-ruminators. Ruminators are described as individuals who passively and repetitively focus on their symptoms of distress and the circumstances surrounding those symptoms. Individuals who use ruminative coping do not tend to use any structured problem solving approach to cope (Nolen-Hoeksema & Morrow, in Nolen-Hoeksema *et al*, 1997: 859). They tend to think about or talk about how unmotivated, sad, or lethargic they feel without any attempt to relieve their symptoms. Ruminators would spend much time pondering questions like "Will I ever feel better?" and "Why am I such a mess?" without trying to find ways out of their predicament. Non-ruminators on the other hand devise ways for dealing with their problems and work through to achieve their goals.

6.3.1 Key coping strategies

A number of coping strategies have been developed to help the individual to cope with and therefore eliminate or effectively manage stress. Organizations have developed organizational coping strategies to eliminate or control stressors that occur at the organizational level.

6.3.1.1 Individual coping strategies

A number of individual coping strategies have been researched and found to be effective, which includes exercise, relaxation, time management, behavioural self-control and social support as well as cognitive therapeutic techniques such as stress inoculation and problem solving.

1)   Exercise

Exercise is one method put forward by researchers to relieve stress whether it is walking, jogging, swimming, bicycling, or playing ball sports such as tennis or squash. Exercise results in increased fitness, which is the maintenance of a good physical condition as indicated by one's endurance and strength (Baron & Byrne, 2003: 545). Fitness, for example, lowers blood pressure (Brownell in Cotton, 1990: 170); reduces cardiovascular morbidity and mortality (Oberman in Brown, 1991: 556); assists with the metabolism of carbohydrates (Lennon *et al* in Brown, 1991: 556); and effects

plasma insulin levels as well as plasma lipid and lipoprotein levels (Brownell in Brown, 1991: 556). Fitness is also known to be associated with a number of psychological benefits such as improvements in self-concept (Hughes in Brown, 1991: 556), improved mood states (Folkins & Sime in Cotton, 1990: 171), as well as cognitive functioning (Tomporowski & Ellis in Brown, 1991: 556).

Brown (1991: 558) conducted research on the long-term effects of exercise. Altogether 37 female and 73 male undergraduate students took part in the study requiring riding of an exercise bike under standard conditions.   Using the student's self-reports and measuring each student's heart rate before, during, and after riding the exercise bike, each participant's fitness was assessed. The frequency of illness was by obtained from self-reports and objective data highlighting the number of visits to the college health centre over a period of two semesters. The number and severity of negative events over the previous year determined stress levels for each individual student. The results showed that students who experienced low levels of stress throughout the year had very few illnesses, regardless of their physical fitness. However, when students experienced high levels of stress, it was found that high-fitness students made significantly less visits to the health centre than did the low-fitness students.

Sufficient evidence exits to the beneficial effects of exercise and taking steps to implementing an exercise program for an individual appears straightforward. The problem with exercise is not getting started, but rather adhering to the chosen exercise routine (Cotton, 1990: 172). Brownell (in Cotton, 1990: 172) estimates that attrition from exercise programmes averages at least 50% after six months. Smoking appears to be one of the most reliable predictors of exercise adherence and is associated with lower enrolment as well as higher dropout rates in exercise programmes (Martin & Dubbert, in Cotton, 1990: 173).

2)   Relaxation

Relaxation is a related method individuals can use to manage stress. Relaxation can take many forms. An individual can use specific relaxation techniques such as biofeedback, progressive relaxation, or meditation with the purpose to effectively reduce the perceived stress and to manage a prolonged stressful situation (Cotton, 1990: 128; Forshaw, 2002: 73; Luthans, 2002: 416). The individual can therefore counter the undesirable physiological effects of stress thus decreasing muscle tension, and also learning to lower blood pressure or heart rate, and gastric activity (Cotton, 1990: 128; Forshaw, 2002: 73).

Another form that relaxation can take is to take regular vacations or just taking it easy. Lounsbury and Hoopes (1986: 137) found that the attitudes of individual's toward a variety of workplace characteristics improved significantly following a vacation. These included job satisfaction, job involvement, organizational commitment, turnover intention, and life satisfaction. Luthans (2002: 416) suggests that taking it easy may 'mean curling up with a good book in front of a fireplace or watching something "light" (not a violent program or a sports program) on television.'

3)   Time management

Amongst others time pressures are of the major causes of stress among managers (Luthans, 2002: 415). Time management is a common technique used for reducing the stress by eliminating the sense of being under time pressure (Forshaw, 2002: 73). Many organizations train their staff in the use of these techniques. Luthans (2002: 415) lists some of the most helpful guidelines for effective time management:

- Make out a "to-do" list that identifies everything that must be done during the day. This helps keep track of work progress.
- Delegate as much minor work as possible to subordinates.
- Determine when you do the best work – morning or afternoon – and schedule the most difficult assignments for this time period.
- Set time aside during the day, preferably at least one hour, when visitors or other interruptions are not permitted.
- Have the secretary screen all incoming calls in order to turn away those that are minor or do not require your personal attention.
- Eat lunch in the office one or two days a week in order to save time and give yourself the opportunity to catch up on paperwork.
- Discourage drop-in visitors by turning your desk so that you do not have eye contact with the door or hallway.
- Read standing up. The average person reads faster and more accurately when in a slightly uncomfortable position.
- Make telephone calls between 4:30 and 5:00 p.m. People tend to keep these conversations brief so that they can go home.
- Do not feel guilty about those things that have not been accomplished today. Put them on the top of the "to-do" list for tomorrow.

4)   Social support

A key factor in reducing stress is to seek social support in friendships and family, as well as from professional and other significant others (Forshaw, 2002: 66, Baron & Byrne, 2003: 548). Stroebe (in Forshaw, 2002: 66) has outlined the main categories of social support given below.

- Appraisal support: This refers to where a person is enabled or encouraged to evaluate his or her own state of health or problem-state, possibly by obtaining information and being empowered. They are therefore able to put their stressors into context.
- Emotional support: It refers to being loved, cared for, protected, listened to, empathized and sympathized with. It is what is often meant when someone says they have a 'shoulder to cry on'.
- Esteem support: This gives the individual a sense that he or she is valued, or held in esteem, by others. The feelings of self-worth and self-esteem depend how the individual perceives others' opinions of him or her. The more competent and skilful, worthwhile, and good a person feels, the more likely he or she is able to cope with stressful demands.
- Informational support: This is often provided in the form of advice, knowledge, and feedback, which can assist the individual in finding the most effective approach to deal with the stressful situation.
- Instrumental support: It refers to down-to-earth practical matters where the individual cannot attend an exercise class if he or she has no one to look after the children, or does not have the financial resources to go.

Social support is hypothesized to moderate stress in three main ways (House in Lim, 1996: 172):

- Social support may have a main effect on outcomes such as that individuals who experienced higher levels of support are expected to experience better health, less dissatisfaction with their jobs (Fisher in Lims: 1996: 172) and generally protecting them against powerful stressors (Forshaw, 2002: 69).
- Social support may have a direct or main effect on perceived stress such that when social support is present, the level of perceived stress is reduced or alleviated.
- The third effect is a buffering, moderating, or interactive one, where social support can alter the relationship between stress and its outcomes.

Social support interacts with stress such that the relationship between stress and its outcomes becomes more pronounced for individuals with low levels of support than for individuals with high levels of support (Lim, 1996: 190; Forshaw, 2002: 69).

Baron and Byrne (1997: 533) conclude that 'people who interact closely with others are better able to avoid illness than those who remain isolated from interpersonal contact.' When illness does occur, those that receive social support recover more quickly than those who do not receive support. Within a work setting forming close associations with trusted empathetic co-workers and colleagues as well as the organization who provide support helps to lessen the effects of stressors (Quick *et al*, 1997: 199). The effect of social support has been researched in relation to work-related stressors such as role overload, and role conflict (Ganster, Fusilier, & Mayes in Lim, 1996: 172), role ambiguity (Erera in Lim, 1996: 172) and job insecurity (Lim, 1996: 190). Work-based support such as support from supervisor and colleagues at work has been found to be more important than support that are not based on work, such as support from family and friends in moderating the effects of stress specific to the work setting except in the case of job insecurity where both contributed significantly (Lim, 1996: 190).

5)   Cognitive therapy techniques

Beck (in Cotton, 1990: 189) has proposed a cognitive model of stress, which relates the role of cognitions in the formulation of stress, and the role of stress in the formulation of cognitions. Cotton (1990: 189) quotes Beck's first principle in his model: "The construction of a situation (cognitive set) is an active, continuing process that includes successive appraisals of the external situation and the risks, costs, and gains of a particular response. "When the individual's vital interests appear to be at stake, the cognitive process provides a highly selective conceptualization" (p.258). At the present there is no single set of techniques that define cognitive therapy approaches (Carson *et al*, 2004: 581). The various approaches are characterized by the conviction that cognitive processes influence emotion, motivation, and behaviour, and the techniques that bring about change are pragmatic in nature. Cognitive approaches can be used as either problem-focused or emotion-focused strategies in dealing with stress. As a problem-focused tool it can be used to change the individual's perception of stress and as an emotion-focused tool it can be used to modify the subjective response to stress or change coping behaviour (Cotton, 1991: 189).

When Beck's conceptualisation of the stress process is applied to Lazarus and Folkman's transactional model of stress (see section 3.2.4.1) cognitive techniques can be applied to

maladaptive thought patterns to attempt to change primary appraisal, secondary appraisal, or reappraisal (Cotton, 1990: 190).

The three leading cognitive therapists, Albert Ellis, Aaron Beck, and Donald Meichenbaum differ in some respects in their general approaches to therapy, and in the specific techniques employed in therapy. The approach of both Beck and Ellis emphasize the reduction of idiosyncratic thought patterns whereas Meichenbaum focuses on the reinforcement of adaptive functioning (Butcher *et al*, 2004: 582; Cotton, 1990: 191).

a)   Stress inoculation

Meichenbaum (Butcher *et al*, 2004: 582; Cotton, 1990: 196) has developed a primarily cognitive strategy consisting of three phases for dealing with stress, which he calls Stress Inoculation Training (SIT). The purpose of SIT is to modify the individual's response to stress and to maximize cognitive coping, which emphasizes the use of self-instruction in bringing about the desired behaviour.

The first phase of SIT aims to educate the client with the purpose of understanding the stress response and creating a connection between the individual's self-statements and the resultant stress reaction. The second phase focuses on the teaching of a number of coping skills for dealing with the stressors with the main emphasis on cognitive coping. Self-instruction plays an important role during this phase. The purpose of self-instruction is to encourage individuals to analyse the problem in a systematic way. They learn to:

- Assess the reality of the situation.
- Control negative thoughts.
- Acknowledge, use, and relabel arousal.
- Prepare to confront a stressor.
- Cope with the reaction to a stressor.
- Evaluate performance and self-reinforcement.

The third stage involves exposure to the stress-inducing situation and the application of the coping skills, which had been learned. Initially the stressors that are chosen are less demanding. When they are mastered more demanding situations are selected. In this way the individual is inoculated as in medicine where the individual is inoculated against disease. The focus is on developing and

applying specific problem solving and coping skills. Standard behavioural procedures such as modelling, rehearsal, reinforcement, shaping, and self-monitoring are used to learn these skills.

b)   Problem solving

Another technique utilized to effect change used by cognitive orientated therapists is that of problem solving. Many stressed clients may need to be taught the process of problem solving (Cotton, 1990: 199). The application of problem solving as it occurs in everyday living has become known as social problem solving (D'Zurilla & Nezu in Kant *et al*, 1997: 74). Research in social problem solving has been increasing in recent years and empirical support has accumulated showing that problem solving is and important coping strategy having a significant influence on psychological wellbeing and adjustment (Nezu & D'Zurilla in Maydeu-Olivares & D'Zurilla, 1996: 130).   Most of the research in social problem solving has been based on a model of problem solving originally developed by D'Zurilla and Goldfried (in Kant *et al*, 1997: 74) that later was expanded and refined by D'Zurilla and Nezu (in Maydeu-Olivares & D'Zurilla, 1996: 116). The problem solving outcomes are largely determined by two major, partially independent processes, problem orientation and problem solving proper, for example application of problem solving skills described below (Kant *et al*, 1997: 77).

- ▪ Problem orientation is the motivational component of the problem solving-process, involving the operation of a set of relatively stable cognitive schemas (constructive as well as dysfunctional) that reflect a person's general awareness and perceptions of everyday problems, as well as his or her own problem solving ability (for example, challenge or threat appraisals, self-efficacy expectancies in problem solving, outcome expectancies of problem solving). Together with the emotions and behavioral approach-avoidance tendencies that are assumed to accompany them, these cognitive schemas can facilitate or inhibit problem solving performance in specific situations, but they do not include the specific problem solving techniques that enable individuals to maximize their problem solving effectiveness.
- ▪ Problem solving per se, on the other hand, refers to the rational search for a solution through the application of specific problem solving skills and techniques that are designed to increase the probability of finding the "best" or most adaptive solution for a particular problem.

The overall process of problem solving can be conceived as consisting of the general motivational component, problem orientation, and a set of four specific problem solving skills, which include problem definition and formulation, generation of alternative solutions, decision making, and

solution implementation and verification (D'Zurilla and Nezu, 1990: 159). A stressed client may have a poor understanding of what exactly the problem actually is and may only see one possible solution. Applying these steps requires the following application (Perri *et al*, 1992: 117):

▪ Establishing a problem orientation where the client must recognize the problem, realize that problems are part of normal life, and be prepared to work on them.

▪ Problem definition and formulation requires the client to identify the specific aspects of the situation that makes it a problem in a way that separates relevant from irrelevant information and to set realistic goals or objectives.

▪ Generation of alternative solutions requires the generation of a variety of possible solutions by brainstorming as many ideas as possible without judging them. In addition Perri *et al* (1992: 118) also advocate the use of the strategies-tactics approach, which requires that clients initially conceptualise general means or strategies for solving a problem and then subsequently produce various tactics or specific ways in which the strategy may be implemented.

▪ Decision-making involves the evaluation of each alternative and to select the most effective alternative for the client.

▪ Implementation and verification of solution involve taking the selected solution to the client's problem and implementing it. The effectiveness of the solution can now be monitored and evaluated and if deemed necessary modified appropriately.

Problem solving is a logical, systematic, and reasonably easily learned approach, which can be used to help individuals and is based on principles of common sense (Hawton & Kirk, 1989: 425).

6.3.1.2 Organizational strategies

Many organizations have realized that high levels of stress in the workplace can often lead to sharp losses in productivity, increased absenteeism, bigger health care spending as well as increased disability and workers compensation claims (Murphy, 1995: 41). There are two ways to deal effectively with this phenomenon (Moorhead & Griffin, 1989: 211). Organizations are inherently responsible for creating some of the experienced stress and therefore should also aid in relieving it by introducing institutional and collateral programmes.

1)   Institutional programmes

Institutional programmes are undertaken through established organizational mechanisms (Randall & Jackson, in Moorhead & Griffin, 1989: 213). For example the work-environment fit as a result of effective job design and work schedules may decrease the level of stress. The reorganization of

working time schedules has occurred over the last decade as a result of economic restructuring (Bosch, in Sparks, Faragher, & Cooper, 2001: 492). This includes greater flexibility in work schedules to cover extended operating or opening hours. Flexible work-time systems, based on weekly, monthly or yearly work hours, are used by many organizations across Europe (Brewster, Mayne, Tregaskis, Parsons, & Atterbury, in Sparks, Faragher, & Cooper, 2001: 493). Flexible work hours have resulted in lower stress levels, increased job enrichment, morale and autonomy, reduced absenteeism and tardiness, and improved job satisfaction and productivity (Pierce *et al* in Sutherland & Cooper, 2000: 178) especially when the employees could choose their work time schedules (CARNET and Work Family Directions, in Sparks, Faragher, and Cooper, 2001: 494).

Organizational culture, which expects the employee for example not to take time off or go on leave, may contribute to high levels of stress (Moorhead & Griffin, 1989: 214). When workers feel that they do not belong and that they lack opportunities to participate and be involved in decision-making, they may feel unduly restricted, which is associated with high levels of stress (Sauter, Hurrell, & Cooper, in Cartwright & Cooper, 1997: 20).

Supervision can play an important role in managing stress (Moorhead & Griffin, 1989:214; Sparks, Faragher, Cooper, 2001: 501). Managers and supervisors intentionally or unintentionally can be a source of stress for their subordinates. A more democratic management style was associated with lower levels of perceived stress (Beehr & Gupta, in Sparks, Faragher, & Cooper, 2001: 501) whereas a bullying management style has been linked with ill health of employees, including stress, anxiety, and depression (Höel, Rayner, & Cooper, in Sparks, Faragher, Cooper, 2001: 501). Managerial support plays an important role in employee wellbeing. When supervisory support was viewed as poor, it was linked with increased levels of stress (Greller *et al* in Quick *et al*, 1997: 200). Existing research has identified two leadership styles that can improve work performance and benefit employee wellbeing, for example transformational and transactional leadership (Burns, in Luthans, 2002:591; Sparks, Faragher, & Cooper, 2001: 502). Transactional leadership is based of and exchange relationship that involves goal-setting, feedback, and reinforcement strategies to help employees work more effectively. Transformational leadership is based more on leader's encouragement of their employees to find meaning in their work, inspiring them, effecting intellectual stimulation, giving individual consideration, involving them in participative decision-making and elective delegation (Bass, in Luthans, 2002: 591; Sparks, Faragher, & Cooper, 2001: 502).

2)   Collateral programmes

Many organizations have also introduced collateral programmes to aid in the reduction of stress (Moorhead & Griffin, 1989: 215). Collateral programmes refer to programmes that the organization has specifically introduced to help employees deal with stress and they include stress management programmes, work-family initiatives, and employee assistance programmes (EAP) (Moorhead & Griffin, 1989: 214; Luthans, 2002: 417).

Stress management refers to specific interventions that are designed to aid the employee in the identification and analysis of stressful situations, and the application of a variety of techniques to either change the cause of stress, to modify the employee's appraisal of stressful situations or to deal more effectively with the symptoms of stress (Cotton, 1990: 4; Murphy, 1996: 112). The approach to stress management is determined largely by the employee's needs (Cotton, 1990: 13). They can choose either individual therapy or group therapy, which some organizations offer through their EAP programmes. Stress management workshops are often the most popular. Murphy (1996: 112) reviewed a variety of stress management programmes, which used a variety of techniques including muscle relaxation, meditation, biofeedback, cognitive-behavioural skills and a combination of two or more of these techniques. He found that the most effective approach with regards to health outcomes, i.e. psychological (e.g., anxiety) or physiological (e.g., blood pressure), were obtained when two or more techniques were combined such as muscle relaxation and cognitive-behavioural skills. However, none of the stress interventions was consistently effective on producing effects on job/organization-relevant outcomes such as absenteeism or job satisfaction. Stress management programmes often combine the above mentioned techniques with aspects such as the role of physical exercise and diet, assertiveness training, time management, and communication skills.

Bunce and West (1996: 228) found in a follow-up study one year later that the improvements they measured in psychological strain associated with the traditional and organizationally orientated stress management programme had dropped back to the initial levels. This is indicative of the need to introduce methods to maintain the impact of the intervention.

Organizations are effecting the reduction of stress through work-family initiatives (Sutherland & Cooper, 2000: 177; Overman in Luthans, 2002: 417). These include restructuring of jobs and job duties, telecommuting, part-time work and job sharing, and flexible scheduling. Many organizations provide on-site child-care facilities and in some organizations even elder care, paid family and

medical leave, release time for personal and or family events, and limits on the frequency and distance of business travel.

Employee assistance programmes (EAP) have become a very valuable aid to organizations in helping employees deal with stress (Cooper *et al*, 2002: 290; Luthans, 2002: 417; Murphy, 1995: 43). EAP's provide employees with specific services such as counselling for personal or work-related issues, alcohol and drug rehabilitation, and financial and legal advice. They offer workshops and consultations on topics such as marriage, single parenting, working parents, stress management, and personal support. EAP's have been found to effectively reduce absenteeism, health care costs, and disciplinary action in many cases.

6.4   Conclusion

Stress in the workplace is here to stay and those employees who cope with perceived stressors tend to use a problem solving approach and not an emotional-focused approach to managing their stress. When they cannot deal with their perceived stress it is possible for them learn ways to deal more effectively with it by either changing the cause of the stress within the environment, or by learning new ways to appraise the stressor and to deal more effectively with the symptoms. It is clear that as the organization contributes to the individual's experience of stress it has a responsibility to aid in the reduction of the experienced stress. Employee assistance programmes and work-family interventions have been found to be effective over the long run in reducing absenteeism, increasing job satisfaction, and decreasing health care costs. Stress management workshops however initially appear to be effective and generally report positive outcomes, but over the long-term benefits are not maintained and therefore a way to maintain the initial benefits needs to be found.

The present research seeks to determine the role problem solving plays in the effective coping or lack thereof in dealing with perceived stress. This information is important in developing stress management programmes that focus on the necessary skills that will teach employees how to deal more effectively with work stress thus reducing the negative health outcomes and costs to the organization.

CHAPTER 7

METHODOLOGY

7.1   Introduction

In South Africa the cost per year as a result of absenteeism and loss of productivity due to stress is estimated to be approximately R500 million ("Executive Stress", 1991: 102), with both white managers and black high level employees suffering from high levels of work stress (Van Zyl, 1993: 36). Research has been conducted on stress inherent in specific groups within the work context (Van Zyl, 1993: 36; Van Zyl 1998: 22; Van Zyl & Pietersen, 1999: 74) with some findings suggesting that approximately 30-40% of South Africans suffer from high levels of stress (Van Zyl in Van Zyl, 1993: 36). In the USA the comparative figures were found to be 13-25% (Spielberger & Reheiser in Van Zyl, 1998: 22) which underlines the seriousness of the South African stress experience. Generally the research focuses on the various sources of stress and on the symptoms associated with the experience of stress, such as anxiety, depression, and aggression (Van Zyl, 1993: 37; Van Zyl, 1998: 24. However, no research relating stress and types of workplace aggression could be traced in the South African research literature. Similarly only one study researching the specific coping strategies used by South African managers was found (Spangenberg & Orpen-Lyall, 2000: 6). No research investigating the social problem solving strategies of employees coping with stress could be traced. Van Zyl (2002: 27) believes that the levels of stress in the South African organizations are exceptionally high. The seriousness of the stress experience in South Africa should encourage research to not only focus on the causes and consequences of stress but also on how employees cope with their experienced stress with the aim to aid organizations and individuals to develop improved strategies and programmes to counter the negative effect of stress. In view of the above discussion, the main aims of the present study were to determine:

- Overall levels of stress experienced by a sample of high-level employees.
- Ramifications or branched structures of stress in the workplace experienced by employees by comparing biographic substructures such as gender, marital state, age, type of organization, qualification, and position level in the organization.
- Types of stressors that contribute towards participants' experience of stress.
- Levels of workplace aggression experienced and witnessed by these high-level employees.
- The psychological Impact that stress might have on the sample of high-level employees with regard to anxiety, depression, and worry.
- Coping strategies used by the sample with respect to social problem solving.

- Multivariate relationships between stress, aggression in the workplace, anxiety, depression, worry, and social problem solving with the biographical variables mentioned earlier, for example the total group, gender as well as age, marital status, type of organization, qualification, and position level substructures in the organization.
- The co-relationship between on the one hand stress and on the other hand aggression in the workplace, anxiety, depression, worry as well as social problem solving.

This chapter sets out the methodological approach that was used to achieve the aims of the outlined study.

7.2   Research hypotheses

The research hypotheses that will be tested in the main investigation are as follows:

7.2.1   First set

This set of hypotheses refers to all instances where the z test was used.

- Null hypothesis H_0: $z_{(j)} = 0$

Levels of overall stress or stress from causes outside the workplace, witnessed and experienced aggression in the workplace, characteristics of anxiety, depression, sources of worry and social-problem solving approaches did not differ from zero and thus were insignificant.

- Alternative hypotheses H_1: $z > 0$

All the above levels referred to were greater than 0 and were thus of significance.

The above hypotheses are referred to in sections 9.4.1.1, 1) a) to 9.4.1.1, 1) h), sections 9.4.1.1, 2) a) to 9.4.1.1, 2) b), sections 9.4.1.1, 3) a) to 9.4.1.1, 3) b), sections 9.4.1.1, 4) and 9.4.1.1, 5) as well as sections 9.4.1.1, 6) a) to 9.4.1.1, 6) j) of chapter 9.

7.2.2   Second set

This particular set of hypotheses refers to all instances where the student's T- test was used.

- Null hypotheses H_0:$\mu_D = 0$

The two genders and marital groups did not differ significantly in terms of stress, experienced and witnessed aggression in the workplace, anxiety, depression, worry and social problem-solving approaches.

- Alternative hypotheses $H_1: \mu_D > 0$

The first mentioned gender and marital group obtained significantly higher scores in terms of stress, experienced and witnessed aggression in the workplace, anxiety, depression, worry and social problem-solving approaches.

- Alternative hypotheses $H_1: \mu_D < 0$

The first mentioned gender and marital group obtained significantly lower scores in terms of stress, experienced and witnessed aggression in the workplace, anxiety, depression, worry and social problem-solving approaches.

The above hypotheses are referred to in sections 9.4.2.1,1), sections 9.4.2.1, 2) a) and 9.4.2.1, 2) b), sections 9.4.2.1, 3), 9.4.2.1, 4), 9.4.2.1, 5) and 9.4.2.1, 6), sections 9.4.2.2, 1) and 9.4.2.2, 2) a) and 9.4.2.2, 2) b) as well as sections 9.4.2.2, 3), 9.4.2.2, 4), 9.4.2.2, 5) and 9.4.2.2, 6) of chapter 9.

7.2.3   Third set

This particular set of hypotheses refers to all instances where advanced analysis of variance was undertaken by the simultaneous comparison of three or more biographical subgroups for each particular variable. Analysis of variance might lead to two other sets of calculations. Firstly, two or more biographic variables occasionally might produce significant interactions (RxC). Secondly, where this is the case, subgroups are paired two-at-a-time and subjected to further analysis by means of the Scheffé test. All of these calculations provide information relevant to the various ramifications of stress and other stress-related variables of importance in the study that was undertaken.

- Null hypotheses $\mu_{(1)} = \mu_{(2)} = \mu_{(j)}$

The first, second and j^{th} subgroups of a particular biographical variable did not differ significantly in terms of stress, experienced and witnessed aggression in the workplace, anxiety, depression, worry and social problem-solving approaches.

- Alternative hypotheses $\mu_{(1)} \neq \mu_{(2)} \neq \mu_{(j)}$

The first, second and j^{th} subgroups of a particular biographical variable did differ significantly in terms of stress, experienced and witnessed aggression in the workplace, anxiety, depression, worry and social problem-solving

- Null hypothesis RxC = 0

This hypothesis states that no noticeable interaction of any significance was observed between subgroups of the relevant biographical variables.

- Alternative hypothesis RxC > 0

This hypothesis states that significant interaction occurred between two or more of the subgroups of relevant biographical variables.

During post-hoc comparisons subgroups are paired off two-at-a-time. The null and alternative hypotheses have the same structure as those that are applicable to the T-test as set out in section 7.2.2 of chapter 7.

Sections 9.4.3.1, 1) to 9.4.3.1, 8), sections 9.4.3.2, 1) a) to 9.4.3.2, 2) d), sections 9.4.3.3, 1) to 9.4.3.3, 8), sections 9.4.3.4 and, 9.4.3.5 as well as sections 9.4.3.6, 1) to 9.4.3.6, 10) are applicable.

7.2.4 Fourth set

The fourth set of calculations refers to all instances where Bravais-Pearson product-moment correlation coefficients were calculated.

- Null hypothesis $\rho_{xy} \approx 0$

The co-relationships between stress and the variables pertaining to aggression in the workplace, anxiety, depression, worry as well as social problem solving, all approximate 0 and are thus insignificant.

- Alternative hypothesis $\rho_{xy} \approx 1$

The co-relationships between stress and the variables pertaining to aggression in the workplace, anxiety, depression, worry as well as social problem solving, all approximate 1 and are thus particularly significant.

Likewise, Bravais-Pearson product-moment correlation coefficients between aggression in the workplace, anxiety, depression, worry as well as social problem solving were calculated for the different gender, age, marital status, organizational type as well as the qualification and position level subgroups of the biographical variables. The null and alternative hypotheses are expressed in the same way as above but hold for subgroups only and not for the total sample.

The final set of hypotheses refers to sections 9.5.1.1, 1) to 9.5.1.1, 2), sections 9.5.1.2 to 9.5.1.5, sections 9.5.2.1, 1) to 9.5.2.1, 2), sections 9.5.2.2 to 9.5.2.5, section 9.5.3.1, 1) to 9.5.3.1, 2), sections 9.5.3.2 to 9.5.3.5, sections 9.5.4.1, 1) to 9.5.4.1, 2), sections 9.5.4.2 to 9.5.4.5, section 9.5.5.1, 1) to 9.5.5.1, 2), sections 9.5.5.2 to 9.5.5.5, sections 9.5.6.1, 1) to 9.5.6.1, 2), sections 9.5.6.2 to 9.5.6.5, section 9.5.7.1, 1) to 9.5.7.1, 2), sections 9.5.7.2 to 9.5.7.5 of Chapter 9.

Hypothesis testing throughout the entire study was done at least at the 5% (< 0.05) level.

7.3   Research design

The first phase of the research was to approach various organizations so as to obtain permission for the outlined study. A simple random sampling of high-level employees throughout the country could not be carried out and instead a sample of convenience was chosen, as the organizations that could be approached were accessible to the researcher (McMillan & Schumacher, 2001:175). Fifteen organizations were approached of which two declined based on the fact that they were undergoing major restructuring and one declined because management felt it would waste valuable time. In all cases the research was discussed with the relevant personnel manager. Once permission had been obtained the testing was completed in conjunction with the relevant personnel manager. A passive design was chosen where the researcher 'neither actively forms groups or conditions through random or non-random assignment, nor manipulates an independent variable' (Heppner, Kivlighan, & Wampold, 1992: 213). A simple passive design is also called a correlation design in which the investigator collects data on two variables and then uses a statistical analysis, to describe their relationship.

7.3.1   Data collection

To minimize costs the organizations that were approached were either in Pretoria itself or in adjacent major industrial cities and towns within travelling distance of Pretoria. For statistical reasons a return rate of 100 useable questionnaires was required. However this requirement was surpassed. The study was begun on the 19th of October 1999 and the last questionnaires were completed by the 22nd of February 2000. A comprehensive description of the sample is given in Chapter 8.

7.3.1.1 Psychometric instruments

Twelve biographical items were combined with Experience of Work and Life Circumstances Questionnaire developed by the HSRC (Van Zyl & Van der Walt, 1991), Aggression in the

Workplace Questionnaire developed by Baron and Neuman (1996), IPAT Anxiety Scale, Beck's Depression Inventory, the Penn State Worry Questionnaire, and the Social Problem Solving Inventory-Revised developed by D'Zurilla, Nezu, and Maydeu-Olivares (1996).

7.3.1.2 Biographical questionnaire

The participants responded to 12 items, for example by stating their sex, age in years and months, ethnicity, marital status, home language, highest qualification achieved, the organization they presently work for, their present position title, their overall work experience, their work experience with their present employer, the department they were presently in, and their occupation. Their name was not required so as to maintain confidentiality.

7.3.1.3 Experience of Work and Life Circumstances Questionnaire

The Experience of Work and Life Circumstances Questionnaire (WLQ) was developed by the Human Sciences Research Council (Van Zyl & Van der Walt, 1991) with the view to meeting the need for a stress questionnaire standardized for South African circumstances. It not only attempts to measure the level of stress, but also the causes of stress an employee may be experiencing. The WLQ consists of two parts, experience of work, and circumstances and expectations.

The experience of work part of the questionnaire determines the individual's level of stress. The value obtained is an indication of whether the individual's experiences a normal, high or very high level of stress. This result is based on the answers of 40 questions. Ratings are made on a five-point scale ranging from "Virtually never" to "Virtually always", which are indicative of how often certain feelings of stress, such as depression, anxiety, and frustration, occur.

The circumstances and expectations part of the questionnaire analyses the causes of the individual's level of stress. The respondent selects one of the answers according to a five-point Likert scale that is indicative of how often certain aspects occur. It is made up of two subsections, Scale A and Scale B, totalling 76 questions about the individuals' circumstances and unfulfilled expectations.

The circumstances that are viewed as stressful may be found within and/or outside the work situation. Within the work environment seven items assess the functioning of the organization, the characteristics of the task(s) to be performed, physical working conditions and job equipment, social as well as career matters, and remuneration, fringe benefits and personnel policy. A high score is indicative that the individuals experience the above issues as problematic.

Outside the work situation 16 items assess family problems, financial circumstances, phase of life, general economic situation in the country, changing technology, facilities at home, social situations, status, health, background, effect of work on home life, transport facilities, religious life, political view, the availability of accommodation and recreational facilities.

The reliability of the different fields of the WLQ, calculated according to the Kuder-Richardson formula 8 as modified by Ferguson ranges from 0.83 to 0.92. The test-retest reliability coefficients vary from 0.62 to 0.80. Based on these results the reliability of the WLQ may be regarded as satisfactory.

The WLQ was found to have both face and logical validity, each regarded as indications of content validity (Van Zyl & Van der Walt, 1991). Construct validity was determined by both the intratest and intertest methods (Van Zyl & Van der Walt, 1991). The intratest method reflected a fairly significant relation between the different fields/scales of the WLQ. The intertest method showed a good relation with the 16 PF Questionnaire, the PHSF Relations Questionnaire, and the Reaction to the Demands of Life Questionnaire.

7.3.1.4 Aggression in the Workplace Questionnaire

The Aggression in the Workplace Questionnaire (AWQ) was obtained directly from Robert A. Baron to be used in the study. The AWQ consists of a total of 53 items of which 40 items relate to the perceived frequency of various forms of aggression, both witnessed and experienced. Five items represent each of the eight types of aggression suggested by Buss' three dichotomies: physical-verbal, active-passive, direct-indirect (Buss in Baron & Neuman, 1996: 164). Participants were asked to rate the extent to which they had personally witnessed and experienced each type of aggression. Ratings were made on a five-point scale ranging from "Never" to "Very Often" for both witnessed and experienced aggression. The reliability of both these scales were high, Cronbach's alpha = 0.94 for witnessed aggression, Cronbach's alpha = 0.95 for experienced aggression.

7.3.1.5 IPAT Anxiety Scale

The IPAT Anxiety Scale (IAS) was adapted for use in South Africa by the Human Sciences Research Council (Cattel *et al*, 1995). The IAS was developed from extensive research and practice as a means of measuring anxiety. It is applicable to all age groups from the ages of 14 or 15 years upwards throughout the adult range.

It consists of 40 items distributed among five anxiety-measuring factors. These factors consist of Defective Integration, lack of Self-sentiment ($-Q_3$), Ego Weakness, lack of Ego Strength ($-C$), Suspiciousness or Paranoid Insecurity (L), Guilt Proneness (O), and Frustrative Tension or Id Pressure (Q_4). The items can be divided into those items, which manifestly refer to anxiety (B-score), also called overt, symptomatic, conscious anxiety, and the more covert hidden-purpose cryptic probes of anxiety (A-score). The responses are arranged so that left-right position preferences cannot speciously affect anxiety scores. The total score on these 40 items measures the total anxiety experienced by the respondent. Each item has three alternative answers, with the high-score keyed responses somewhat more frequently acquiescent ("yes", "true") rather than disagreeing ("no", "false"). This actually adds to the validity of the score, since acquiescence has been established empirically as itself an expression of anxiety.

The reliability coefficients for the total anxiety score, as well as the covert and the overt part score based on Ferguson's variation of the Kuder-Richardson Formula 20 varied from 0.76 to 0.88. The internal consistency reliability coefficients for the five personality components based on Ferguson's variation of the Kuder-Richardson Formula 20 varied from 0.27 to 0.70 for English and Afrikaans speaking girls and boys, which were remarkably high for the brevity of the subscales.

Correlating the covert and the overt scores, as well as the total anxiety score of the IAS with the NB Adjustment Questionnaire assessed construct validity. The coefficients varied from -0.21 to –0.55 and from 0.40 to 0.53.

7.3.1.6 Beck Depression Inventory

The Beck Depression Inventory (BDI) is a device that detects depression and accurately rates its severity (Beck *et al*, 1988). It consists of 21 items that deal with how a person has been feeling during the past few days. Each question consists of four possibilities ranging from the least severe to the most severe, e.g. "I do not feel sad" to "I am so sad or unhappy that I can't stand it". The least severe possibility is assigned a score of zero and the most severe a score of four. The respondent reads each item carefully and selects one answer out of the four that reflects the severity of how he or she is feeling. The 21 scores are totalled with the lowest possible score being zero and the highest possible score being 63. The total obtained is then compared to table and a category selected that describes the severity of the depression ranging from "These ups and downs are considered normal" to "Extreme depression".

7.3.1.7 Penn State Worry Questionnaire

The Penn State Worry Questionnaire (PSWQ) was obtained directly from Tom Borkovec of Pennsylvania State University. It consists of 16 items all relating to worry as a trait and to crucial aspects of clinically significant worry. The subject rates each item on a five-point scale ranging from "not at all typical" to "very typical". After correcting the reverse-score items, the sum of the 16 items is obtained. The total value can be compared to the mean for a number of criterion groups, for example the Unselected Groups, which provides an estimate of worry in a general population, bearing in mind that the vast majority of its subjects were college students. The mean for this group nearly matches the actual middle score (48) of the PSWQ (Molina & Borkovec, 1994: 270).

The 16-item PSWQ has been found to possess high internal consistency in both college samples (Davey; Ladouceur *et al*; Meyer *et al* in Molina & Borkovec, 1994: 269) and in a large sample of mixed anxiety disorders and GAD clients (Brown *et al* in Molina & Borkovec, 1994: 269), the coefficient alphas varying from 0.86 to 0.95.

The PSWQ has been found to correlate significantly to two alternative questionnaires for assessing worry, the Student Worry Scale (SWS) and the Worry Domains Questionnaire (WDQ). The correlation between the PSWQ and the SWS was $r = 0.59$ and that between the PSWQ and the WDQ was $r = 0.67$. These moderately high correlations are to be expected as the PSWQ was designed as a trait measure of the general predisposition to engage in pathological worry irrespective of worry content, whereas the other two questionnaires were created to tap into normal worry based on specific content areas.

7.3.1.8 Social Problem-Solving Inventory-Revised

The Social Problem-Solving Inventory–Revised (SPSI-R) is a 52-item self-report instrument that is linked to a five-dimensional model of social problem solving, which was derived from a factor-analytic study (Maydeu-Olivares & D'Zurilla, 1996: 119) of the original Social Problem-Solving Inventory (D'Zurilla & Nezu, 1990: 158). The SPSI-R consists of two constructive or adaptive problem solving scales, Positive Problem Orientation and Rational Problem Solving, and three dysfunctional scales, Negative Problem Orientation, Impulsivity/ Carelessness Style, and Avoidance Style. The Rational Problem Scale can be broken down into four subscales, Problem Definition and Formulation, Generation of Alternatives Solutions, Decision Making, and Solution Implementation and Verification (D'Zurilla, Nezu, & Maydeu-Olivares, 1996: 9). D'Zurilla, Nezu, and Maydeu-Olivares (1996: 9) describe each of these scales as follows:

Positive Problem Orientation may be described as a constructive, problem solving cognitive *set* that involves the general disposition to; (a) appraise a problem as a *challenge* (for example opportunity for benefit or gain) rather than a threat; (b) a belief that problems are solvable (*optimism*); (c) belief in one's own personal ability to solve problems successfully ("self-efficacy"); (d) belief that successful problem solving takes time, effort, and persistence; and (e) committing oneself to solving problems with dispatch rather than avoiding them.

In contrast, *Negative Problem Orientation* is a dysfunctional or inhibitive cognitive-emotional set that involves the general tendency to: (a) view a problem as a significant threat to well-being; (b) expect problems to be insolvable (*pessimism*), doubt one's own personal ability to solve problems successfully (*low self-efficacy*); and (d) become frustrated and upset when confronted with problems on living (*low frustration tolerance*).

Turning to the proper dimensions of problem solving, *Rational Problem Solving* is a constructive dimension that may be defined as the rational, deliberate, systematic, and skilful application of effective or adaptive problem solving principles and techniques (for example problem definition and formulation, generation of alternative solutions, etc.). When faced with a problem, the person carefully and systematically gathers facts and information, identifies demands and obstacles, sets a problem solving goal, generates a variety of different alternative solutions, evaluates the possible consequences, judges and compares the alternatives, and then chooses and implements a solution while carefully monitoring and evaluating the outcome.

The *Impulsivity/Carelessness Style* is a deficient problem solving pattern characterized by active attempts to apply problem solving strategies and techniques. However, these attempts are narrowed, impulsive, careless, hurried, and incomplete. The person who scores high on this scale considers only a few solution alternatives, often impulsively going with the first idea that comes to mind; alternatives and consequences are scanned quickly, carelessly, and unsystematically, and solution outcomes are monitored and evaluated carelessly and inadequately.

Finally, the *Avoidance Style* is another defective problem solving pattern characterized by procrastination, passivity or inaction, and dependency. The person scoring high on this scale prefers to avoid problems rather than confronting them, puts off solving problems for as long as possible, waits for problems to resolve themselves, and attempts to shift the responsibility for solving his or her problems to others.

The reliability coefficients for the SPSI-R in four different samples found that all five scales of the SPSI-R showed adequate to high internal consistency in all four samples with the coefficient alpha varying from 0.69 to 0.95. The test-retest reliability for two samples was also adequate to high varying from 0.68 to 0.91 (D'Zurilla, Nezu, & Maydeu-Olivares, 1996: 19).

7.4 Quantitative analysis of test data

The quantitative analysis of the data obtained was carried out by means of different statistical techniques that are described below. Calculations were done using the SAS computer programme. The statistical procedures that were chosen for the data set of 206 respondents were the SAS procedures of Proc Print, Proc Frequency, Proc Means, Proc Anova and Proc Uniwrite. Pearson Correlations and the reliability coefficients Cronbach-alpha were obtained using the ITEMMAN item and test analysis program.

7.4.1 *Descriptive and other statistics*

Descriptive statistics are used to summarize, organize, and reduce large numbers of observations (McMillan & Schumacher, 2001: 207). When data are collected the observations must be organized in such a fashion to allow the researcher to correctly interpret the data and trace underlying trends. The methods that a commonly used to provide grouped data include frequency distributions, measures of central tendency such as the mean, skewness, measures of variability such as the standard deviation, a numerical index that indicates the average variability of the scores from the mean and variance a measure of dispersion related to the standard deviation.

7.4.1.1 The z-test

The z-test is a parametric statistical test that permits the testing of the null hypothesis for a single sample when the population variance is known (Jackson, 2006: 151). Jackson (2006: 151) states that this procedure permits the comparison of a 'sample with a population in order to assess whether the sample differs significantly from the population'. If a difference between the randomly drawn sample and the broader population upon comparison is obtained then it can be concluded that the sample population differs significantly from the reference population.

7.4.1.2 The t-test

The t-test is a parametric statistical test that allows the comparison of the means of two different and independent samples of participants (Jackson, 2006: 197). If the results show that the two

samples do not differ significantly then it may be that they are likely from the same population, or if they do differ significantly then it may be concluded that they represent two different populations. The test has two versions, namely unpooled or pooled (Bordens & Abbott, 2002: 392). The choice depends on the error term selected. Bordens & Abbot (2002: 392) state that the 'unpooled version computes an error term based on standard error of the mean provided separately by each sample'. In the case of the pooled version it computes and error term 'based on the two samples combined, under the assumption that both samples come from populations having the same variance'.

7.4.1.3 Correlation coefficient

One of the basic tools for evaluating and understanding the relationship between two variables is the correlation coefficient (McMillan & Schumacher, 2001: 230). The most common correlation technique is the Pearson product-moment coefficient and is represented by the symbol r.

Correlation coefficients can be described by in terms of their sign and their size. The sign of the correlation is indicative of the direction of the relationship, i.e., a negative sign indicates that the variables are negatively related and a positive sign shows that the variables are positively related. The size of the correlation is represented by a number that can vary from -1.00 to 0.00 for a negative correlation and from 0.00 to $+1.00$ for a positive correlation. This number is a reflection of the strength of the relationship and the closer it becomes to -1.00 or $+1.00$ the stronger it is.

7.4.1.4 Analysis of variance

Analysis of variance refers to statistical techniques that allow the comparison of two or more means to determine if a significant difference exists between these means (McMillan & Schumacher, 2001: 373). When two or more sample means are compared on one independent variable, it is possible to test the null hypothesis by applying a procedure called a one-way analysis of variance (ANOVA). The ANOVA uses the variances of the groups and not the means to calculate a value that reflects the degree of differences in the means. It calculates the F statistic. If the F statistic is large enough, then the null hypothesis can be rejected with confidence and it may be concluded that at least two means are different.

7.4.1.5 Post hoc comparisons (Scheffé)

When the ANOVA is used to test the null hypothesis and the F statistic allows the conclusion that two or more of the means are different then post hoc comparisons are used to indicate those means that are different from each other (McMillan & Schumacher, 2001: 374). The two most

common tests are Tukey and Scheffé of which the Scheffé is considered the most conservative. When employing Scheffé's test, a single range value for all comparisons is used, which is appropriate for examining all possible linear combinations of group means and not just pairwise comparisons. The Scheffé test is exact, even for unequal group sizes.

7.4.1.6 Reliability coefficient

Reliability refers to the consistency of measurement, which is indicative of the extent the results are similar over different forms of the same instrument or occasions of data collection (McMillan & Schumacher, 2001: 244). Another way to view reliability is to determine the extent to the measure is free from error. If a measure has little error it is considered reliable, and if it has a great amount of error it is considered unreliable. Reliability can be estimated in a number of ways of which the two most common are internal consistency and stability (Heppner, Kivlighan, & Wampold, 1992: 244). Only internal consistency will be discussed, as the same tests were not administered on two occasions. Internal consistency is a measure of the homogeneity of the items and can be estimated from giving one form of the measure once. It can be obtained by calculating Cronbach's alpha, the coefficient derived from the Kuder-Richardson 20 formula, and split-half coefficients. The Cronbach alpha assumes equivalence of all items and is used for items that are not scored right or wrong (McMillan & Schumacher, 2001: 247). The Kuder-Richardson 20 formula is a special case of Cronbach's alpha where each item is scored right or wrong. The split-half coefficients are obtained when the test after it has been administered is divided into two halves and a correlation coefficient is calculated between the halves. The Spearman-Brown formula may be used to determine the reliability of the whole test from the split-half reliabilities.

The reliability coefficient varies from 0.00 to 1.00. When the reliability coefficient is found to be 0.70 and higher, it is considered to be high and the scores have little error and are highly reliable.

7.5   Impact of response patterns

When respondents take part in research that requires them to complete a questionnaire or inventory some may present themselves in a positive light, which can affect the validity of their self-reports (Leak & Parsons, 2001: 23; Bartz *et al*, 1996: 248). Response biases due to social desirability continue to be a problematic issue distorting the findings of the research. Responding due to social desirability may occur in two forms, namely by impression management or by self-deception. The former is viewed as valid indicator of lying and intentionally deceptive while the latter is an 'honest, but perhaps inaccurate, overly positive self-description' (Leak & Parsons, 2001:

23; Bartz *et al*, 1996: 248). Within organizational research demographic or factual data are the least susceptible to response biases (Podsakoff & Organ, 1986: 532). Data obtained by the use of scaling, for example job attitude or stress, is subject to response biases. One way to overcome this problem is to develop a self-report measure that contains 'multiple, Likert-type items that, after summation, produce scores with an acceptable coefficient alpha (Gardener *et al*, 1998: 1). Another major problem occurs when measures of two or more variables are obtained from the same respondents using self-reports based on scaling to determine a relationship between them (Gardener *et al*, 1998: 1; Podsakoff & Organ, 1986: 533). This may result in what is called common methods variance which refers to the fact that when items intended to measure different but related constructs have similar item contents and identical scale response formats, it may cause spurious correlations to some degree. One way to reduce common methods variance is to develop "good" items that differ substantially in format from the other measures used in the research. This interrupts the respondent's response style (Harrison & McLaughlin in Gardener *et al*, 1998: 1). All of the questionnaires and inventories used in the study had and acceptable coefficient alpha (see section 7.3.1). Although Likert scales were used throughout the format varied from one set of questionnaires and inventories to another (see section 7.3.1).

7.6 Effect size

Analysis of data obtained from social and behavioural research traditionally focuses on the statistical significance of the results (Whitley, 2002: 431). However, statistical significance does not mean that the results are always important or meaningful but only say something of the likelihood of the obtained result (Hays in Whitley, 2002: 431). Effect size is one of the ways to overcome this discrepancy.

Effect size according to Whitley (2002: 431) refers to 'the magnitude of the impact an independent variable has on a dependent variable in experimental research and to the size of the relationship between two variables in non-experimental research.' Essentially effect size is an indication of how much of the variance in the dependent variable is due to or caused by the independent variable. For categorical independent variables the effect size, d, is obtained by finding the difference between the means of two conditions, for example between experimental and control conditions of an experiment, and then dividing by the pooled or combined standard deviation of the conditions (Whitley, 2002: 526). However, when using the pooled standard deviation it is still slightly biased particularly when using small samples (Coe, 2000). Hedges and Olkin (in Coe, 2000) have found a way to correct for this bias. The closer the obtained value is to zero, the smaller the effect size.

Judgement of the impact of the effect size on research results is useful and necessary. However it needs to viewed in the context of the operational definitions used in the research to ensure that the appropriateness of the result is not questioned (Whitley, 2002: 432).

7.7 Conclusion

It is essential that any study be grounded in well-established research methodology to ensure the attainment of the research objectives. To answer the research question it is critical that all terms and constructs are defined concretely. This then leads to the selection of the research design that would be effective in answering the research question. All research studies have limitations and influence the choice of research design. Costs, availability, and accessibility of respondents may impose such limitations. This may influence the manner the research data is collected, whether quantitatively or qualitatively. The research question again dictates the statistical methods chosen. The researcher has the responsibility to not only plan and conduct research, but also to evaluate its ethical acceptability. The researcher has a responsibility to report the research findings and present them in a clear and understandable way whether they support the research question or not.

CHAPTER 8

DESCRIPTION OF SAMPLE

8.1   Introduction

Chapter eight deals with the description of the sample of 206 respondents with the focus on demographic factors, for example sex, age, ethnicity, marital status, home language, highest qualification achieved, the organization they presently work for, their present position title, their overall work experience, their work experience with their present employer, the department they were presently in, and their occupation.

8.2   Subjects

Individuals with at least one year working experience as well as at least a half a year working experience with their present employer were approached. A minimum qualification of each participating respondent was set to ensure an adequate level of literacy and language proficiency. The groups that were targeted were senior management, middle management and specialists who were professionals working mainly in their field of expertise. The number of questionnaires given out and completed is given (Table 8.1).

Table 8.1: Balance of questionnaires

Business sector	No given out	No completed	Response rate
Commercial bank A	106	40	37.7%
Commercial bank B	30	20	66.7%
Private Hospital in major rural area	26	8	30.8%
Provincial Development Cooperation	30	10	66.7%
Bakery in major rural area	17	8	47.1%
Manganese producer	31	7	22.6%
Quality control organization	20	8	40.0%
Petrochemical company	70	39	55.7%
Academic department of a Technikon in major rural area	10	6	60.0%
Academic department of a Technikon in major urban area	15	7	46.7%
Academic department of a university	18	15	83.3%
University library	61	21	34.4%
Insurance company	25	17	68.0%
Total	459	206	44.9%

However, of all the questionnaires used in the statistical analysis, 206 completed the Experience of Work and Life Circumstances Questionnaire (WLQ), Aggression in the Workplace Questionnaire (AWQ), IPAT Anxiety Scale (IAS), Beck's Depression Inventory (BDI), and the Social Problem

Solving Inventory-Revised (SPSI-R), whereas 205 respondents completed the Penn State Worry Questionnaire (PSWQ).

8.2.1 Description of the total survey group

The total survey group will be described in terms of biographical information that was gathered. This includes gender, age, ethnicity, marital status, home language, highest qualifications achieved, type of organization each respondent works for, position level, and work experience.

8.2.1.1 Gender

With regard to gender 41.3% (85 respondents) of the survey were female where as 58.7% (121 respondents) were male (Table 8.2).

Table 8.2: Gender distribution

Gender	N	%
Male	121	58.7
Female	85	41.3
Total	206	100

8.2.1.2 Age

The youngest respondent was 22 years old and the oldest 64 years. The mean age of the participants in the study was 40.16 years (thus in terms of development, generally middle-aged participants) with a standard deviation of 9.84 years. Two respondents did not indicate their age on the questionnaire (Table 8.3).

Table 8.3: Mean age ($\overline{x}$), standard deviation (s),
and variance (s²) for age of respondents

Variable	N	$\overline{x}$	s	s²
Age	204	40.16	9.84	96.83

The age distribution of the respondents was unevenly spread throughout the sample (Table 8.4). Over a third of the respondents were found in the range from 40 to 49 years (38.2% or 78 respondents), just over a quarter in the 40 to 49-age range (28.9% or 59) followed by two smaller groupings, one ranging from 50 years or older (21.1% or 43 respondents), and one ranging from 20 to 29 years (11.8% or 24 respondents). Two respondents had not indicated their age and were regarded as missing. The respondents could be classed as older and more experienced individuals as they were mainly found in the late adulthood or middle age categories.

Table 8.4: Age distribution of respondents

Age range	N	%
20-29	24	11.8
30-39	78	38.2
40-49	59	28.9
50 or older	43	21.1

8.2.1.3 Ethnicity

With regard to ethnicity the majority (88.3% or 182 respondents) described themselves as Whites while the remainder of the respondents described themselves as Africans (5.8% or 12 respondents), Coloureds (2.4% or 5 respondents), or Indians (3.4% or 7 respondents) (Table 8.5).

Table 8.5: Ethnicity

Ethnicity	N	%
African	12	5.8
Coloured	5	2.4
Indian	7	3.4
White	182	88.3

8.2.1.4 Marital status

Of all the respondents, less than a fifth were unmarried (15.5% or 32 respondents), about three-quarters were married (74.8% or 154 respondents), with the remaining respondents either being divorced (8.7% or 18 respondents) or having lost a spouse (1.0% or 2 respondents) (Table 8.6). For the purposes of statistical calculations, the marital status was simplified into two categories, namely married (74.8% or 154 respondents) and non-married (25.2% or 52 respondents).

Table 8.6: Marital status

Marital Status	N	%
Unmarried	32	15.5
Married	154	74.8
Divorced	18	8.7
Widow/er	2	1.0

8.2.1.5 Home language

With regard to home languages it was found that the majority of respondents were Afrikaans speaking (66.0% equal to 136 respondents), a quarter were English speaking (24.8% or 51 respondents) and the remaining respondents considered themselves either bilingual (English/Afrikaans) (2.9% or 6 respondents), Zulu speaking (2.4% equal to 5 respondents), German speaking (1.0%, 2 respondents), Se-Pedi (1.0%, 2 respondents), Xhosa (0.5% or 1 respondent),

Swazi (0.5%, also 1 respondent), Tswana (0.5% or 1 respondent) or Se-Sotho (0.5% or 1 respondent) (Table 8.7).

Table 8.7: Home language distribution

Home Language	N	%
Afrikaans	136	66.0
English	51	24.8
English/Afrikaans	6	2.9
German	2	1.0
Se-Pedi	2	1.0
Se-Sotho	1	0.5
Swazi	1	0.5
Tswana	1	0.5
Xhosa	1	0.5
Zulu	5	2.4

8.2.1.6 Organizations

A number of organizations were approached of which three large organizations declined to take part in the survey. The types of institutions that took part come from a wide range of organizations mostly from the private sector (Table 8.8).

Table 8.8: Type of institution

Type of Institution	Organization	N	%
Financial sector	Commercial banks	60	29.1
Production/Services	Private sector	50	24.3
Research and Development	State-owned & research	47	22.8
Academic/ Auxiliary Services	Academic institutions	49	23.8

8.2.1.7 Qualifications

The minimum requirement with regard to the survey sample was a matric qualification. An exception was made if the individuals had completed either their grade 8, 9 10, or 11 and had worked themselves up into a management position within their organizations. Of the survey group, a quarter of the respondents had completed their grade 12 or lower (26.2% equal to 54 respondents), a sixth had obtained a National Diploma or a grade 12 with a Bank diploma (17.0% *or* 35 respondents), just over one fifth had Bachelors degrees (11.7% or 24 respondents), another sixth had obtained Honours and Law degrees (16.0% or 33 respondents) and about a third had obtained their Masters or Doctoral degrees (29.1% or 60 respondents) (Table 8.9).

Table 8.9: Qualifications of the survey group

Qualification	N	%
Std. 10 + Bank exams	2	2.4
Std 10 (Grade 12)	51	24.8
< Std. 10	3	1.5
National Diploma	27	13.1
National Higher Diploma	6	2.9
BA	11	5.3
B.Sc	5	2.4
B.Sc (Eng)	4	1.9
B.Com	4	1.9
B.Juris/Proc	2	1.0
BA (Hon)	22	10.7
B.Sc (Hon)	6	2.9
B.Com (Hon)	2	1.0
B.Pharm	1	0.5
M.Sc	27	13.1
Ph.D	33	16.0

8.2.1.8 Position level

The survey group was divided into three categories, namely senior management, middle management, and specialist staff levels (Table 8.10). It was found that half of the respondents (49.5% totalling 102 respondents) worked on a senior management level, a quarter (27.6% or 61 respondents) worked in middle management, and the remaining respondents (16.5% or 34 respondents) were in specialist staff positions. One individual did not indicate his or her position.

Table 8.10: Position level

Position	N	%
Senior management	102	49.5
Middle management	61	29.6
Specialist staff	42	20.4
Unknown	1	0.5

8.2.1.9 Work experience

The respondents overall work experience varied from 8 months to 46 years with a mean of 17.35 years and a standard deviation of 10.58 years (Table 8.11). Five respondents did not indicate their overall work experience. The distribution of work experience was skewed towards the higher position levels in the various organizations.

110

In the case of work experience with the present employer, it varied from 8 months to 39 years with a mean of 10.57 years and a standard deviation of 9.16 years (Table 8.11). Three respondents did not indicate their present work experience.

Table 8.11: Mean work experience ($\bar{x}$), standard deviation (s), and variance (s²)
for work experience of respondents

Type	N	$\bar{x}$	s	s²
Total work experience	201	17.35	10.58	111.84
Work experience with present employer	203	10.57	9.16	83.92

The results for total work experience (Table 8.12) showed that one third of the respondents (33.3% equal to 67 respondents) had between 10 and 20 years of work experience, about a quarter (23.4% or 47 persons) had between 20 and 30 years of total work experience whereas just over a fifth (22.4% or 45 respondents) had less than 10 years of total work experience. The remaining fifth (18.9% or 32 respondents) had more than 30 years of total work experience.

Comparatively just over half of the respondents (52.2% or 106 respondents) had worked less than 10 years for their present employer, about a third (31.5% or 64 respondents) had worked between 10 and 20 years for their present employer with the remaining sixth (16.2% or 33 respondents) having worked for their present employers for between 20 and 40 years (Table 8.12). Three respondents did not complete this section.

Table 8.12: Work experience distribution

Type	Years	N	%
Total work experience	0 – 9	45	22.4
	1 0 –19	67	33.3
	20 – 30	47	23.4
	30 years and higher	32	18.9
Work experience with present employer	0 – 9	106	52.2
	10 – 19	64	31.5
	20 – 29	22	10.8
	30 years and higher	11	5.4

8.3 Conclusion

Ideally, the subjects that took part would be randomly selected from a given subject pool. However, this was not possible due to financial, logistical, other constraints. The "good enough for our purpose" principal (Kruskal & Mosteller, in Heppner, Kivlighan, & Wampold, 1992: 274) stipulates that non-random samples can have sufficient characteristics that a generalization to a certain population is reasonable. Therefore it is essential to describe the characteristics of the subjects used in the study to show that the characteristics of the sample match those of a certain portion of

the population. Furthermore the biographical characteristics chosen impinge on the type of statistical analysis selected to answer the research question.

CHAPTER 9

RESULTS

9.1   Introduction

This chapter outlines the quantitative analysis of the scored data collected by means of the questionnaires. The statistical procedures used include descriptive statistics for the variables measured by each questionnaire, determination of the Cronbach alpha reliability coefficients for each of these instruments, correlations between the various variables measured by the tests with respect to the total group and five biographical variables, inferential statistics including z-tests, t-tests for related groups, general linear modelling with ANOVA option, Scheffé tests, and effect size for the different variables measured by the various questionnaires and five biographical variables.

9.2   Descriptive statistics

A detailed description analysis of the scored data for this study was obtained for the total group, the two genders, the four age groups, the two marital categories, the four business sectors, the five qualification divisions, and the three position levels with regard to the eight scales of the Experience of Work and Life Circumstances Questionnaire, the four scales for both experienced and witnessed aggression of the Aggression in the Workplace Questionnaire, the eight IPAT Anxiety Scales, the Beck Depression Inventory, the Penn State Worry Questionnaire, and the ten scales of the Social Problem-Solving Inventory– Revised (Reported in Appendix A).

9.3   Cronbach alpha reliability coefficients

The Cronbach alpha reliability coefficients were obtained for the Experience of Work and Life Circumstances Questionnaire and its subscales (WLQ), the Aggression in the Workplace Questionnaire and its subscales, witnessed and experienced (AWQ), the IPAT Anxiety Scale, the Beck Depression Inventory, the Penn State Worry Questionnaire, and the Social Problem-Solving Inventory-Revised and its subscales (SPSIR) (Reported in Appendix A). This was achieved by using the Item and Test Analysis Program – ITEMMAN™ version 3.50.

The Cronbach alpha reliability coefficients and its subscales ranged from 0.74 to 0.95 that was indicative that the WLQ and its subscales had a good to very good reliability. In the case of the AWQ the values were found to vary from 0.87 to 0.88 with the overall value for witnessed aggression being 0.94 and 0.87 to 0.90 with the overall value for experienced aggression equal to 0.95. Once again it could be concluded that the AWQ had a very good reliability for both the witnessed and experienced aggression. For the IPAT Anxiety Scale the values varied from 0.84 to 0.98 indicating that this scale had an excellent reliability. The Cronbach alpha for the Beck

Depression Inventory was found to be equal to 0.95, hence indicative of a high reliability. Similarly a value of 0.91 was obtained for the Penn State Worry Questionnaire which meant that this questionnaire also had a high reliability. Finally the Cronbach alpha obtained for the SPSIR was found to range from 0.73 to 0.94 also implying that this inventory and its subscales had a very good reliability.

9.4 Inferential statistics

9.4.1 Z-test statistic

The z-test was calculated for a single population mean for a large known sample based on the sample mean, sample size, and the standard deviation. The calculation was based on the following z transformation formula:

$$z = \frac{\bar{x} - \mu}{\sigma_{\bar{x}}} \qquad \text{where } \sigma_{\bar{x}} \text{ was estimated by } \frac{s}{\sqrt{n}}$$

The level of significance was set at 95%(1 – p) that in the case of directional hypothesis testing converted to critical z values within the range of –1.645 to 1.645. Values for $\bar{x}$ and s were directly calculated from the data set. Values for μ were estimated in different ways. In the case of the Experience of Work and Life Circumstances Questionnaire (WLQ) the cut-off point demarcating normal and abnormal responses on each subscale, as was described in the official WLQ Test Manual (Van Zyl & Van der Walt, 1991:27) was used as the μ value. This approach also held for the Beck Depression Inventory. For the Aggression in the Workplace Questionnaire, IPAT Anxiety Scale, the Worry Scale, and the Social Problem-solving Inventory Revised the midscore for each subscale was used as the μ value. This last μ value was determined by the sum of midpoints across all items in the subtest and the scoring code system that was developed by the originators of the various psychological tests.

Three hypotheses were set in each comparison. In their generalized form they were:

H_0: ≅ 0 if -1.645 ≤ z ≤ 1.645
H_1: < 0 if z < -1.645
H_2: > 0 if z > 1.645

The null hypothesis stated that the value $\bar{x} - \mu / \sigma_{\bar{x}}$ for statistical purposes approximated 0, suggesting that any z value within the range –1.645 to 1.645 described a difference between μ and $\bar{x}$ that was so small that it could not be reliably interpreted as a significant difference beyond any reasonable doubt. H_1, in turn, implied two things, namely that μ deviated significantly from $\bar{x}$ (significantly smaller than 0) and that relative to the value of μ, the value of $\bar{x}$ as well as the raw scores from which it was calculated, were located at the lower end of the subscale. H_2 on the other hand implied that the difference between μ and $\bar{x}$ was significantly

larger than 0, whereas $\bar{x}$ and its associated raw scores were located at the upper end of the subscale that contained the larger raw scores.

9.4.1.1 Total sample

1)   Experience of Work and Life Circumstances Questionnaire

As was stated in paragraph 9.4, each of the subscales of the Experience of Work and Life Circumstances Questionnaire (WLQ) was subjected to the z transformation formula. The mean value and the standard deviation were calculated from the raw scores whilst μ was estimated as was indicated earlier on.

a)   Level of stress

Specific hypotheses were set in further comparisons. For the first subscale of the WLQ, level of stress (LOS) these were:

H_0: $\cong$ 0 if -1.645 $\leq$ z $\leq$ 1.645
H_1: < 0 if z < -1.645
H_2: >0 if z > 1.645

When the subscale of level of stress (LOS) was subjected to the z transformation formula using a mean value of 73.76, a standard deviation of 20.09, a sample size of 206, and μ_x = 79, the z value obtained was –3.74. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was significantly lower than the cut-off point of the subscale meaning that the respondents generally reported low levels of stress within the range designated as normal.

b)   Causes outside the work situation

For the second subscale of the WLQ, causes outside the work situation (OWS) the hypotheses that were investigated were as follows:

H_0: $\cong$ 0 if -1.645 $\leq$ z $\leq$ 1.645
H_1: < 0 if z < -1.645
H_2: >0 if z > 1.645

When the subscale of causes outside the work situation (OWS) was subjected to the z transformation formula using a mean value of 25.30, a standard deviation of 6.59, a sample size of 206, and μ_x = 33, the z value obtained was –16.77. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was significantly lower than the cut-off point of the subscale meaning that respondents

generally reported low levels of stress due to causes arising outside the work situation and fell within the range designated as normal.

c)   Organizational functioning

The hypotheses that were investigated for the third subscale of the WLQ, organizational functioning (IWSOF) were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$ (Scales have been reversed)

In this comparison the subscale of organizational functioning (IWSOF) was subjected to the z transformation formula using a mean value of 20.31, a standard deviation of 5.62, a sample size of 206, and $\mu_x= 17$, the z value obtained was 8.45. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean score of the total sample was significantly higher than the stated cut-off point of the subscale meaning that the respondents reported lower levels of stress due to organizational functioning and generally fell in the normal range.

d)   Task characteristics

The hypotheses that were investigated regarding the fourth subscale of the WLQ, task characteristics (IWSTC) were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$ (Scales have been reversed)

The subscale of task characteristics (IWSTC) was subjected to the z transformation formula using a mean value of 50.24, a standard deviation of 7.17, a sample size of 206, and $\mu_x= 41$, the z value obtained was 18.50. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean score of the total sample was significantly higher than the given cut-off point meaning that the respondents reported lower levels of stress due to task characteristics and generally fell within the normal range.

e)   Physical working conditions and job equipment

For the fifth subscale of the WLQ, physical working conditions and job equipment (IWSPW) the hypotheses that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$ (Scales have been reversed)

In this instance the subscale of physical working conditions and job equipment (IWSPW) was subjected to the z transformation formula using a mean value of 24.54, a standard deviation of 5.87, a sample size of 206, and $\mu_x = 19$, providing a z value of 13.55. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean score of the total sample was significantly higher than the cut-off point meaning that the respondents reported lower levels of stress due to the physical working conditions and job equipment within the organization and thus were generally categorized as within the normal range.

f)   Career matters

The hypotheses that were investigated for the sixth subscale of the WLQ, career matters (IWSCM) were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$ (Scales have been reversed)

Next, when the subscale of career matters (IWSCM) was subjected to the z transformation formula using a mean value of 24.34, a standard deviation of 6.35, a sample size of 206, and $\mu_x = 22$, the z value obtained was 5.29. This is indicative that the null and H_1 hypotheses were rejected in favour of the alternative hypothesis H_2. The mean score of the total sample was significantly higher than the given cut-off point of the subscale indicating that the respondents reported low levels of stress due to the career matters within the organization. The participants were generally classified as within the normal range.

g)   Social matters

For the seventh subscale of the WLQ, social matters (IWSSM), the hypotheses that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$ (Scales have been reversed)

When the subscale of social matters (IWSSM) was subjected to the z transformation formula using a mean value of 24.56, a standard deviation of 4.63, a sample size of 206, and $\mu_x = 21$, the z value was found to be 11.04. This is indicative that the null and H_1 hypotheses were rejected in favour of the alternative hypothesis H_2. The mean score of the total sample was significantly higher than the cut-off point meaning that the respondents reported low levels of stress arising from the social interactions within the organization. Once again the sample was generally classified as within the normal range.

h)   Remuneration, fringe benefits and personnel policy

Finally, for the eighth subscale of the WLQ, remuneration, fringe benefits and personnel policy (IWSRF), the hypotheses that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$ (Scales have been reversed)

When the subscale of remuneration, fringe benefits and personnel policy (IWSRF) was subjected to the z transformation formula using a mean value of 28.43, a standard deviation of 8.74, a sample size of 206, and $\mu_x = 23$, the z value obtained was 8.92. This again required that the null and H_1 hypotheses be rejected in favour of the alternative hypothesis H_2. The mean score of the total sample was significantly higher than the cut-off point of the subscale provided in the test manual meaning that the respondents reported low levels of stress arising from their concerns regarding the remuneration and the fringe benefits they receive as well as the personnel policy of the organization. The responses were generally found in the normal range.

2)   Aggression in the Workplace Questionnaire

The aggression in the workplace questionnaire (AWQ) was also subjected to the z transformation formula. The mean value and standard deviation were calculated from the raw scores whereas μ was estimated as stated in paragraph 9.4.

a)   Aggression in the workplace-witnessed

The three general hypotheses that were investigated for each of the subscales of the aggression in the workplace questionnaire-witnessed (AWQ) were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$

The calculations of the z-values show that both the null hypothesis and H_2 hypothesis in each case are rejected in favour of the alternative hypothesis H_1 (Table 9.1). All the minus signs indicate that the respondents witnessed significantly low levels of aggression in the workplace in all its varying forms. Furthermore the sample means in all comparisons occurred at the lower end of each subscale thus indicating low levels of witnessed aggression in the workplace.

Table 9.1: Calculations of z-values for aggression in the workplace-witnessed

Scale (Witnessed)	N	Mean	Standard deviation	Midpoint	z
Overall	205	75.58	20.69	120	-30.74*
Expressions of Hostility	205	37.27	11.57	54	-20.70*
Obstructionism	205	26.43	8.05	39	-22.34*
Overt Aggression	205	11.87	3.37	27	-64.25*

b)   Aggression in the workplace-experienced

The three general hypotheses that were investigated for each of the subscales of the aggression in the workplace questionnaire-experienced (AWQ) were as follows:

$H_0: \cong 0$ if $-1.645 \leq z \leq 1.645$
$H_1: < 0$ if $z < -1.645$
$H_2: > 0$ if $z > 1.645$

All the calculations of the z-values show that the null and H_2 hypotheses in each case were rejected in favour of the alternative hypothesis H_1 (Table 9.2). The mean scores of the total sample were significantly lower than the midpoints of the subscales indicating that the respondents generally experienced low levels of aggression in the workplace in its varying forms.

Table 9.2: Calculations of z-values for aggression in the workplace-experienced

Scale (Experienced)	N	Mean	Standard deviation	Midpoint	z
Overall	206	63.18	19.34	120	-42.17*
Expressions of Hostility	206	30.30	10.36	54	-32.84*
Obstructionism	205	22.49	7.98	39	-29.61*
Overt Aggression	203	10.66	2.78	27	-83.90*

3)   IPAT Anxiety Scale

Each of the subscales of the IPAT Anxiety Scale was subjected to the z transformation formula. The mean value and standard deviation were calculated from the raw scores whereas μ was estimated as indicated in paragraph 9.4.

a)   Factor -C

The three hypotheses for ego weakness or lack of ego strength that were investigated were as follows:

$H_0: \cong 0$ if $-1.645 \leq z \leq 1.645$
$H_1: < 0$ if $z < -1.645$
$H_2: > 0$ if $z > 1.645$ (Scales have been reversed)

When factor –C was subjected to the z transformation formula using a mean value of 3.69, a standard deviation of 2.44, a midpoint of 6 and a sample size of 206, the z value obtained was –13.59. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was significantly lower than the midpoint of the scale indicating that the respondents in general reported adequate levels of ego strength and therefore were not prone to ego weakness.

b)   Factor L

The three hypotheses for suspiciousness or paranoid insecurity versus trust that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

In the next comparison factor L was subjected to the z transformation formula using a mean value of 3.36, a standard deviation of 1.92, a midpoint of 4 and a sample size of 206, the z value obtained was –4.78. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was significantly lower than the midpoint of the scale indicating that the respondents did not experience significantly high levels of suspiciousness.

c)   Factor O

The three hypotheses for guilt proneness versus untroubled adequacy that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

When factor O was subjected to the z transformation formula using a mean value of 8.24, a standard deviation of 4.18, a midpoint of 12 and a sample size of 206, the z value obtained was –12.91. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was significantly lower than the midpoint of the scale indicating that the respondents in general were inclined towards untroubled adequacy.

d)   Factor $-Q_3$

The three hypotheses for defective integration and lack of self-sentiment that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$ (Scales have been reversed)

Hereafter factor $-Q_3$ was subjected to the z transformation formula using a mean value of 4.82, a standard deviation of 2.89, a midpoint of 8 and a sample size of 206, the z value obtained was −15.79. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was lower than the midpoint of the scale indicating that the respondents did not experience significantly high levels of defective integration and lack of self-sentiment.

e)   Factor Q_4

The three hypotheses for frustrative tension that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$

When factor Q_4 was subjected to the z transformation formula using a mean value of 6.56, a standard deviation of 3.91, a midpoint of 10 and a sample size of 206, the z value obtained was −12.63. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was significantly lower than the midpoint of the scale, thus indicating that the respondents did not experience significantly high levels of frustrative tension.

f)   Score A

The three hypotheses for covert hidden anxiety that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$

Next, when Score A was subjected to the z transformation formula using a mean value of 13.89, a standard deviation of 6.29, a midpoint of 20 and a sample size of 206, the z value obtained was −13.94. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was significantly lower than the

midpoint of the scale and this indicated that the respondents did not experience significantly high levels of covert hidden anxiety.

g)   Score B

The three hypotheses for overt, symptomatic, and conscious anxiety that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

For Score B, when subjected to the z transformation formula using a mean value of 12.80, a standard deviation of 7.04, a midpoint of 20 and a sample size of 206, the z value obtained was -14.68. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was lower than the midpoint of the scale and is indicative of the respondents not experiencing any obvious levels of overt, symptomatic, and conscious anxiety.

h)   Total anxiety

The three hypotheses for the total anxiety that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

Finally, when the total score was subjected to the z transformation formula using a mean value of 26.68, a standard deviation of 12.17, a midpoint of 40 and a sample size of 206, the z value obtained was -15.71. This is indicative that both the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was lower than the midpoint of the scale and indicates that the respondents did not experience high levels of total anxiety.

4)   Beck Depression Inventory

The depression scale was subjected to the z transformation formula. The mean value and standard deviation were calculated from the raw scores whereas μ was estimated as stated in paragraph 9.4.

The three hypotheses for the Beck Depression Inventory that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

When the total score was subjected to the z transformation formula using a mean value of 6.93, a standard deviation of 6.57, a cut-off point of 16 and a sample size of 205, the z value obtained was -19.77. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean score of the total sample was lower than the cut-off point of the scale indicating that in general the respondents reported significantly low levels of depression.

5) Penn State Worry Questionnaire

The worry scale was subjected to the z transformation formula. The mean value and standard deviation were calculated from the raw scores whereas μ was estimated as mentioned in paragraph 9.4.

The three hypotheses for the worry scale that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

When the total score obtained for the worry scale was subjected to the z transformation formula using a mean value of 41.36, a standard deviation of 11.14, a midpoint of 48 and a sample size of 203, the z value obtained was -8.49. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean of the total sample was lower than the midpoint of the scale indicating that the respondents experienced significantly low levels of worry.

6) Social Problem-Solving Inventory-Revised

Each of the subscales of the Social Problem-Solving Inventory-Revised was subjected to the z transformation formula. The mean value and standard deviation were calculated from the raw scores whereas μ was estimated as indicated in paragraph 9.4.

a)   Positive problem orientation

The three hypotheses for positive problem orientation that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$

When the total score obtained for the positive problem orientation scale was subjected to the z transformation formula using a mean value of 18.23, a standard deviation of 3.28, a midpoint of 15 and a sample size of 205, the z value obtained was 14.10. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean of the total sample was higher than the midpoint of the scale indicating that the respondents generally had a high positive problem orientation.

b)   Negative problem orientation

The three hypotheses for negative problem orientation that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$

Next, when the total score for the negative problem orientation scale was subjected to the z transformation formula using a mean value of 18.48, a standard deviation of 6.24, a midpoint of 30 and a sample size of 206, the z value obtained was –26.50. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean of the total sample was lower than the midpoint of the scale meaning that the respondents generally reported significantly low levels of negative problem orientation.

c)   Rational problem solving

The three hypotheses for rational problem solving that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$

The total score for the rational problem solving scale was subjected to the z transformation formula using a mean value of 67.45, a standard deviation of 12.40, a midpoint of 60 and a sample size of 205, the z value obtained was 8.60. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean score of the total sample was higher than the midpoint of the scale indicating that the majority of respondents considered themselves as having good rational problem solving abilities.

d)   Problem definition and formulation

The three hypotheses for problem definition and formulation that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

When the total score for the problem definition and formulation subscale was subjected to the z transformation formula using a mean value of 17.77, a standard deviation of 3.35, a midpoint of 15 and a sample size of 205, the z value obtained was 11.84. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean of the total sample was higher than the midpoint of the subscale meaning that the majority of respondents felt that they had a significant ability to define and formulate problems.

e)   Generation of alternatives

The three hypotheses for generation of alternatives that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

When the total score for the generation of alternatives subscale was subjected to the z transformation formula using a mean value of 17.18, a standard deviation of 3.50, a midpoint of 15 and a sample size of 205, the z value obtained was 8.92. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean of the total sample was higher than the midpoint of the subscale indicating that the majority of the respondents believed they had developed a significant ability to generate alternatives to a problem.

f)   Decision making

The three hypotheses for decision making that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: > 0 if $z > 1.645$

In the next case the total score of the decision making subscale was subjected to the z transformation formula using a mean value of 16.39, a standard deviation of 3.29, a midpoint of 15 and a sample size of 205, the z value obtained was 6.05. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean of the total

sample was higher than the midpoint of the subscale meaning that the majority of respondents viewed themselves as having a significant ability to make effective decisions regarding a problem.

g)   Solution implementation and verification

The three hypotheses for solution implementation and verification that were investigated were as follows:

$H_0: \cong 0$ if $-1.645 \leq z \leq 1.645$
$H_1: < 0$ if $z < -1.645$
$H_2: > 0$ if $z > 1.645$

When the total score of the solution implementation and verification subscale was subjected to the z transformation formula using a mean value of 16.11, a standard deviation of 3.75, a midpoint of 15 and a sample size of 205, the z value obtained was 4.24. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean of the total sample was higher than the midpoint of the subscale indicating that the majority of the respondents believed that they could effectively implement and verify solutions regarding a specific problem.

h)   Impulsivity/carelessness style

The three hypotheses for impulsivity/carelessness style that were investigated were as follows:

$H_0: \cong 0$ if $-1.645 \leq z \leq 1.645$
$H_1: < 0$ if $z < -1.645$
$H_2: > 0$ if $z > 1.645$

Next, when the total score of the impulsivity/carelessness style scale was subjected to the z transformation formula using a mean value of 18.36, a standard deviation of 5.33, a midpoint of 30 and a sample size of 205 the z value obtained was -31.27. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean of the total sample was lower than the midpoint of the scale showing that the majority of respondents did not in any significant way resort to a style of impulsivity or carelessness.

i)   Avoidance style

The three hypotheses for avoidance style that were investigated were as follows:

$H_0: \cong 0$ if $-1.645 \leq z \leq 1.645$
$H_1: < 0$ if $z < -1.645$
$H_2: > 0$ if $z > 1.645$

When the total score for the avoidance style scale was subjected to the z transformation formula using a mean value of 12.74, a standard deviation of 4.10, a midpoint of 21 and a sample size of 205, the z value obtained was -28.85. This is indicative that the null and H_2 hypotheses are rejected in favour of the alternative hypothesis H_1. The mean of the total sample was lower than the midpoint of the scale meaning that generally the respondents seldom resorted to an avoidance style to any noticeable extent.

j)   Total social problem solving

The three hypotheses for total social problem solving that were investigated were as follows:

H_0: $\cong 0$ if $-1.645 \leq z \leq 1.645$
H_1: < 0 if $z < -1.645$
H_2: >0 if $z > 1.645$

Finally, when the total score for the total social problem solving scale was subjected to the z transformation formula using a mean value of 16.44, a standard deviation of 2.48, a midpoint of 15 and a sample size of 206, the z value obtained was 8.51. This is indicative that the null and H_1 hypotheses are rejected in favour of the alternative hypothesis H_2. The mean of the total sample was higher than the midpoint of the scale indicating that the majority of respondents did have significantly high levels of total social-problem solving abilities.

9.4.2   T-test statistic

The *t*-test was calculated to determine the probability that two corresponding population means were different when comparing the mean of one group with that of another group. To achieve this, the sample means, standard deviation, and size of the samples were used using the following *t*-transformation formula:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S_{\bar{x}_1 - \bar{x}_2}}$$

A 95% confidence level was chosen. If the *t*-value obtained from the calculation was smaller than the critical *t*-value obtained from the *t*-distribution table, then the null hypotheses was rejected in favour of the alternative hypotheses. A test for homogeneity or heterogeneity of variance was also conducted in order to make precise conclusions with regard to group differences.

9.4.2.1 Gender comparison

1)   Experience of Work and Life Circumstances Questionnaire

Each of the subscales of the Experience of Work and Life Circumstances Questionnaire (WLQ) was subjected to the *t*-test. The mean value and standard deviation were calculated from the raw scores. The method used was pooled and the variances were equal.

The three general hypotheses that were investigated for each of the eight variables for gender were as follows:

H_0: $\mu_{MALE} = \mu_{FEMALE}$
H_1: $\mu_{MALE} < \mu_{FEMALE}$
H_2: $\mu_{MALE} > \mu_{FEMALE}$

When each of the subscales was subjected to the *t*-test no significant differences were found between males and females throughout (Table 9.3).

Table 9.3: *T*-test statistics for the Experience of Work and Life Circumstances Questionnaire for gender

Subscale		Gender	N	Mean	Standard deviation	*t*	Pr > |*t*|	F Value	Pr > F
Level of stress		Male	121	74.36	20.57	0.50	0.6143	1.12	0.5951
		Female	85	72.92	19.47				
Causes outside the work situation		Male	121	25.11	6.17	-0.49	0.6250	1.35	0.1343
		Female	85	25.56	7.17				
Causes within the work situation	**Organizational functioning**	Male	121	20.27	5.50	-0.12	0.9083	1.12	0.5732
		Female	85	20.36	5.82				
	Task characteristics	Male	121	50.00	7.14	-0.58	0.5636	1.03	0.8727
		Female	85	50.59	7.25				
	Physical working conditions	Male	121	25.17	5.68	1.82	0.0695	1.13	0.5368
		Female	85	23.66	6.04				
	Career matters	Male	121	24.52	5.97	0.47	0.6362	1.33	0.1518
		Female	85	24.09	6.88				
	Social matters	Male	121	24.12	4.28	-1.63	0.1042	1.39	0.0961
		Female	85	25.19	5.04				
	Remuneration; fringe benefits and personnel policy	Male	121	28.74	8.53	0.59	0.5533	1.13	0.5493
		Female	85	28.00	9.05				

This is indicative that the alternative hypotheses H_1 and H_2 are rejected in favour of the null hypothesis H_0 in each case. The difference between the mean scores for gender was insignificant meaning that the male and females respondents generally reported similar levels of stress regarding their experience of their overall levels of stress, causes outside the work situation, organizational functioning, task characteristics, physical working conditions, career matters, social matters, and remuneration, fringe benefits and personnel policy. In all the above comparisons the F test results were insignificant pointing to homogeneity of variances. The *t*-

values described a lack of significance of difference between the two genders (differences between groups) that were not in any way affected by differences within groups.

2)   Aggression in the Workplace Questionnaire

The aggression in the workplace questionnaire (AWQ) was also subjected to the *t*-test. The mean values and the standard deviation were based on the raw scores.

a)   Aggression in the workplace-witnessed

The three general hypotheses that were investigated for each of the four variables for gender were as follows:

H_0: $\mu_{WITMALE} = \mu_{WITFEMALE}$
H_1: $\mu_{WITMALE} < \mu_{WITFEMALE}$
H_2: $\mu_{WITMALE} > \mu_{WITFEMALE}$

The calculations of the *t*-values show that the null hypothesis H_0 is maintained in favour of the alternative hypotheses H_1 or H_2 (Table 9.4) in all four cases. One F test was significant, namely that of overt aggression. However its accompanying *t*-value was insignificant and therefore further interpretation was not necessary.

Table 9.4: *T*-test statistics for aggression in the workplace-witnessed for gender

Scale (Witnessed)	Gender	N	Mean	Standard deviation	*t*	Pr > |*t*|	F Value	Pr > F
Overall	Male	120	77.11	19.33	1.27	0.2059	1.34	0.1374
	Female	85	73.40	22.41				
Expressions of Hostility	Male	120	37.75	10.81	0.70	0.4845	1.36	0.1260
	Female	85	36.60	12.59				
Obstructionism	Male	120	27.25	7.57	1.73	0.0848	1.29	0.1983
	Female	85	25.28	8.60				
Overt Aggression	Male	120	12.12	3.68	1.25	0.2110	1.66	0.0145
	Female	85	11.52	2.86				

b)   Aggression in the workplace-experienced

The three general hypotheses that were investigated for each of the four variables for gender were as follows:

H_0: $\mu_{EXPMALE} = \mu_{EXPFEMALE}$
H_1: $\mu_{EXPMALE} < \mu_{EXPFEMALE}$
H_2: $\mu_{EXPMALE} > \mu_{EXPFEMALE}$

The calculations of the t-values show that the null hypothesis is maintained (Table 9.5) in the case of three out of the four variables. Only one comparison proved significant, namely the

comparison on obstructionism ($t = 2.20$, $p < 0.05$). In this instance H_0 was rejected in favour of H_2. Males once more generally had higher scores compared to their female counterparts implying that they experienced more often than females higher levels of obstructionism (for example, failing to return phone calls or respond to memos, failing to transmit information needed by the target, etcetera). A significant F value was found for overt aggression but the accompanying *t*-value was not significant and therefore no further interpretation was necessary.

Table 9.5: *T*-test statistics for aggression in the workplace-experienced for gender

Scale (Experienced)	Gender	N	Mean	Standard deviation	*t*	Pr > |*t*|	F Value	Pr > F
Overall	Male	121	64.69	19.68	1.33	0.1844	1.10	0.6408
	Female	85	61.05	18.75				
Expressions of Hostility	Male	121	30.74	10.38	0.73	0.4690	1.00	0.9931
	Female	85	29.67	10.36				
Obstructionism	Male	120	23.52	7.85	2.20	0.0287*	1.04	0.8489
	Female	85	21.05	7.99				
Overt Aggression	Male	121	21.45	7.16	0.90	0.3715	1.78	0.0057
	Female	85	20.35	6.86				

3)   IPAT Anxiety Scale

Each of the subscales of the IPAT Anxiety Scale was subjected to the *t*-test. The mean values and the standard deviations were based on the raw scores.

The three general hypotheses that were investigated for each of the eight variables for gender were as follows:

H_0: $\mu_{IPATMALE} = \mu_{IPATFEMALE}$
H_1: $\mu_{IPATMALE} < \mu_{IPATFEMALE}$
H_2: $\mu_{IPATMALE} > \mu_{IPATFEMALE}$

The results show that six statistically significant comparisons occurred with only Factor L, Factor -Q_3, and Score A being the exceptions (Table 9.6).

Firstly the two genders differed significantly in terms of Factor –C ($t = -1.99$, $p < 0.05$). The females, compared to the males, had a higher mean score thus indicating a trend towards having less ego strength and more ego weakness in extreme instances, thus confirming the alternative hypothesis H_1. Heterogeneity of variance was insignificant pointing to the observed differences being due to a difference between the two groups.

Factor O was the second variable where the two genders differed significantly ($t = -2.06$, $p < 0.05$). The females once more had a higher mean compared to the males indicating a greater tendency to guilt proneness and a lesser tendency towards untroubled adequacy. Once again hypothesis H_1 held. Furthermore homogeneity of variance was present in the data set.

The third comparison related to Factor Q_4 (t = -1.97, p < 0.05). As in the previous comparisons, females had a higher mean score than their male counterparts. Females thus when compared to males, were more prone to frustrative tension thus confirming the alternative hypothesis H_1. Homogeneity of variance once again was present.

Fourthly Score B also showed significant differences (t = -2.66, p < 0.05). The females had a higher score compared to that of the males, indicating that females had a greater tendency towards overt, symptomatic, and conscious anxiety than the males. The alternative hypothesis H_1 also held in this comparison. There was also an absence of heterogeneity of variance.

The final significant difference occurred in the total score (t = -2.16, p < 0.05). Females in this instance also had a higher mean than did the males. This indicated that the female respondents had a higher level of total anxiety than the males. Again the alternative hypothesis H_1 was confirmed. Once more the lack of heterogeneity of variance limited the comparison to differences between the two gender groups.

Table 9.6: *T*-test statistics for the IPAT Anxiety Scale for gender

Scale	Gender	N	Mean	Standard deviation	t	Pr > $\|t\|$	F Value	Pr > F
Factor -C	Male	121	3.41	2.38	-1.99	0.0481*	1.09	0.6568
	Female	85	4.09	2.48				
Factor L	Male	121	3.29	1.95	-0.67	0.5059	1.08	0.7254
	Female	85	3.47	1.88				
Factor O	Male	121	7.74	4.09	-2.06	0.0404*	1.06	0.7516
	Female	85	8.95	4.22				
Factor -Q_3	Male	121	4.60	3.08	-1.29	0.1986	1.42	0.0884
	Female	85	5.13	2.58				
Factor Q_4	Male	121	6.12	3.85	-1.97	0.0496*	1.04	0.8456
	Female	85	7.20	3.92				
Score A	Male	121	13.45	6.52	-1.20	0.2298	1.20	0.3652
	Female	85	14.52	5.94				
Score B	Male	121	11.72	6.75	-2.66	0.0085*	1.14	0.5096
	Female	85	14.33	7.20				
Total score	Male	121	25.17	12.26	-2.16	0.0323*	1.08	0.7078
	Female	85	28.85	11.79				

4)   Beck Depression Inventory

The depression scale was subjected to the *t*-test. The mean values and the standard deviations were based on the raw scores.

The three general hypotheses that were investigated for depression and gender were as follows:

$$H_0: \mu_{BDIMALE} = \mu_{BDIFEMALE}$$
$$H_1: \mu_{BDIMALE} < \mu_{BDIFEMALE}$$
$$H_2: \mu_{BDIMALE} > \mu_{BDIFEMALE}$$

The results show that the null hypothesis H_0 is not rejected in favour of the alternative hypothesis H_1 (Table 9.7). This implies that there were no significant differences in the levels of depression between males and females. The variances of the two groups were homogenous.

Table 9.7: *T*-test statistics for the Beck Depression Inventory for gender

Scale	Gender	N	Mean	Standard deviation	*t*	Pr > |*t*|	F Value	Pr > F
Depression	Male	120	6.65	6.31	-0.74	0.4595	1.21	0.3344
	Female	85	7.34	6.94				

5)   Penn State Worry Questionnaire

The Penn State Worry Questionnaire was subjected to the *t*-test. The mean values and the standard deviations were based on the raw scores.

The three general hypotheses that were investigated for worry among gender groups were as follows:

$$H_0: \mu_{WORMALE} = \mu_{WORFEMALE}$$
$$H_1: \mu_{WORMALE} < \mu_{WORFEMALE}$$
$$H_2: \mu_{WORMALE} > \mu_{WORFEMALE}$$

The results show that the null hypothesis is rejected in favour of the alternative hypothesis H_1 (Table 9.8). The result showed that the females had a higher mean thus indicating a greater tendency towards resorting to worry as a means of coping, thus the alternative hypothesis H_1 was confirmed. The difference between the two means was quite big. Homogeneity of variance occurred.

Table 9.8: *T*-test statistics for the Penn State Worry Questionnaire for gender

Scale	Gender	N	Mean	Standard deviation	*t*	Pr > |*t*|	F Value	Pr > F
Worry	Male	118	39.25	10.22	-3.27	0.0013*	1.32	0.1670
	Female	85	44.31	11.74				

6)   Social Problem-Solving Inventory-Revised

The three general hypotheses that were investigated for each of the ten variables for gender were as follows:

H_0: $\mu_{SPSMALE} = \mu_{SPSFEMALE}$
H_1: $\mu_{SPSMALE} < \mu_{SPSFEMALE}$
H_2: $\mu_{SPSMALE} > \mu_{SPSFEMALE}$

Each of the subscales of the Social Problem-Solving Inventory-Revised was subjected to the t-test. The mean values and the standard deviation were based on the raw scores.

The results show that for seven of the ten variables the null hypothesis is not rejected in favour of the alternative hypotheses H_1 or H_2 (Table 9.9).

Table 9.9: T-test statistics for the Social Problem-Solving Inventory-Revised for gender

Scale	Gender	N	Mean	Standard deviation	t	Pr > $\|t\|$	F Value	Pr > F
Positive Problem Orientation Scale	Male	121	18.41	3.25	0.96	0.3363	1.05	0.8000
	Female	84	17.96	3.33				
Negative Problem Orientation Scale	Male	121	17.58	6.06	-2.49	0.0135*	1.08	0.6789
	Female	85	19.75	6.31				
Rational Problem Solving Scale	Male	121	68.62	12.79	1.63	0.1047	1.20	0.3802
	Female	84	65.76	11.68				
Problem Definition and Formulation Subscale	Male	121	18.08	3.53	1.63	0.1046	1.34	0.1602
	Female	84	17.31	3.05				
Generation of Alternatives Subscale	Male	121	17.59	3.58	2.01	0.0459*	1.16	0.4823
	Female	84	16.60	3.33				
Decision Making Subscale	Male	121	16.60	3.27	1.10	0.2743	1.03	0.8754
	Female	84	16.08	3.32				
Solution Implementation and Verification Subscale	Male	121	16.36	3.91	1.09	0.2764	1.25	0.2876
	Female	84	15.77	3.51				
Impulsivity/ Carelessness Style Scale	Male	121	17.91	5.25	-1.44	0.1501	1.07	0.7372
	Female	84	19.00	5.42				
Avoidance Style Scale	Male	121	12.74	4.20	0.01	0.9922	1.11	0.6200
	Female	84	12.74	3.99				
Social Problem Solving	Male	121	16.74	2.27	2.09	0.0383*	1.32	0.1680
	Female	85	16.03	2.60				

This indicates that there were no significant differences between males and females in their abilities regarding their positive problem orientation, their rational problem solving, their ability to make decisions, their ability to implement and verify solutions, their impulsivity and carelessness style, and their avoidance style. The three exceptions were found with negative problem orientation, generation of alternatives, and social problem solving ability. The two genders differed significantly in the case of negative problem orientation (t = -2.49, p < 0.05).

Female respondents had a higher mean value on this subscale indicating that they had a higher tendency towards a negative problem orientation, thus confirming the alternative hypothesis H_1. With regards to the generation of alternatives females had a lower mean score than their male counterparts pointing to a lesser ability to generate alternatives ($t = 2.01$, $p < 0.05$). The alternative hypothesis H_2 was confirmed in this case. The females also had a lower mean score than the males with respect to their overall problem solving ability ($t = 2.09$, $p < 0.05$). Again the alternative hypothesis H_2 was confirmed. This indicated that the females had a lesser total problem solving ability. In all three comparisons homogeneity of variance was observed.

9.4.2.2 Marital status

1)   Experience of Work and Life Circumstances Questionnaire

Each of the subscales of the Experience of Work and Life Circumstances Questionnaire (WLQ) was subjected to the *t*-test. The mean values and the standard deviation were based on the raw scores.

The three general hypotheses that were investigated for each of the eight variables for marital status were as follows:

H_0: $\mu_{MARRIED} = \mu_{NON-MAR}$
H_1: $\mu_{MARRIED} < \mu_{NON-MARRIED}$
H_2: $\mu_{MARRIED} > \mu_{NON-MARRIED}$

When each of the subscales was subjected to the *t*-test no significant differences were found for seven of the eight variables regarding the two marital status groups except for causes outside the work situation (Table 9.10). This is indicative that the null hypothesis is retained at the cost of alternative hypotheses H_1 or H_2 in each case except in the case of causes outside the work situation. The difference between the mean scores for the married and non-married group was insignificant meaning that the respondents making up each group generally reported similar low levels of stress regarding their experience of stress, organizational functioning, task characteristics, physical working conditions, career matters, social matters, and remuneration, fringe benefits and personnel policy.

The single exception was stress caused by factors outside the work situation. The two marital groups differed significantly from one another ($t = -2.63$, $p < 0.01$). Subjects categorized as non-married had a higher mean score than the married subjects and therefore generally experienced higher levels of stress outside the workplace than their married counterparts. The alternative hypothesis H_1 was thus confirmed. The F ratio for this comparison was insignificant. The resultant homogeneity of variance limited the significance to differences between the two groups unaffected by differences within the two groups.

Table 9.10: *T*-test statistics for the Experience of Work and Life Circumstances Questionnaire for marital status

Subscale		Marital Status	N	Mean	Standard deviation	*t*	Pr > |*t*|	F Value	Pr > F
Level of stress		Married	154	73.00	19.84	-0.94	0.3459	1.11	0.6317
		Non-married	52	76.04	20.86				
Causes outside the work situation		Married	154	24.60	6.23	-2.63	0.0091*	1.35	0.1690
		Non-married	52	27.35	7.24				
Causes within the work situation	**Organizational functioning**	Married	154	20.35	5.71	0.18	0.8611	1.12	0.6626
		Non-married	52	20.19	5.41				
	Task characteristics	Married	154	50.23	7.36	-0.05	0.9577	1.22	0.4171
		Non-married	52	50.29	6.66				
	Physical working conditions	Married	154	24.60	5.94	0.23	0.8217	1.09	0.7287
		Non-married	52	24.39	5.69				
	Career matters	Married	154	24.44	6.46	0.35	0.7261	1.13	0.6274
		Non-married	52	24.08	6.08				
	Social matters	Married	154	24.73	4.78	0.88	0.3820	1.35	0.2212
		Non-married	52	25.08	4.12				
	Remuneration, fringe benefits and personnel policy	Married	154	28.55	8.96	0.32	0.7494	1.22	0.4244
		Non-married	52	28.10	8.12				

2)   Aggression in the Workplace Questionnaire

The aggression in the workplace questionnaire (AWQ) was subjected to the *t*-test. The mean values and the standard deviation were based on the raw scores.

a)   Aggression in the workplace-witnessed

The three general hypotheses that were investigated for each of the fifteen variables for marital status were as follows:

H_0: $\mu_{WITMARRIED} = \mu_{WITNON-MARRIED}$
H_1: $\mu_{WITMARRIED} < \mu_{WITNON-MARRIED}$
H_2: $\mu_{WITMARRIED} > \mu_{WITNON-MARRIED}$

The calculations of the *t*-values show that the null hypothesis is retained at the cost of the alternative hypotheses H_1 and H_2 (Table 9.11) for all four variables. The respondents belonging to either the married or the non-married group did not witness any significant differences in their levels of aggression no matter in which form. A significant F value was found for overt aggression but the accompanying *t*-value was not significant and therefore no further interpretation was necessary.

Table 9.11: *T*-test statistics for Aggression in the workplace-witnessed for marital status

Scale (Witnessed)	Marital Status	N	Mean	Standard deviation	t	Pr > |t|	F Value	Pr > F
Overall	Married	153	76.20	21.13	0.74	0.4628	1.18	0.4976
	Non-married	52	73.75	19.44				
Expressions of Hostility	Married	153	37.39	11.68	0.25	0.8013	1.06	0.8178
	Non-married	52	36.92	11.33				
Obstructionism	Married	153	26.75	8.22	0.95	0.3443	1.19	0.4895
	Non-married	52	25.52	7.55				
Overt Aggression	Married	153	12.06	3.61	1.39	0.1658	2.13	0.0024
	Non-married	52	11.31	2.48				

b)   Aggression in the workplace-experienced

The general hypothesis that was investigated was as follows:

H_0: $\mu_{EXPMARRIED} = \mu_{EXPNON-MARRIED}$
H_1: $\mu_{EXPMARRIED} < \mu_{EXPNON-MARRIED}$
H_2: $\mu_{EXPMARRIED} > \mu_{EXPNON-MARRIED}$

The calculations of the *t*-values show that the null hypothesis is retained at the cost of alternative hypotheses H_1 and H_2 (Table 9.12) for all four variables. The respondents belonging to either the married or the non-married group did not experience any differences in the levels of aggression no matter in what form. A significant F value was found for overt aggression but the accompanying *t*-value was not significant and therefore no further interpretation was deemed necessary.

Table 9.12: *T*-test statistics for Aggression in the workplace-experienced for marital status

Scale (Experienced)	Marital Status	N	Mean	Standard deviation	*t*	Pr > |t|	F Value	Pr > F
Overall	Married	154	63.12	20.38	-0.08	0.9380	1.61	0.0506
	Non-married	52	63.37	16.06				
Expressions of Hostility	Married	154	33.71	11.41	-0.44	0.6590	1.45	0.1241
	Non-married	52	34.79	9.77				
Obstructionism	Married	151	30.00	8.97	0.21	0.8315	1.13	0.6232
	Non-married	52	28.58	6.92				
Overt Aggression	Married	154	20.90	7.30	1.30	0.1966	4.74	<.0001
	Non-married	52	21.27	6.29				

3)   IPAT Anxiety Scale

Each of the subscales of the IPAT Anxiety Scale was subjected to the *t*-test. The mean values and the standard deviation were based on the raw scores.

The three general hypotheses that were investigated for each of the eight variables for marital status were as follows:

H_0: $\mu_{IPATMARRIED} = \mu_{IPATNON\text{-}MARRIED}$
H_1: $\mu_{IPATMARRIED} < \mu_{IPATNON\text{-}MARRIED}$
H_2: $\mu_{IPATMARRIED} > \mu_{IPATNON\text{-}MARRIED}$

The results show that five statistically significant comparisons occurred with Factor L, Factor Q_4, and Score A being the exceptions (Table 9.13).

Firstly the two marital status groups differed significantly in terms of Factor –C ($t = -2.66$, $p < 0.01$). Respondents categorized as non-married had a higher mean score than the married group, thus indicating a trend towards having slightly less ego strength and somewhat more ego weakness in general. The alternative hypothesis H_1 was thus confirmed. Heterogeneity of variance did occur implying that the observed differences were not only due to a difference between the two groups, but also due to the significant difference in dispersion of score around the two means. This result implied that there were differences between the two groups as well as within the groups themselves.

Factor O was the second variable where the two marital status groups differed significantly ($t = -2.26$, $p < 0.05$). The subjects falling into the category non-married once more had a higher mean compared to the married group indicating a greater tendency to guilt proneness and a lesser tendency towards untroubled adequacy again confirming the alternative hypothesis H_1. Once again homogeneity of variance was present in the data set.

The third comparison related to Factor -Q_3 ($t = -1.97$, $p < 0.05$). As in the previous comparisons, the non-married group had a higher mean score than the married group. The respondents of the non-married group tended towards more defective integration and lack of self-sentiment when compared to those in the married group. Homogeneity of variance once again was present.

Fourthly Score B also showed significant differences ($t = -2.66$, $p < 0.01$). The subjects that made up the non-married group had a somewhat higher mean score compared to that of the subjects of the married group, indicating that the non-married group members had a greater tendency towards overt, symptomatic, and conscious anxiety thus confirming the alternative

hypothesis H_1. The alternative hypothesis H_1 held once more. Again there was an absence of heterogeneity of variance.

The final significant difference occurred in the total score (t = -2.60, p < 0.05). Respondents comprising the non-married group also had a higher mean score than did the respondents in the married group. This indicated that the members of the non-married group had a higher level of total anxiety than the members of the married group. Again the alternative hypothesis H_1 was confirmed. Once more the lack of heterogeneity of variance limited the comparison to differences between the two marital status groups.

Table 9.13: *T*-test statistics for the IPAT Anxiety Scale for marital status

Scale	Marital Status	N	Mean	Standard deviation	t	Pr > $\lvert t \rvert$	F Value	Pr > F
Factor -C	Married	154	3.44	2.22	-2.66	0.0083*	1.68	0.0164
	Non-married	52	4.46	2.88				
Factor L	Married	154	3.31	1.88	-0.76	0.4501	1.17	0.4736
	Non-married	52	3.54	2.03				
Factor O	Married	154	7.86	4.12	-2.26	0.0246*	1.03	0.8616
	Non-married	52	9.37	4.18				
Factor -Q_3	Married	154	4.53	2.87	-2.49	0.0134*	1.06	0.8394
	Non-married	52	5.67	2.79				
Factor Q_4	Married	154	6.29	3.74	-1.76	0.0794	1.32	0.2003
	Non-married	52	7.38	4.30				
Score A	Married	154	13.40	6.06	-1.92	0.0563	1.25	0.3046
	Non-married	52	15.33	6.78				
Score B	Married	154	12.02	6.57	-2.77	0.0061*	1.45	0.0874
	Non-married	52	15.10	7.91				
Total score	Married	154	25.42	11.52	-2.60	0.0101*	1.35	0.1717
	Non-married	52	30.42	13.37				

4)   Beck Depression Inventory

The depression scale was subjected to the *t*-test. The mean values and the standard deviations were based on the raw scores.

The three general hypotheses that were investigated for the variable depression for marital status were as follows:

H_0: $\mu_{BDIMARRIED} = \mu_{BDINON\text{-}MARRIED}$
H_1: $\mu_{BDIMARRIED} < \mu_{BDINON\text{-}MARRIED}$
H_2: $\mu_{BDIMARRIED} > \mu_{BDINON\text{-}MARRIED}$

The results show that the null hypothesis is not rejected in favour of the alternative hypothesis H_1 or H_2 (Table 9.14). This implies that there were no significant differences in the levels of depression experienced between the married and the non-married groups.

Table 9.14: *T*-test statistics for the Beck Depression Inventory for marital status

Scale	Marital Status	N	Mean	Standard deviation	t	Pr > |t|	F Value	Pr > F
Depression	Married	154	6.44	6.18	-1.89	0.0607	1.48	0.0741
	Non-married	51	8.43	7.51				

5)   Penn State Worry Questionnaire

The Penn State Worry Questionnaire was subjected to the *t*-test. The mean values and the standard deviations were based on the raw scores.

The three general hypotheses that were investigated for the variable worry for marital status were as follows:

H_0: $\mu_{\text{WORMARRIED}} = \mu_{\text{WORNON-MARRIED}}$
H_1: $\mu_{\text{WORMARRIED}} < \mu_{\text{WORNON-MARRIED}}$
H_2: $\mu_{\text{WORMARRIED}} > \mu_{\text{WORNON-MARRIED}}$

The results show that the null hypothesis is rejected in favour of the alternative hypothesis H_1 (Table 9.15). The married group had a lower mean score than the non-married group, which implied that the former experienced lower levels of worry than the latter.

Table 9.15: *T*-test statistics for the Penn State Worry Questionnaire for marital status

Scale	Marital Status	N	Mean	Standard deviation	t	Pr > |t|	F Value	Pr > F
Worry	Married	152	40.28	10.98	-2.42	0.0166*	1.02	0.8855
	Non-married	51	44.59	11.11				

6)   Social Problem-Solving Inventory-Revised

The three general hypotheses that were investigated for each of the ten variables for marital status were as follows:

H_0: $\mu_{\text{SPMARRIED}} = \mu_{\text{SPFNON-MARRIED}}$
H_1: $\mu_{\text{SPMARRIED}} < \mu_{\text{SPSNON-MARRIED}}$
H_2: $\mu_{\text{SPMARRIED}} > \mu_{\text{SPSNON-MARRIED}}$

Each of the subscales of the Social Problem-Solving Inventory-Revised was subjected to the *t*-test. The mean values and the standard deviation were based on the raw scores.

The results show that in the case of three of the ten subscales the null hypothesis is retained at the expense of the alternative hypothesis H_1 or H_2 (Table 9.16). This implies that there were no

139

significant differences between the married and non-married groups regarding their abilities to generate alternatives, make decisions, and implementing and verifying solutions. A significant difference did exist between the two groups with respect to the remaining seven variables, namely positive problem orientation, negative problem orientation, rational problem solving, problem definition and formulation, impulsivity and carelessness style, avoidance style, and social problem solving.

With regard to the first variable, positive problem orientation a significant difference was delineated ($t = 2.12$, $p < 0.05$). The mean score of the married subjects was found to be higher than that of the non-married group implying that the married subjects had more of a positive problem orientation than their unmarried and divorced counterparts. The alternative hypothesis H_2 was confirmed. Homogeneity of variance was present.

The second variable that was significant was negative problem orientation ($t = -3.72$, $p < 0.01$). In this case the non-married group had a higher mean score than the married subjects. The members of the former group tended to resort more to negative problem orientation than those of the latter group. The alternative hypothesis H_1 held in this case. Once again homogeneity of variance was found.

The third significant difference was found with the variable rational problem solving ($t = 2.01$, $p < 0.05$). Married subjects had a higher mean score than the non-married group. Married subjects were thus more inclined to use this intellectual approach, thus confirming the alternative hypothesis H_2. Heterogeneity of variance was not present.

The fourth comparison that showed a significant difference was with the variable problem definition and formulation ($t = 2.17$, $p< 0.05$). Married subjects had a higher mean score than their non-married counterparts implying that the former performed better by being more inclined to use problem definition and formulation than the latter. The alternative hypothesis H_2 was upheld again. In this case heterogeneity of variance did occur. Besides differences between groups differences within groups also occurred thus confounding any clear conclusion.

In the fifth place the variable impulsivity/carelessness style was found to be significant ($t = -2.96$, $p < 0.01$). In this case the respondents that fell into the non-married group had a higher mean score than the married respondents indicating that first mentioned group tended to have a more impulsive and careless approach to dealing with problems than the second mentioned group. The alternative hypothesis H_1 was applicable in this case. Once again heterogeneity of variance did not occur.

The sixth variable, namely avoidance style also showed significant differences (t = -2.43, p < 0.05). The non-married group once again had a higher mean score than the married group indicating that the members of the first group were more likely to resort to an avoidance style when dealing with problem situations, once more confirming the alternative hypothesis H_1. Again homogeneity of variance occurred.

Finally, a significant difference was observed with regard to the variable social problem solving (t = 3.04, p < 0.01). The married subjects had a higher mean score than the non-married group. The latter category was less effective in their overall approach to social problem solving. In this instance the alternative hypothesis H_2 held. Once again homogeneity of variance occurred.

Table 9.16: *T*-test statistics for the Social Problem-Solving Inventory-Revised for marital status

Scale	Marital Status	N	Mean	Standard deviation	t	Pr > |t|	F Value	Pr > F
Positive Problem Orientation Scale	Married	153	18.51	3.32	2.12	0.0353*	1.20	0.4528
	Non-married	52	17.40	3.03				
Negative Problem Orientation Scale	Married	154	17.56	6.05	-3.72	0.0003*	1.00	0.9655
	Non-married	52	21.17	6.06				
Rational Problem Solving Scale	Married	153	68.46	12.90	2.01	0.0454*	1.56	0.0681
	Non-married	52	64.48	10.33				
Problem Definition and Formulation Subscale	Married	153	18.06	3.58	2.17	0.0315*	2.20	0.0016
	Non-married	52	16.90	2.41				
Generation of Alternatives Subscale	Married	153	17.45	3.58	1.91	0.0577	1.29	0.2992
	Non-married	52	16.38	3.16				
Decision Making Subscale	Married	153	16.64	3.33	1.92	0.0565	1.16	0.5467
	Non-married	52	15.63	3.09				
Solution Implementation and Verification Subscale	Married	153	16.31	3.81	1.25	0.2144	1.15	0.5749
	Non-married	52	15.56	3.56				
Impulsivity/ Carelessness Style Scale	Married	153	17.73	5.11	-2.96	0.0034*	1.20	0.4010
	Non-married	52	20.21	5.59				
Avoidance Style Scale	Married	153	12.34	4.02	-2.43	0.0158*	1.06	0.7642
	Non-married	52	13.92	4.14				
Social Problem Solving	Married	154	16.74	2.45	3.04	0.0027*	1.33	0.2352
	Non-married	52	15.58	2.13				

9.4.3 *Analysis of variance*

A General Linear Model was run with MANOVA options and Scheffé tests were calculated for four class variables, i.e., the four types of organization groupings, the five qualifications levels, the three position levels, and the four age groups.

A 95% confidence level was chosen based on Type 111 SS calculations.

Scheffé tests were calculated using raw scores with the following formula:

$$F'_{ab} = \frac{(\bar{x}_a - \bar{x}_b)^2}{\dfrac{sw^2}{n_1} + \dfrac{sw^2}{n_2}}$$

9.4.3.1 Experience of Work and Life Circumstances Questionnaire

Each of the subscales of the Experience of Work and Life Circumstances Questionnaire was subjected to the General Linear Model with ANOVA option. Scheffé tests were calculated from the raw scores as described in paragraph 9.4.3.

1)   Level of stress

The first comparison involved the variable level of stress (LOS). The analysis of variance is given in Table 9.17.

Table 9.17: Analysis of variance for level of stress

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	22241.75	353.04	0.87	0.7324
Error	140	56881.48	406.30		
Corrected Total	203	79123.23			
	R-Square	Coeff Var	Root MSE	LOS Mean	
	0.28	27.46	20.16	73.41	
Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	533.60	177.87	0.44	0.7263
Qualification	4	1400.69	350.17	0.86	0.4886
Position	2	445.05	222.52	0.55	0.5795
Age	3	1131.22	377.07	0.93	0.4290
Org*Qual	10	5892.00	589.20	1.45	0.1646
Org*Pos	6	1627.61	271.27	0.67	0.6759
Org*Age	9	2480.16	275.57	0.68	0.7276
Qual*Pos	8	1564.46	195.56	0.48	0.8678
Qual*Age	12	5034.76	419.56	1.03	0.4226
Pos*Age	6	556.47	92.75	0.23	0.9669

The F value of 0.87 was not significant (p > 0.05), which was indicative that none of the subgroups differed in terms of the dependent variable level of stress. Furthermore no significant one-way or two-way interactions occurred in the comparison.

2)   Causes outside the work situation

The second comparison involved the variable causes outside the work situation (OWS). The analysis of variance is given in Table 9.18. The F value 1.23 was once again not significant (p > 0.05), which was indicative that none of the subgroups differed in terms of the dependent variable causes outside the work situation. However only one significant interaction could be delineated, namely type of organization grouping with qualification groupings. Further analysis of this interaction was deemed unnecessary as the overall F value of 1.23 was insignificant.

Table 9.18: Analysis of variance for causes outside the work situation

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	2981.80	47.33	1.23	0.1609
Error	140	5399.12	38.57		
Corrected Total	203	8380.92			
	R-Square	Coeff Var	Root MSE	OWS Mean	
	0.36	24.66	6.21	25.19	
Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	250.53	83.51	2.17	0.0948
Qualification	4	241.71	60.43	1.57	0.1865
Position	2	127.52	63.76	1.65	0.1951
Age	3	152.96	50.99	1.32	0.2697
Org*Qual	10	746.58	74.66	1.94*	0.0451
Org*Pos	6	140.93	23.49	0.61	0.7228
Org*Age	9	179.82	19.98	0.52	0.8596
Qual*Pos	8	161.26	20.16	0.52	0.8379
Qual*Age	12	631.38	52.62	1.36	0.1900
Pos*Age	6	79.53	13.26	0.34	0.9125

3)   Organizational functioning

The third comparison involved the variable of organizational functioning (IWSOF). The analysis of variance is given in Table 9.19. The F value of 1.50 was significant (p < 0.05). Thus it is expected that one or more of the subgroups would differ regarding their experience of stress due to organizational functioning. One significant two-way interaction could be delineated, namely type of organization grouping with qualification level (Table 9.20). No significant differences regarding the qualification levels, position levels, and different age categories could be found.

Table 9.19: Analysis of variance for organizational functioning

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	2509.47	39.83	1.50*	0.0256
Error	140	3722.12	26.59		
Corrected Total	203	6231.58			
	R-Square	Coeff Var	Root MSE	IWSOF Mean	
	0.40	25.25	5.16	20.42	
Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	207.46	69.15	2.60	0.0545
Qualification	4	125.34	31.33	1.18	0.3229
Position	2	92.01	46.00	1.73	0.1810
Age	3	65.81	21.94	0.83	0.4821
Org*Qual	10	540.06	54.01	2.03*	0.0343
Org*Pos	6	234.06	39.01	1.47	0.1937
Org*Age	9	417.27	46.36	1.74	0.0845
Qual*Pos	8	163.41	20.43	0.77	0.6312
Qual*Age	12	503.42	41.95	1.58	0.1046
Pos*Age	6	198.56	33.09	1.24	0.2872

A series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the five qualification groupings. Each of the organization-qualification pairs was then compared to every other pair to determine if a significant difference did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Most significantly respondents that worked for academic/auxiliary service organizations having Masters or Doctors degrees differed significantly from respondents found within thirteen different organization-qualification combinations, namely financial organizations and who had a Grade 12 or less (F' = 24.15, $p < 0.01$, df = 63 and 140), financial organizations with Diplomas (F' = 11.39, $p < 0.01$, df = 63 and 140), financial organizations with Bachelors degrees (F' = 10.50, $p < 0.01$, df = 63 and 140), financial organizations with Honours and equivalent degrees (F' = 4.02, $p < 0.05$, df = 63 and 140), production/services organizations with Grade 12 or less (F' = 8.21, $p < 0.01$, df = 63 and 140), production/services organizations with Diplomas (F' = 25.14, $p < 0.01$, df = 63 and 140), production/services organizations with Bachelors degrees (F' = 5.44, $p < 0.01$, df = 63 and 140), production/services organizations with Honours and equivalent degrees with (F' = 15.83, $p < 0.01$, df = 63 and 140), production/services organizations with Masters or Doctoral degrees (F' = 4.89, $p < 0.01$, df = 63 and 140), research and development organizations with Diplomas (F' = 6.07, $p < 0.01$, df = 63 and 140), research and development organizations with Honours and equivalent degrees (F' = 5.02, $p < 0.01$, df = 63 and 140), research and development organizations with Masters or Doctoral degrees (F' = 9.91, $p < 0.01$, df = 63 and 140), and academic/auxiliary services organizations with Honours and equivalent degrees (F' = 16.46, $p < 0.01$, df = 63 and 140). In all of the above comparisons the mean score for the subjects in the academic/auxiliary services organizations with Masters or Doctoral degrees were significantly lower than for any of the thirteen organization-qualification

combinations implying that the subjects who had a Masters or Doctoral degree working in an academic/auxiliary services environment experienced organizational functioning as more problematic than subjects in any of the other combinations.

The second comparison involved subjects working in production/services organizations with Diplomas, which differed significantly from four organization-qualification combinations of which one involving subjects working in academic/auxiliary services organizations with a Masters or Doctoral degree has been reported previously. The remaining three included subjects working in research and development organizations with a Masters or Doctoral degree (F' = 7.19, p < 0.01, df = 63 and 140), in academic/auxiliary services organizations with a Diploma a (F' = 6.85, p < 0.01, df = 63 and 140), and a Bachelors Degree (F' = 4.39, p < 0.05, df = 63 and 140). The mean score of the former was significantly higher than for the latter groups indicating that subjects working in an production/services environment with a Diploma degree experienced organizational functioning as less problematic than those working in research and development environments with a Grade 12 or lower, a Diploma, a Bachelors and a Masters or Doctoral degree.

Another two significant comparisons were found. The first of these comparisons involved respondents working in production/services organizations with Honours or equivalent degrees, which differed significantly from subjects found in research and development organizations with Masters or Doctoral degrees (F' = 4.22, p < 0.01, df = 63 and 140) and subjects found in academic/auxiliary services organizations with a Diploma (F' = 5.02, p < 0.01, df = 63 and 140). In the comparison the mean score for the subjects that worked in production/services with Honours or equivalent degrees was significantly higher than for the subjects working in research and development organizations with Masters or Doctoral degrees and those working in academic/auxiliary services organizations which was indicative that the former experienced organization functioning as less problematic than the latter. The second comparison involved subjects that worked for financial organizations with Honours and equivalent degrees who differed significantly from production/services organizations with Diplomas (F' = 4.87, p < 0.05, df = 63 and 140). The respondents with an Honours or equivalent degree working for a financial organization had a lower mean average than the respondents with Diplomas working for the production/services organizations indicating that the former experienced organizational functioning as more problematic compared to the latter.

Table 9.20: Mean values for organizational functioning by organization and qualification grouping

Qualification Group	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
Gr 1	21.82	39	20.00	14	-	-	-	-
Gr 2	22.13	8	23.86	14	21.20	5	17.88	8
Gr 3	23.75	4	19.80	8	19.20	5	18.86	7
Gr 4	19.00	9	23.86	7	22.00	3	22.14	14
Gr 5	-	-	19.86	7	19.45	33	14.85	20

4) Task characteristics

The fourth comparison involved the variable of task characteristics (IWSTC). The analysis of variance is given inTable 9.21). The F value of 1.49 was significant ($p < 0.05$). Significant differences were found for types of organization groupings and significant two-way interactions were found for type of organization grouping with qualification levels (Table 9.22), type of organization grouping with position level (Table 9.23), and type of organization grouping with age groupings (Table 9.24).

Table 9.21: Analysis of variance for task characteristics

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	4081.86	64.79	1.49*	0.0267
Error	140	6077.56	43.41		
Corrected Total	203	10159.43			

	R-Square	Coeff Var	Root MSE	IWSTC Mean	
	0.40	13.08	6.59	50.37	

Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	364.20	121.40	2.80*	0.0425
Qualification	4	176.31	44.08	1.02	0.4017
Position	2	9.34	4.67	0.11	0.8981
Age	3	150.66	50.22	1.16	0.3286
Org*Qual	10	931.59	93.16	2.15*	0.0247
Org*Pos	6	642.14	107.02	2.47*	0.0269
Org*Age	9	960.52	106.72	2.46*	0.0124
Qual*Pos	8	142.30	17.79	0.41	0.9135
Qual*Age	12	928.73	77.39	1.78	0.0565
Pos*Age	6	194.17	32.36	0.75	0.6140

A series of Scheffé tests were carried out where the four types of organization groupings were paired-off two at a time. Not one of the six comparisons showed any significant differences regarding the respondents' perception of task characteristics when F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. The studentized range test was also applied to this one-way analyses and the results showed that the research and development group differed

146

significantly from the financial group (Q = 9.04 > Q =4.76, α = 0.05), the production/services group (Q = 9.04 > Q = 4.76, α = 0.05), as well as the academic/auxiliary services group (Q = 7.20 > Q = 4.76, α = 0.05). In these comparisons the mean score for subjects working in research and development organizations was higher than for subjects working in financial, production/services, and academic/auxiliary organizations implying that the former experienced task characteristics as more problematic than the latter.

Another series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the five qualification groupings. Each of the organization-qualification pairs was then compared to every other pair to determine if a significant difference did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Most significantly respondents that worked for research and development organizations with Diplomas differed significantly from nine other organization-qualification combinations, namely financial organizations with Grade 12 or lower (F' = 4.06, $p < 0.05$, df = 63 and 140), financial organizations with Diplomas (F' = 6.22, $p < 0.01$, df = 63 and 140), financial organizations with Bachelors degrees (F' = 5.12, $p < 0.01$, df = 63 and 140), financial organizations with Honours and equivalent degrees (F' = 6.29, $p < 0.01$, df = 63 and 140), production/services organizations with Grade 12 or less (F' = 6.34, $p < 0.01$, df = 63 and 140), production/services organizations with Bachelors degrees (F' = 5.74, $p < 0.01$, df = 63 and 140), production/services organizations with Masters or Doctoral degrees (F' = 5.61, $p < 0.01$, df = 63 and 140), academic/auxiliary services organizations with Diplomas (F' = 6.22, $p < 0.01$, df = 63 and 140), academic/auxiliary services organizations with Bachelors degrees (F' = 4.15, $p < 0.05$, df = 63 and 140), and academic/auxiliary services organizations with Masters or Doctoral degrees (F' = 6.97, $p < 0.01$, df = 63 and 140). In all of the above comparisons the mean score for subjects with Diplomas working for research and development organizations was significantly higher than for the nine organization-qualification combinations implying that the former found task characteristics less problematic than those in the latter groupings.

Further differences were found for subjects with academic/auxiliary services organizations with Honours or equivalent degrees with five other organization-qualification combinations, namely financial organizations with Diplomas (F' = 4.04, $p < 0.05$, df = 63 and 140), financial organizations with Honours degrees (F' = 4.13, $p < 0.05$, df = 63 and 140), production/services organizations with Grade 12 or lower (F' = 4.26, $p < 0.05$, df = 63 and 140), academic/auxiliary services organizations with Diplomas (F' = 4.04, $p < 0.05$, df = 63 and 140), and academic/auxiliary services organizations with Masters or Doctoral degrees (F' = 5.13, $p < 0.01$, df = 63 and 140). The mean score for the respondents with and Honours degree found in an academic/auxiliary services environment was higher than for any of the comparative

combinations. This result indicated that the former respondents found task characteristics less problematic than the latter groupings.

Table 9.22: Mean values for task characteristics by organization and qualification grouping

Qualification Group	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
Gr 1	50.69	39	48.36	14	-	-	-	-
Gr 2	47.63	8	52.86	14	57.00	5	47.63	8
Gr 3	47.00	4	48.00	8	53.80	5	49.14	7
Gr 4	47.78	9	50.57	7	49.67	3	53.50	14
Gr 5	-	-	47.86	7	51.21	3	48.30	20

Another series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the three position levels. Each of the organization-position level pairs was then compared to every other pair to determine if a significant difference between them did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Most significantly respondents that worked as specialist staff in research and development organizations differed significantly from ten other organization-position level combinations, namely in senior management in financial organizations (F' = 4.05, $p < 0.05$, df = 63 and 140), in middle management in financial organizations (F' = 5.40, $p < 0.01$, df = 63 and 140), among specialist staff in financial organizations (F' = 13.36, $p < 0.01$, df = 63 and 140), in senior management in production/services organizations (F' = 5.42, $p < 0.01$, df = 63 and 140), in middle management in production/services organizations (F' = 4.31, $p < 0.05$, df = 63 and 140), among specialist staff in production/services organizations (F' = 4.67, $p < 0.05$, df = 63 and 140), in senior management in research and development organizations (F' = 8.47, $p < 0.01$, df = 63 and 140), in middle management in research and development organizations (F' = 9.26, $p < 0.01$, df = 63 and 140), in senior management in academic/auxiliary services organizations (F' = 7.47, $p < 0.01$, df = 63 and 140), and among specialist staff in academic/auxiliary services organizations (F' = 7.48, $p < 0.01$, df = 63 and 140). In all of the above comparisons the mean value for subjects that worked as specialist staff in research and development organizations was significantly lower than any of the comparative organization-position level combinations. Thus the former subjects experienced task characteristics as more problematic than the subjects of the latter combinations.

Further subjects working in middle management in academic/auxiliary services organizations differed significantly from five organization-position level combinations, namely as specialist staff in financial organizations (F' = 14.96, $p < 0.01$, df = 63 and 140), in senior management in research and development organizations (F' = 9.39, $p < 0.01$, df = 63 and 140), middle management in research and development organizations (F' = 11.75, $p < 0.01$, df = 63 and

140), in senior management in academic/auxiliary services organizations (F' = 7.17, $p < 0.01$, *df* = 63 and 140), and as specialist staff in academic/auxiliary services organizations (F' = 7.08, p < 0.01, *df* = 63 and 140). Once again the mean score of respondents working in middle management in academic/auxiliary services organizations was significantly lower than for any of the comparison organization-position level combinations implying that the former experienced task characteristics as more problematic than the latter combinations.

Next subjects working in senior management for financial organizations differed significantly from two organization-position level combinations, namely senior management in research and development organizations (F' = 4.98, p < 0.01, *df* = 63 and 140) and middle management in research and development organizations (F' = 7.06, p < 0.01, *df* = 63 and 140). In both cases the mean value for subjects working in senior management for financial organizations was significantly lower than for the two comparative organization-position level combinations implying that the former found task characteristics more problematic than the latter.

Finally subjects working as specialist staff in financial organizations differed significantly from those subjects working in senior management in production/services organizations (F' = 6.18, p < 0.01, *df* = 63 and 140), as well in middle management in production/services organizations (F' = 6.18, p < 0.01, *df* = 63 and 140). In either case the mean score for subjects working as specialist staff in financial organizations was higher than for the two comparative organization-position level combinations meaning that the former experienced task characteristics as less problematic than the latter combinations.

Table 9.23: Mean values for task characteristics by organization grouping and position level

| Position Level | Type of Organization Grouping | | | | | | | |
| | Financial | | Prod/Serv | | R&D | | Acad/Aux Services | |
	Mean	N	Mean	N	Mean	N	Mean	N
Senior Mangement	48.57	46	50.14	21	52.58	19	52.00	16
Middle Management	51.50	6	49.50	12	52.92	25	45.94	18
Specialist Staff	57.29	7	49.59	17	40.67	3	52.07	15

A further series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the four age groups. Each of the organization-age group pairs was then compared to every other pair to determine if a significant difference between them did exist or not. For all of the comparisons it was found that F_{crit} at p < 0.05 was equal to 3.96 and p < 0.01 was equal to 4.41. Most significantly respondents that were between 30 and 39 years of age and worked in academic/auxiliary services organizations differed significantly from eight other

organization-age group combinations, namely between 20 and 29 years of age in financial organizations (F' = 4.09, $p < 0.05$, *df* = 63 and 140), between 30 and 39 years of age in financial organizations (F' = 3.99, $p < 0.05$, *df* = 63 and 140), between 30 and 39 years of age in production/services organizations (F' = 4.21, $p < 0.05$, *df* = 63 and 140), 50 years of age and older in production/services organizations (F' = 5.42, $p < 0.01$, *df* = 63 and 140), between 30 and 39 years of age in research and development organizations (F' = 4.39, $p < 0.05$, *df* = 63 and 140), between 40 and 49 years of age in research and development organizations (F' = 4.93, $p < 0.01$, *df* = 63 and 140), 50 years of age and older in research and development organizations (F' = 8.68, $p < 0.01$, *df* = 63 and 140), and 50 years of age older and in academic/auxiliary services organizations (F' = 6.22, $p < 0.01$, *df* = 63 and 140). In all of the above comparisons the mean value for subjects between 30 and 39 years of age working in an academic/auxiliary services environment was significantly lower than any of the comparative organization-age group combinations. Thus the former subjects experienced task characteristics as more problematic than the subjects of the latter combinations.

Another significant comparison similar to the above was found for respondents that were 50 years of age and older and worked in financial organizations, which differed significantly from seven other organization-age group combinations, namely between 20 and 29 years of age in financial organizations (F' = 4.25, $p < 0.05$, *df* = 63 and 140), between 30 and 39 years of age in production/services organizations (F' = 4.03, $p < 0.05$, *df* = 63 and 140), 50 years of age and older and in production/services organizations (F' = 5.35, $p < 0.01$, *df* = 63 and 140), between 30 and 39 years of age in research and development organizations (F' = 4.15, $p < 0.05$, *df* = 63 and 140), between 40 and 49 years of age in research and development organizations (F' = 4.70, $p < 0.01$, *df* = 63 and 140), 50 years of age and older in research and development organizations (F' = 8.05, $p < 0.01$, *df* = 63 and 140), and 50 years of age and older in academic/auxiliary services organizations (F' = 5.71, $p < 0.01$, *df* = 63 and 140). The combination of subjects between 30 and 39 years of age in academic/auxiliary services organizations was excluded. In all of the above comparisons the mean value for subjects that were 50 years of age and older working in a financial environment was significantly lower than any of the comparative organization-age group combinations. Thus the former subjects experienced task characteristics as more problematic than the subjects of the latter combinations.

Finally subjects 50 years of age and older and working in research and development organizations were found to differ significantly from five other organization-age group combinations of which respondents that were between 30 and 39 years of age and worked in academic/auxiliary services organizations and that were 50 years of age and older and that worked in financial organizations, have been reported above. The remaining combinations

involved respondents who were between 40 and 49 years of age and worked in financial organizations (F' = 4.26, p < 0.05, *df* = 63 and 140), between 20 and 29 years of age and worked in production/services organizations (F' = 8.72, p < 0.01, *df* = 63 and 140), and between 40 and 49 years of age and also worked in production/services organizations (F' = 6.81, p < 0.01, *df* = 63 and 140). In all of the comparisons the mean score for subjects 50 years of age and older and working in research and development was significantly higher than for the comparative organization-age group combination, which meant that the former experienced task characteristics as less problematic than the latter.

Table 9.24: Mean values for task characteristics by organization grouping and age group

Age Groups	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
20-29	53.50	4	48.06	16	-	-	51.00	3
30-39	50.46	26	50.80	20	50.86	21	45.73	11
40-49	50.14	22	47.57	7	51.53	15	50.27	15
50+	45.00	7	53.14	7	54.20	10	51.95	19

5)   Physical working conditions and job equipment

The fifth comparison involved the variable of physical working conditions (IWSPW). The analysis of variance is given in Table 9.25. The F value of 2.05 was significant (p < 0.01). Only one significant one-way interaction was found, namely for types of organization groupings. No significant two-way interactions could be found.

Table 9.25: Analysis of variance for physical working conditions

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	3201.90	50.82	2.05*	0.0002
Error	140	3464.75	24.75		
Corrected Total	203	6666.65			
	R-Square	Coeff Var	Root MSE	IWSPW Mean	
	0.48	20.16	4.97	24.68	
Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	460.28	153.43	6.20*	0.0006
Qualification	4	138.48	34.62	1.40	0.2375
Position	2	46.36	23.18	0.94	0.3944
Age	3	71.43	23.81	0.96	0.4126
Org*Qual	10	330.05	33.01	1.33	0.2183
Org*Pos	6	176.11	29.35	1.19	0.3172
Org*Age	9	150.73	16.75	0.68	0.7289
Qual*Pos	8	49.75	6.22	0.25	0.9798
Qual*Age	12	470.95	39.25	1.59	0.1022
Pos*Age	6	182.30	30.38	1.23	0.2957

A series of Scheffé tests were carried out where the four types of organization groupings were paired-off two at a time. Five of the six comparisons showed significant differences regarding the respondent's perception of their physical working conditions. For the five comparisons it was found that F_{crit} was equal to 3.96 ($p < 0.05$) and equal to 4.41 ($p < 0.01$). Firstly financial organizations differed significantly from production/services organizations (F' = 10.12, $p < 0.01$, df = 63 and 140). The mean score for the former was lower than for the latter meaning that subjects working for financial organizations saw their physical working conditions as more problematic than those working for production/services organizations. Secondly financial organizations differed significantly form academic/auxiliary services organizations (F' = 16.15, $p < 0.01$, df = 63 and 140). In this case the mean score of subjects working in financial organizations was significantly higher than for those working in academic/auxiliary services organizations implying that the former experienced their physical working conditions as less problematic than the latter. Thirdly production/services organizations differed significantly from research and development organizations (F' = 7.14, $p < 0.01$, df = 63 and 140). The mean score of the first was significantly higher than for the second, which meant that production/services organizations perceived their physical working conditions as less perturbing than their counterparts in research and development organizations. Fourthly production/services organizations differed significantly from academic/auxiliary services organizations (F' = 47.33, $p < 0.01$, df = 63 and 140). Again the mean score for subjects working in production/services organizations was significantly higher than for those working in academic/auxiliary services organizations implying that the former experienced their physical working conditions as less worrisome than the latter. Finally research and development organizations differed significantly from academic/auxiliary services organizations (F' = 16.94, $p < 0.01$, df = 63 and 140). Here the first organization's subjects also had a higher mean score than that for the second organization, which was indicative that respondents in research and development organizations perceived their physical working conditions as less perturbing than those found in academic/auxiliary services environments. No differences were found between financial and research and development organizations in terms of physical working conditions.

6)   Career matters

The sixth comparison involved the variable of task characteristics (IWSCM). The analysis of variance is given in Table 9.26. The F value of 1.76 was significant ($p < 0.01$). Significant differences were found for types of organization groupings and significant interactions were found for type of organization grouping with qualification levels (Table 9.27).

Table 9.26: Analysis of variance for career matters

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	3491.57	55.42	1.76*	0.0031
Error	140	4403.26	31.45		
Corrected Total	203	7894.82			
	R-Square	Coeff Var	Root MSE	CM Mean	
	0.44	22.92	5.61	24.47	
Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	302.18	100.73	3.20*	0.0253
Qualification	4	271.83	67.96	2.16	0.0765
Position	2	91.38	45.69	1.45	0.2374
Age	3	120.66	40.22	1.28	0.2841
Org*Qual	10	611.51	61.15	1.94*	0.0440
Org*Pos	6	159.78	26.63	0.85	0.5360
Org*Age	9	539.23	59.91	1.90	0.0559
Qual*Pos	8	113.72	14.22	0.45	0.8876
Qual*Age	12	397.98	33.17	1.05	0.4033
Pos*Age	6	95.39	15.90	0.51	0.8034

A series of Scheffé tests were carried out where the four types of organization groupings were paired-off two at a time. Four of the six comparisons showed significant differences regarding the respondents' experience of career matters. For the four comparisons it was found that F_{crit} was equal to 3.96 (p < 0.05) and equal to 4.41 (p < 0.01). Firstly financial organizations differed significantly from research and development organizations (F' = 4.51, p < 0.01, df = 63 and 140). The mean score for the former was higher than that for the latter implying that subjects working in financial organizations found career matters less of an issue than for those in research and development organizations. Secondly financial organizations also differed significantly from academic/auxiliary services organizations (F' = 10.99, p < 0.01, df = 63 and 140). The mean score for subjects found in financial organizations was significantly higher than that for subjects found in academic/auxiliary services organizations, which allowed the conclusion that the former experienced that career matters was less worrisome than for the latter. Thirdly production/services organizations differed significantly from research and development organizations (F' = 4.81, p < 0.01, df = 63 and 140). In this case the mean score also was higher for those subjects working in production/services organizations than for subjects in research and development organizations indicating that the former found career matters less perturbing than the latter. Finally production/services organizations also differed significantly from academic/auxiliary services organizations (F' = 11.12, p < 0.01, df = 63 and 140). The mean score for the first organization was significantly higher than for the second organization meaning that subjects in a production/services environment perceived career matters as less problematic than subjects in academic/auxiliary services organizations.

A series of two-way Scheffé tests were carried out where the four types of organization groupings were paired-off with the five qualification groupings. Each of the organization-qualification pairs was then compared to every other pair to determine if a significant difference between them did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Most significantly subjects that had a Masters or Doctoral degree and worked in academic/auxiliary services organizations differed significantly from ten other organization-qualification grouping combinations, namely with a Grade 12 or lower in financial organizations (F' = 15.13, $p < 0.01$, df = 63 and 140), with a Diploma in financial organizations (F' = 8.98, $p < 0.01$, df = 63 and 140), with a Bachelors degree in financial organizations (F' = 14.39, $p < 0.01$, df = 63 and 140), with a Diploma in production/services organizations (F' = 20.23, $p < 0.01$, df = 63 and 140), with a Bachelors degree in production/services organizations (F' = 4.15, $p < 0.05$, df = 63 and 140), with an Honours or equivalent degree in production/services organizations (F' = 10.95, $p < 0.01$, df = 63 and 140), with a Masters of Doctoral degree in production/services organizations (F' = 4.61, $p < 0.01$, df = 63 and 140), with a Bachelors degree in research and development organizations (F' = 4.50, $p < 0.01$, df = 63 and 140), with Masters or Doctoral degrees in research and development organizations (F' = 4.16, $p < 0.05$, df = 63 and 140), and with an Honours or equivalent degree in academic/auxiliary services organizations (F' = 9.46, $p < 0.01$, df = 63 and 140). In all of the above comparisons the mean value for subjects with a Masters or Doctoral degree working in an academic/auxiliary services environment was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced career matters as more of a concern than the subjects of the latter combinations.

The next significant comparison involved subjects that had a Diploma and worked in academic/auxiliary services organizations differed significantly from eight other organization-qualification groupings combinations, namely with a Grade 12 or lower in financial organizations (F' = 9.19, $p < 0.01$, df = 63 and 140), with a Diploma in financial organizations (F' = 7.40, $p < 0.01$, df = 63 and 140), with a Bachelors degree in financial organizations (F' = 12.72, $p < 0.01$, df = 63 and 140), with a Diploma in production/services organizations (F' = 14.27, $p < 0.01$, df = 63 and 140), with an Honours or equivalent degree in production/services organizations (F' = 9.09, $p < 0.01$, df = 63 and 140), with a Masters of Doctoral degree in production/services organizations (F' = 4.12, $p < 0.05$, df = 63 and 140), with a Bachelors degree in research and development organizations (F' = 4.20, $p < 0.05$, df = 63 and 140), and with an Honours or equivalent degree in academic/auxiliary services organizations (F' = 7.07, $p < 0.01$, df = 63 and 140). In all of the above comparisons the mean value for subjects that had a Diploma and worked in an academic/auxiliary services environment was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former

subjects experienced career matters as more problematic than the subjects of the latter combinations.

The third significant comparison pertained to subjects that had an Honours or equivalent degree and worked for a financial organization differing significantly from five other organization-qualification groupings combinations, namely with a Grade 12 or lower in financial organizations (F' = 4.75, p < 0.01, df = 63 and 140), with a Diploma in financial organizations (F' = 4.15, p < 0.05, df = 63 and 140), with a Bachelors degree in financial organizations (F' = 9.11, p < 0.01, df = 63 and 140), with a Diploma in production/services organizations (F' = 9.31, p < 0.01, df = 63 and 140), and with an Honours or equivalent degree in production/services organizations (F' = 5.57, p < 0.01, df = 63 and 140). In all of the above comparisons the mean value for subjects that had an Honours or equivalent degree and worked for a financial organization was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced career matters as more worrisome than the subjects of the latter combinations.

The fourth significant comparison pertained to subjects that had a Diploma and worked for a financial organization differing significantly from six other organization-qualification groupings combinations, of which three, namely subjects with an Honours or equivalent degree working in financial organizations, with a Master or Doctoral in academic/auxiliary services organizations, and a Diploma in academic/auxiliary organizations have been mentioned previously. The other combinations included subjects with Grade 10 or lower working for production/services organizations (F' = 6.91, p < 0.01, df = 63 and 140), with Diplomas working for research and development organizations (F' = 5.48, p < 0.01, df = 63 and 140), and with a Masters or Doctoral degree in research and development organizations (F' = 9.63, p < 0.01, df = 63 and 140). In all of the above comparisons the mean value for subjects that had a Diploma and worked for a financial organization was significantly higher than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced career matters as less problematic than the subjects of the latter combinations.

The fifth significant comparison referred to subjects that had a Masters or Doctoral degree and worked for a research and development organizations differed significantly from five other organization-qualification groupings combinations, of which subjects with a Diploma and working in financial institutions and Masters or Doctoral degrees in academic/auxiliary organizations have been mentioned previously. The remaining two included subjects that had Grade 12 or lower in financial organizations (F' = 4.33, p < 0.05, df = 63 and 140), and with a Bachelors degree in financial organizations (F' = 8.02, p < 0.01, df = 63 and 140). In all of the above comparisons the mean value for subjects that had a Masters or Doctoral degree and

155

worked for research and development organizations was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced career matters as more perturbing than the subjects of the latter combinations.

Table 9.27: Mean values for career matters by organization and qualification grouping

Qualification Group	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
Gr 1	25.85	39	23.07	14	-	-	-	-
Gr 2	26.88	8	28.64	14	21.80	5	19.25	8
Gr 3	31.50	4	24.63	8	25.80	5	24.29	7
Gr 4	21.33	9	28.00	7	25.33	3	25.86	14
Gr 5	-	-	25.14	7	23.09	33	19.85	20

7)   Social matters

The seventh comparison involved the variable social matters (IWSSM). The analysis of variance is given in Table 9.28. The F value of 1.24 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable social matters. No significant one-way or two-way interactions occurred in the comparison.

Table 9.28: Analysis of variance for social matters

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	1457.20	23.13	1.24	0.1483
Error	140	2609.44	18.64		
Corrected Total	203	4066.65			
	R-Square	Coeff Var	Root MSE	SM Mean	
	0.36	17.50	4.32	24.68	
Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	88.47	29.49	1.58	0.1964
Qualification	4	115.65	28.91	1.55	0.1908
Position	2	4.90	2.45	0.13	0.8770
Age	3	65.38	21.79	1.17	0.3238
Org*Qual	10	232.77	23.28	1.25	0.2655
Org*Pos	6	179.43	29.90	1.60	0.1502
Org*Age	9	190.19	21.13	1.13	0.3431
Qual*Pos	8	74.77	9.35	0.50	0.8536
Qual*Age	12	267.50	22.29	1.20	0.2917
Pos*Age	6	107.19	17.87	0.96	0.4557

8)   Remuneration, fringe benefits and personnel policy

The final comparison involved the variable remuneration, fringe benefits and personnel policy (IWSRF). The analysis of variance is given in Table 9.29. The F value of 1.52 was significant (p < 0.01). Significant differences were only found for types of organization groupings and significant interactions were found for type of organization grouping with qualification levels (Table 9.30), type of organization grouping with age (Table 9.31), and qualification level with age (Table 9.32).

Table 9.29: Analysis of variance for remuneration, fringe benefits and personnel policy

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	6271.65	99.55	1.52*	0.0217
Error	140	9167.18	65.48		
Corrected Total	203	15438.82			
	R-Square	Coeff Var	Root MSE	RF Mean	
	0.41	28.36	8.09	28.53	
Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	1071.50	357.17	5.45*	0.0014
Qualification	4	234.72	58.68	0.90	0.4681
Position	2	366.66	183.33	2.80	0.0642
Age	3	56.48	18.83	0.29	0.8343
Org*Qual	10	1514.88	151.49	2.31*	0.0150
Org*Pos	6	693.69	115.61	1.77	0.1104
Org*Age	9	1351.58	150.18	2.29*	0.0197
Qual*Pos	8	686.81	85.85	1.31	0.2427
Qual*Age	12	1851.96	154.33	2.36*	0.0086
Pos*Age	6	94.32	15.72	0.24	0.9625

Firstly a one-way series of Scheffé tests were carried out where the four types of organization groupings were paired-off two at a time. Four of the six comparisons showed significant differences regarding the respondents' experience of remuneration, fringe benefits and personnel policy. For the four comparisons it was found that F_{crit} was equal to 3.96 (p < 0.05) and equal to 4.41 (p < 0.01). Firstly financial organizations differed significantly from research and development organizations (F' = 10.06, p < 0.01, df = 63 and 140) and from academic/auxiliary service organizations (F' = 4.06, p < 0.05, df = 63 and 140). In the first case the mean score for financial organizations was lower than that for research and development organizations implying that the former experienced remuneration, fringe benefits and personnel policy as more problematic than the latter. In the second case the mean score for financial organizations was higher than for academic/auxiliary services organizations indicating that in this case subjects in financial organizations perceived remuneration, fringe benefits and personnel policy as less problematic as those in academic/auxiliary services organizations. Secondly production/services organizations only differed significantly from academic/auxiliary

services organizations (F' = 10.34, p < 0.01, df = 63 and 140). The mean score for production/services organizations was higher when compared to academic/auxiliary services organizations. Subjects working for production/services organizations experienced remuneration, fringe benefits and personnel policy as less worrisome compared to those working in academic/auxiliary services organizations. Thirdly research and development organizations differed significantly from academic/auxiliary services organizations (F' = 24.28, p < 0.01, df = 63 and 140). Here the mean score of the former was higher than for the latter meaning that subjects found in research and development organizations found remuneration, fringe benefits and personnel policy less of an issue than the subjects found in an academic/auxiliary services environment. No differences were found between financial and production/services organizations and research and development organizations in terms of remuneration, fringe benefits and personnel policy.

Secondly a two-way series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the five qualification groupings. Each of the organization-qualification pairs was then compared to every other pair to determine if a significant difference between them did exist or not. For all of the comparisons it was found that F_{crit} at p < 0.05 was equal to 3.96 and p < 0.01 was equal to 4.41. Most significantly subjects that had a Masters or Doctoral degree and worked in academic/auxiliary services organizations differed significantly from eight other organization-qualification groupings combinations, namely with a Grade 12 or lower in financial organizations (F' = 4.85.13, p < 0.01, df = 63 and 140), with a Bachelors degree in financial organizations (F' = 5.67, p < 0.01, df = 63 and 140), with a Diploma in production/services organizations (F' = 9.35, p < 0.01, df = 63 and 140), with a Bachelors degree in production/services organizations (F' = 6.96, p < 0.01, df = 63 and 140), with an Honours or equivalent degree in production/services organizations (F' = 10.44, p < 0.01, df = 63 and 140), with a Diploma in research and development organizations (F' = 9.78, p < 0.01, df = 63 and 140), with a Bachelors degree in research and development organizations (F' = 5.46, p < 0.01, df = 63 and 140), and with an Masters or Doctoral degree in research and development organizations (F' = 16.95, p < 0.01, df = 63 and 140). In all of the above comparisons the mean value for subjects with a Masters or Doctoral degree working in an academic/auxiliary services environment was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as a greater concern than the subjects of the latter combinations.

The second most significant comparison involved subjects that had an Honours or equivalent degree and worked in financial organizations. They differed significantly from seven other organization-qualification groupings combinations, namely with a Bachelors degree in financial organizations (F' = 5.38.13, p < 0.01, df = 63 and 140), with a Diploma in production/services

158

organizations (F' = 7.31, p < 0.01, *df* = 63 and 140), with a Bachelors degree in production/services organizations (F' = 6.04, p < 0.01, *df* = 63 and 140), with an Honours or equivalent degree in production/services organizations (F' = 8.96, p < 0.01, *df* = 63 and 140), with a Diploma in research and development organizations (F' = 8.79, p < 0.01, *df* = 63 and 140), with a Bachelors degree in research and development organizations (F' = 5.09, p < 0.01, *df* = 63 and 140), and with an Masters or Doctoral degree in research and development organizations (F' = 11.17, p < 0.01, *df* = 63 and 140). In all of the above comparisons the mean value for subjects with an Honours or equivalent degree working in a financial environment was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as more worrisome than the subjects of the latter combinations.

The third most significant comparison involved subjects that had a Diploma and worked in research and development organizations. They differed significantly from seven other organization-qualification groupings combinations, of which those with an Honours or equivalent degree working in a financial environment and with Masters and Doctoral degrees have been reported earlier. The remaining five included subjects with a Grade 12 or lower in financial organizations (F' = 4.07, p < 0.05, *df* = 63 and 140), with a Grade 12 or lower in production/services organizations (F' = 6.57, p < 0.01, *df* = 63 and 140), with a Diploma in academic/auxiliary services organizations (F' = 4.67, p < 0.01, *df* = 63 and 140), with an Bachelors degree in academic/auxiliary services organizations (F' = 3.99, p < 0.05, *df* = 63 and 140), and with an Honours or equivalent in academic/auxiliary services organizations (F' = 6.49, p < 0.01, *df* = 63 and 140). In all of the above comparisons the mean value for subjects with a Diploma working in research and development environments was significantly higher than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as less problematic than the subjects of the latter combinations.

The fourth most significant comparison involved subjects that had a Masters or Doctoral degree and worked in research and development organizations. They differed significantly from five other organization-qualification groupings combinations, of which those with an Honours or equivalent degree working in a financial environment and with Masters and Doctoral degrees have been reported earlier. The remaining three included subjects with a Grade 12 or lower in financial organizations (F' = 5.63, p < 0.01, *df* = 63 and 140) and in production/services organizations (F' = 8.67, p < 0.01, *df* = 63 and 140), and with an Honours or equivalent degree in academic/auxiliary services organizations (F' = 8.51, p < 0.01, *df* = 63 and 140). In all of the above comparisons the mean value for subjects with a Masters or Doctoral degree working in a research and development environments was significantly higher than any of the comparative

organization-qualification groupings combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as less perturbing than the subjects of the latter combinations.

The second last significant comparison involved subjects that had an Honours or equivalent degree and worked in academic/auxiliary services organizations. They differed significantly from four other organization-qualification groupings combinations, of which those with a Diploma and with Masters and Doctoral working in a research and development environment have been reported earlier. The remaining two included subjects with an Honours or equivalent degree in production/services organizations (F' = 6.53, p < 0.01, *df* = 63 and 140), and with a Diploma in production/services organizations (F' = 4.81, p < 0.01, *df* = 63 and 140). In all of the above comparisons the mean value for subjects with a Diploma working in research and development environments was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as more problematic than the subjects of the latter combinations.

The last significant comparison involved subjects that had a Diploma and worked in production/services organizations. They differed significantly from four other organization-qualification groupings combinations, of which those with an Honours or equivalent degree working in a production/services environment, a Diploma or a Masters or Doctoral and working in research and development have been reported earlier. The remaining comparison included subjects with a Grade 10 or lower in production/services organizations (F' = 4.91, p < 0.01, *df* = 63 and 140). In all of the above comparisons the mean value for subjects with a Diploma working in production/services environments was significantly lower than any of the comparative organization-qualification groupings combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as more problematic than the subjects of the latter combinations.

Table 9.30: Mean values for remuneration, fringe benefits and personnel policy by organization and qualification grouping

Qualification Group	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
Gr 1	27.85	39	24.79	14	-	-	-	-
Gr 2	29.00	8	31.57	14	35.60	5	25.63	8
Gr 3	33.50	4	31.88	8	32.40	5	26.14	7
Gr 4	22.22	9	34.43	7	29.00	3	24.86	14
Gr 5	-	-	28.00	7	32.39	33	22.95	20

Next a series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the four age groups. Each of the organization-age group pairs was then compared to every other pair to determine if a significant difference between them did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. The first significant comparison involved subjects that were between 40 and 49 years of age and worked in research and development organizations, which differed significantly from five other organization-age group combinations, namely between 40 and 49 years of age and worked in financial organizations (F' = 7.93, $p < 0.01$, *df* = 63 and 140), 50 years of age or older in production/services organizations (F' = 4.31, $p < 0.05$, *df* = 63 and 140), between 20 and 29 years of age and in academic/auxiliary services organizations (F' = 6.19, $p < 0.01$, *df* = 63 and 140), between 30 and 39 years of age and in academic/auxiliary services organizations (F' = 9.77, $p < 0.01$, *df* = 63 and 140), between 40 and 49 years of age in academic/auxiliary services organizations (F' = 10.56, $p < 0.01$, *df* = 63 and 140), and 50 years of age and older in academic/auxiliary services organizations (F' = 6.62, $p < 0.01$, *df* = 63 and 140). In all of the above comparisons the mean value for subjects between 40 and 49 years of age and working in a research and development environment was significantly higher than any of the comparative organization-age group combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as less problematic than the subjects of the latter combinations.

The second significant comparison involved subjects that were between 30 and 39 years of age and worked in academic/auxiliary services organizations, which differed significantly from five other organization-age group combinations, of which subjects between 30 and 39 years of age and working in a research and development environment have been reported previously. The other comparisons included subjects between 40 and 49 years of age and in financial organizations (F' = 4.85, $p < 0.01$, *df* = 63 and 140), between 30 and 39 years of age production/services organizations (F' = 6.58, $p < 0.01$, *df* = 63 and 140), between 30 and 39 years of age in research and development organizations (F' = 6.27, $p < 0.01$, *df* = 63 and 140), and 50 years of age and older in research and development organizations (F' = 8.06, $p < 0.01$, *df* = 63 and 140). In all of the above comparisons the mean value for subjects between 30 and 39 years of age and working in an academic/auxiliary services environment was significantly lower than any of the comparative organization-age group combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as a greater concern than the subjects of the latter combinations.

The third significant comparison involved subjects that were between 40 and 49 years of age and worked in academic/auxiliary services organizations differed significantly from five other organization-age group combinations, of which the subjects between 40 and 49 years of age in

research and development organizations has been reported above. The remaining comparisons include subjects between 30 and 39 years of age and in financial organizations ($F' = 5.18$, $p < 0.01$, $df = 63$ and 140), between 30 and 39 years of age production/services organizations ($F' = 7.07$, $p < 0.01$, $df = 63$ and 140), between 30 and 39 years of age in research and development organizations ($F' = 6.74$, $p < 0.01$, $df = 63$ and 140), and 50 years of age and older in research and development organizations ($F' = 8.44$, $p < 0.01$, $df = 63$ and 140). In all of the above comparisons the mean value for subjects between 40 and 49 years of age and working in an academic/auxiliary services environment was significantly lower than any of the comparative organization-age group combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as more worrisome than the subjects of the latter combinations.

The fourth significant comparison involved subjects that were between 20 and 29 years of age and worked in academic/auxiliary services organizations, which differed significantly from four other organization-age group combinations, of which subjects that were between 40 and 49 years of age as well as 50 years of age and older and worked in research and development organizations have bee reported previously. The other two combinations included those subjects that were between 20 and 29 years of age and in production/services organizations ($F' = 4.38$, $p < 0.05$, $df = 63$ and 140) and between 30 and 39 years of age research and development organizations ($F' = 4.20$, $p < 0.05$, $df = 63$ and 140). In all of the above comparisons the mean value for subjects between 20 and 29 years of age and working in an academic/auxiliary services environment was significantly lower than any of the comparative organization-age group combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as more perturbing than the subjects of the latter combinations.

The fifth significant comparison involved subjects that were between 40 and 49 years of age and worked in financial organizations, which differed significantly from four other organization-age group combinations, of which those subjects that were between 40 and 49 years of age and in research and development organizations as well as 50 years of age and older have been reported earlier. The remaining comparisons included subjects who were between 30 and 39 years of age and in production/services organizations ($F' = 4.63$, $p < 0.05$, $df = 63$ and 140) and between 30 and 39 years of age in research and development organizations ($F' = 4.32$, $p < 0.05$, $df = 63$ and 140). In all of the above comparisons the mean value for subjects between 40 and 49 years of age and working in a financial environment was significantly lower than any of the comparative organization-age group combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as more problematic than the subjects of the latter combinations.

Table 9.31: Mean values for remuneration, fringe benefits and personnel policy by organization grouping and age group

Age Groups	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
20-29	27.75	4	28.75	16	-	-	20.67	3
30-39	29.77	26	31.15	20	30.90	21	23.36	11
40-49	25.77	22	31.14	7	33.40	15	23.80	15
50+	26.29	7	25.71	7	33.40	10	26.21	19

Finally a series of Scheffé tests were carried out where the five qualification groupings were paired-off with the four age groups. Each of the qualification-age group pairs was then compared to every other pair to determine if a significant difference between them did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. The only significant comparison involved subjects that had a Diploma and were between 30 and 39 years of age, which differed significantly from six other qualification - age group combinations, namely with a Grade 12 or lower and between 30 and 39 years of age (F' = 4.56, $p < 0.01$, df = 63 and 140), with a Grade 12 or lower and between 40 and 49 years of age (F' = 6.76, $p < 0.01$, df = 63 and 140), with a Diploma and 50 years of age and older (F' = 5.21, $p < 0.01$, df = 63 and 140), with an Honours degree or equivalent and between 20 and 29 years of age (F' = 4.59, $p < 0.01$, df = 63 and 140), with an Honours degree or equivalent and between 40 and 49 years of age (F' = 5.18, $p < 0.01$, df = 63 and 140), and with a Masters or Doctoral degree and 50 years of age and older (F' = 5.32, $p < 0.01$, df = 63 and 140). In all of the above comparisons the mean value for subjects with a Diploma and between 30 and 39 years of age was significantly higher than any of the comparative organization-age group combinations. Thus the former subjects experienced remuneration, fringe benefits and personnel policy as less problematic than the subjects of the latter combinations.

Table 9.32: Mean values for remuneration, fringe benefits and personnel policy by qualification grouping and age group

Age Groups	Qualification Groupings									
	Grade 10 or lower		Diplomas		Bachelors Degrees		Honours Degrees		Masters or Doctoral Degrees	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
20-29	29.17	6	29.50	4	31.00	5	22.67	3	27.00	6
30-39	27.67	21	33.77	13	30.63	8	28.69	13	28.91	23
40-49	26.11	18	30.00	8	34.50	4	25.78	9	28.15	20
50+	28.00	8	26.00	10	29.17	6	25.39	8	30.36	11

9.4.3.2   Aggression in the Workplace Questionnaire

Each of the subscales of the Aggression in the Workplace Questionnaire was subjected to the General Linear Model with ANOVA option. Wherever applicable Scheffé tests were calculated from the raw scores as described in paragraph 9.4.3. In the case of comparisons that did not show any significant differences the studentized range test was then applied to these one-way analyses.

1)   Aggression in the workplace -witnessed

a)   Witnessed overall aggression

The first comparison involved the overall aggression that was witnessed by the respondents. The analysis of variance is given in Table 9.33.

Table 9.33: Analysis of variance for witnessed overall aggression

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	28627.70	454.41	1.10	0.3248
Error	139	57640.09	414.68		
Corrected Total	202	86267.79			
	R-Square	**Coeff Var**	**Root MSE**	**WTOT Mean**	
	0.33	27.01	20.36	75.38	
Source	**DF**	**Type III SS**	**Mean Square**	**F Value**	**Pr > F**
Organization	3	2230.21	743.40	1.79	0.1514
Qualification	4	1987.24	496.81	1.20	0.3145
Position	2	187.84	93.92	0.23	0.7976
Age	3	1149.12	383.04	0.92	0.4312
Org*Qual	10	9847.80	984.78	2.37*	0.0126
Org*Pos	6	3194.95	532.49	1.28	0.2684
Org*Age	9	3969.49	441.05	1.06	0.3935
Qual*Pos	8	3625.46	453.18	1.09	0.3718
Qual*Age	12	4855.03	404.59	0.98	0.4751
Pos*Age	6	1938.61	323.10	0.78	0.5876

The F value of 1.10 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable witnessed overall aggression. However one significant two-way interaction occurred in the comparison, namely type organization with qualification groupings. However it was not deemed necessary to analyze this interaction as the interaction was most likely due to a random difference, since the overall F ratio was insignificant.

b)   Witnessed expressions of hostility

The second comparison involved the expressions of hostility witnessed by the respondents. The analysis of variance is given in Table 9.34. The F value of 0.86 once more was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable witnessed expressions of hostility. There was no significant two-way interaction that occurred in the comparison.

Table 9.34: Analysis of variance for witnessed expressions of hostility

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	7461.32	118.43	0.86	0.7512
Error	136	18783.96	138.12		
Corrected Total	199	26245.28			
	R-Square	Coeff Var	Root MSE	WEH Mean	
	0.28	31.71	11.75	37.06	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	692.69	230.90	1.67	0.1760
Qualification	4	687.56	171.89	1.24	0.2951
Position	2	22.65	11.33	0.08	0.9213
Age	3	354.19	118.06	0.85	0.4663
Org*Qual	10	1532.47	153.25	1.11	0.3594
Org*Pos	6	445.61	74.27	0.54	0.7788
Org*Age	9	1258.83	139.87	1.01	0.4330
Qual*Pos	8	818.47	102.31	0.74	0.6554
Qual*Age	12	1423.89	118.66	0.86	0.5899
Pos*Age	6	728.29	121.38	0.88	0.5123

c)   Witnessed obstructionism

The third comparison involved the obstructionism witnessed by the respondents. The analysis of variance is given in Table 9.35. The F value of 1.11 was again not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable witnessed obstructionism. However one significant two-way interaction occurred in the comparison, namely type of organization grouping with qualification groupings. It was not deemed necessary to analyze this interaction as the interaction was most likely due to random difference, since the overall F ratio was insignificant.

Table 9.35: Analysis of variance for witnessed obstructionism

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	4186.55	66.45	1.11	0.2982
Error	136	8111.85	59.65		
Corrected Total	199	12298.40			

	R-Square	Coeff Var	Root MSE	WOB Mean	
	0.34	29.36	7.72	26.31	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	201.21	67.07	1.12	0.3415
Qualification	4	332.90	83.23	1.40	0.2389
Position	2	37.58	18.79	0.32	0.7303
Age	3	92.29	30.76	0.52	0.6721
Org*Qual	10	1604.62	160.46	2.69*	0.0049
Org*Pos	6	370.67	61.78	1.04	0.4049
Org*Age	9	708.82	78.76	1.32	0.2318
Qual*Pos	8	323.16	40.39	0.68	0.7109
Qual*Age	12	880.31	73.36	1.23	0.2688
Pos*Age	6	373.32	62.22	1.04	0.4003

d)   Witnessed overt aggression

The fourth comparison involved the overt aggression witnessed by the respondents. The analysis of variance is given in Table 9.36. The F value of 1.58 was significant ($p < 0.05$). Significant differences were found for types of organization groupings and age grouping. A significant two-way interaction was found for type of organization grouping with qualification level (Table 9.37).

Table 9.36: Analysis of variance for witnessed overt aggression

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	900.63	14.30	1.58	0.0136
Error	136	1227.13	9.02		
Corrected Total	199	2127.76			

	R-Square	Coeff Var	Root MSE	WOV Mean	
	0.42	25.49	3.00	11.79	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	81.01	27.00	2.99*	0.0332
Qualification	4	23.87	5.97	0.66	0.6200
Position	2	2.27	1.14	0.13	0.8819
Age	3	96.56	32.19	3.57*	0.0159
Org*Qual	10	204.79	20.48	2.27*	0.0173
Org*Pos	6	80.82	13.47	1.49	0.1851
Org*Age	9	94.34	10.48	1.16	0.3245
Qual*Pos	8	62.42	7.80	0.86	0.5480
Qual*Age	12	124.28	10.36	1.15	0.3273
Pos*Age	6	90.82	15.14	1.68	0.1310

A series of one-way Scheffé tests were carried out where the four types of organization groupings were-paired off two at a time. Three of the six comparisons showed significant differences regarding the subjects' witnessing of overt aggression. For the three comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p< 0.01$ was equal to 4.41. Firstly subjects who were working in financial organizations differed significantly from those working in both production/services (F' = 11.84, $p <0.01$, $df = 63$ and 140), and academic/auxiliary services organizations (F' = 4.09, $p <0.05$, $df = 63$ and 140). The mean score for subjects working in financial organizations was significantly lower than for subjects working both in production/services or academic/auxiliary services organizations suggesting that the former witnessed lower levels of overt aggression than the latter. Secondly subjects working in production/services organizations differed significantly form subjects working in research and development organizations (F' = 8.62, $p <0.01$, $df = 63$ and 140). Here the mean score for the subjects found in production/services environments was significantly higher than that for subjects found in research and development environments implying that the former witnessed higher levels of overt aggression than the latter. No significant differences were found between subjects working in financial organizations and research and development organizations, between academic/auxiliary services organizations and both production/services and research and development organizations.

A second series of Scheffé tests were carried out where the four age groupings were paired-off two at a time. None of the six comparisons showed any significant difference regarding the respondents' witnessing of overt aggression when F_{crit} at $p < 0.05$ was equal to 3.96 and $p< 0.01$ was equal to 4.41. The studentized range test in turn was also applied to this one-way analyses and the results showed that the age group 20-29 years of age differed significantly from the age group 30-39 (Q = 15.38 > Q =4.76 and α = 0.05), the age group 40-49 (Q = 9.28 > Q = 4.76 and α = 0.05), and the age group 50 years and older (Q = 6.03 > Q = 4.76 and α = 0.05). Furthermore the age group 30-39 differs significantly from the age group 40-49 (Q = 6.10 > Q = 4.76 and α = 0.05) and the age group 50 years and older (Q = 9.35 > Q = 4.76 and α = 0.05). In these comparisons the mean score for subjects found in the age group 20-29 in the first case was higher than for subjects found in the age groups 30-39, 40-49 and 50 years and older implying that the youngest age group witnessed higher levels of overt aggression than the other age groups. In the second case the mean score for subjects found in the age group 30-39 also was higher than for the age groups 40-49 and 50 years or older again implying that the former witnessed higher levels of overt aggression than the latter age groups.

Another series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the five qualification groupings. Each of the organization-qualification pairs was then compared to another pair to determine if a significant difference did exist or not. For all

167

of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Most significantly respondents that worked in production/services organizations and had a Grade 12 or lower differed significantly from six other organization-qualification groupings, namely form subjects who worked in financial organizations and had a Grade 12 or lower (F' = 15.94, $p < 0.01$, *df* = 63 and 140), who worked in financial organizations and had a Diploma (F' = 3.99, $p < 0.05$, *df* = 63 and 140), who worked in production/services organizations and had an Honours or equivalent degree (F' = 6.36, $p < 0.01$, *df* = 63 and 140), who worked in research and development organizations and had a Bachelor degree (F' = 4.88, $p < 0.01$, *df* = 63 and 140) or Masters or Doctoral degree (F' = 12.96, $p < 0.01$, *df* = 63 and 140), and who were found in academic/auxiliary services organizations and had an Honours or equivalent degree (F' = 10.57, $p < 0.01$, *df* = 63 and 140). In all of the above comparisons the mean score for subjects working in production/services organizations and who had a Grade 12 or lower was significantly higher than for the other six organization-qualification combinations implying that the former witnessed higher levels of overt aggression than the latter groupings.

The second significant comparison involved subjects that worked for academic/auxiliary services organizations and who had a Diploma. They differed significantly from subjects from two other organization-qualification groupings, namely from subjects who worked in financial organizations and who had a Grade 12 or lower (F' = 5.17, $p < 0.01$, *df* = 63 and 140) or in production/services organizations who also had a Diploma (F' = 3.99, $p < 0.05$, *df* = 63 and 140). In both of these comparisons the mean score for subjects working in academic/auxiliary services organizations and who had a Diploma was significantly higher than for the other two organization-qualification combinations meaning that the former witnessed higher levels of overt aggression than the latter two groupings.

Finally the third significant comparison was for subjects who worked in academic/auxiliary services organizations and who had a Masters or Doctoral degree differed significantly from one other organization-qualification grouping, namely with subjects working for financial organizations and who had a Grade 12 or lower (F' = 4.75, $p < 0.01$, *df* = 63 and 140). In this comparison the mean score for subjects who worked in academic/auxiliary services organizations and who had a Masters or Doctoral degree was significantly higher than for those working in financial organizations with a Grade 12 or lower, which meant that the former experienced higher levels of overt aggression than the latter.

Table 9.37: Mean values for witnessed overt aggression by organization and qualification grouping

Qualification Group	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
Gr 1	10.85	39	14.69	13	-	-	-	-
Gr 2	10.50	8	12.71	14	12.60	5	13.50	8
Gr 3	11.50	4	13.00	8	11.20	5	12.29	7
Gr 4	12.33	9	11.14	7	11.00	3	10.93	14
Gr 5	-	-	12.71	7	11.15	33	12.65	20

2)   Aggression in the workplace -experienced

a)   Experienced overall aggression

The first comparison involved the overall aggression that was witnessed by the subjects. The analysis of variance is given in Table 9.38.

Table 9.38: Analysis of variance for experienced overall aggression

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	22862.49	362.90	1.17	0.2205
Error	137	42405.07	309.53		
Corrected Total	200	65267.55			
	R-Square	Coeff Var	Root MSE	ETOT Mean	
	0.35	27.57	17.59	63.82	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	1754.48	584.83	1.89	0.1343
Qualification	4	902.98	225.75	0.73	0.5734
Position	2	33.91	16.95	0.05	0.9467
Age	3	3129.15	1043.05	3.37*	0.0204
Org*Qual	10	6595.25	659.53	2.13*	0.0259
Org*Pos	6	1155.26	192.54	0.62	0.7124
Org*Age	9	3025.37	336.15	1.09	0.3770
Qual*Pos	8	2163.49	270.44	0.87	0.5404
Qual*Age	12	5685.08	473.76	1.53	0.1202
Pos*Age	6	2023.02	337.17	1.09	0.3719

The F value of 1.17 was also not significant ($p > 0.05$), which was indicative that not one of the subgroups should have differed in terms of the dependent variable experienced overall aggression. However age as a main effect did differ significantly. Further one significant two-way interaction occurred in the comparison, namely type organization with qualification groupings. Further analysis of either interaction was deemed unnecessary as the overall F ratio of 1.17 was insignificant.

b)   Experienced expressions of hostility

The second comparison involved the expressions of hostility experienced by the respondents. The analysis of variance is given in Table 9.39. The F value of 0.93 once more was not significant (p > 0.05), which was indicative that not one of the subgroups differed in terms of the dependent variable witnessed expressions of hostility. There was no significant two-way interaction that occurred in the comparison.

Table 9.39: Analysis of variance for experienced expressions of hostility

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	5840.30	92.70	0.93	0.6138
Error	136	13501.78	99.28		
Corrected Total	199	19342.08			
	R-Square	Coeff Var	Root MSE	EEH Mean	
	0.30	32.52	9.96	30.64	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	617.57	205.86	2.07	0.1066
Qualification	4	388.18	97.05	0.98	0.4221
Position	2	38.11	19.06	0.19	0.8256
Age	3	760.79	253.60	2.55	0.0580
Org*Qual	10	1266.83	126.68	1.28	0.2499
Org*Pos	6	308.93	51.49	0.52	0.7934
Org*Age	9	817.84	90.87	0.92	0.5140
Qual*Pos	8	498.38	62.30	0.63	0.7536
Qual*Age	12	1298.93	108.24	1.09	0.3731
Pos*Age	6	750.94	125.16	1.26	0.2797

c)   Experienced obstructionism

The third comparison involved the obstructionism experienced by the respondents. The analysis of variance is given in Table 9.40. The F value of 1.26 was not significant (p > 0.05), which was indicative that not one of the subgroups differed in terms of the dependent variable experienced obstructionism. However one significant two-way interaction was obtained for types of organization groupings with qualification grouping. It was deemed unnecessary to analyze this interaction any further because of the insignificant F ratio of 1.26.

Table 9.40: Analysis of variance for experienced obstructionism

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	4409.38	69.99	1.26	0.1304
Error	136	7531.40	55.38		
Corrected Total	199	11940.78			

	R-Square	Coeff Var	Root MSE	EOB Mean	
	0.37	32.80	7.44	22.69	

Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	166.26	55.42	1.00	0.3946
Qualification	4	106.89	26.72	0.48	0.7485
Position	2	3.19	1.59	0.03	0.9717
Age	3	308.36	102.79	1.86	0.1400
Org*Qual	10	1537.90	153.79	2.78*	0.0037
Org*Pos	6	214.59	35.76	0.65	0.6934
Org*Age	9	566.04	62.89	1.14	0.3420
Qual*Pos	8	602.29	75.29	1.36	0.2198
Qual*Age	12	1235.84	102.99	1.86*	0.0447
Pos*Age	6	193.29	32.22	0.58	0.7444

d)   Experienced overt aggression

The fourth comparison involved the overt aggression experienced by the respondents. The analysis of variance is given in Table 9.41. The F value of 2.70 was significant (p < 0.05). Significant differences were found for types of organization groupings and age grouping. Three significant two-way interactions were found, namely type of organization grouping with qualification level (Table 9.42), qualification level with age grouping (Table 9.43), and position level with age grouping (Table 9.44).

Table 9.41: Analysis of variance for experienced overt aggression

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	824.71	13.09	2.70	< .0001
Error	136	659.48	4.85		
Corrected Total	199	1484.20			

	R-Square	Coeff Var	Root MSE	EOV Mean	
	0.56	20.78	2.20	10.60	

Source	DF	Type 111 SS	Mean Square	F Value	Pr > F
Organization	3	55.75	18.58	3.83*	0.0113
Qualification	4	4.61	1.15	0.24	0.9168
Position	2	1.65	0.83	0.17	0.8436
Age	3	134.50	44.83	9.25*	< .0001
Org*Qual	10	205.89	20.59	4.25*	< .0001
Org*Pos	6	26.29	4.38	0.90	0.4943
Org*Age	9	71.80	7.98	1.65	0.1084
Qual*Pos	8	11.94	1.49	0.31	0.9620
Qual*Age	12	152.24	12.69	2.62*	0.0036
Pos*Age	6	86.00	14.33	2.96*	0.0096

A series of Scheffé tests were carried out where the four organizations were paired-off two at a time. Four of the six comparisons showed a significant difference regarding the respondents' experience of overt aggression. For the four comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Subjects working for financial organizations differed significantly from subjects working in both production/services (F' = 12.92, $p < 0.01$, *df* = 63 and 140) and academic/auxiliary organizations (F' = 8.26, $p < 0.01$, *df* = 63 and 140). The mean score for the subjects working in financial organizations was lower than for subjects working in both production/services and academic/auxiliary services organizations. It meant that former experienced lower levels of overt aggression than the latter. Secondly subjects working in production/services organizations differed significantly from subjects working in research and development organizations (F' = 10.40, $p < 0.01$, *df* = 63 and 140). The mean score for the subjects working in production/services environments was higher than for subjects working in research and development organizations, meaning that the former experienced higher levels of overt aggression than the latter. Thirdly subjects working in research and development organizations differed significantly from subjects working in academic/auxiliary organizations (F' = 6.48, $p < 0.01$, *df* = 63 and 140), the mean score of the former being significantly lower than for the latter. This result suggested that the subjects working in research and development organizations experienced lower levels of overt aggression than subjects working in academic/auxiliary organizations. No significant differences were found between financial and research and development organizations and between production/services and academic/auxiliary organizations.

A second series of Scheffé tests were carried out where the four age groupings were paired-off two at a time. Three of the six comparisons showed a significant difference regarding the respondents' experience of overt aggression. For the three comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Subjects found in the age group 50 years of age and older differed significantly from subjects found in the age group 20 to 29 years of age (F' = 9.47, $p < 0.01$, *df* = 63 and 140), 30 to 39 years (F' = 5.45, $p < 0.01$, *df* = 63 and 140), and 40 to 49 years of age (F' = 5.21, $p < 0.01$, *df* = 63 and 140). The mean score for the subjects found in the age group 50 years of age or older was significantly higher than for subjects in the remaining age groups implying that the former experienced higher levels of overt aggression than any subjects found in the latter groups.

A series of two-way Scheffé tests were carried out where the four types of organization groupings were paired-off with the five qualification groupings. Each of the organization-qualification pairs was then compared to another pair to determine if a significant difference did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Most significantly respondents that worked in production/services

organizations and had a Grade 12 or lower differed significantly form fourteen other organization-qualification groupings, namely from subjects who worked in financial services organizations and had a Grade 12 or lower (F' = 28.27, p < 0.01, df = 63 and 140), or Diploma (F' = 13.76, p < 0.01, df = 63 and 140), or a Bachelors degree (F' = 11.61, p < 0.01, df = 63 and 140), or an Honours or equivalent degree (F' = 5.36, p < 0.01, df = 63 and 140), who worked in production/services organizations and had a Diploma (F' = 12.84, p < 0.01, df = 63 and 140), or an Honours or equivalent degree (F' = 15.85, p < 0.01, df = 63 and 140), or a Masters or Doctoral degree (F' = 9.09, p < 0.01, df = 63 and 140), who worked in research and development organizations and who had a Diploma (F' = 8.31, p < 0.01, df = 63 and 140), or a Bachelors degree (F' = 7.34, p < 0.01, df = 63 and 140), or an Honours or equivalent degree (F' = 6.30, p < 0.01, df = 63 and 140), or a Masters or Doctoral degree (F' = 23.69, p < 0.01, df = 63 and 140), who a worked in academic/auxiliary services organizations and had a Bachelors degree (F' = 4.18, p < 0.05, df = 63 and 140), or an Honours or equivalent degree (F' = 16.73, p < 0.01, df = 63 and 140), or a Masters or Doctoral degree (F' = 5.21, p < 0.01, df = 63 and 140). In all of the above comparisons the mean score for subjects working in production/services organizations was significantly higher than for the other organization-qualification combinations implying that the former experienced higher levels of overt aggression than the latter groupings.

The second significant comparison involved subjects that worked for production/services organizations and who had a Bachelors degree. They differed significantly from subjects from nine other organization-qualification groupings, namely from subjects who worked in financial organizations and had a Grade 12 or lower (F' = 13.07, p < 0.01, df = 63 and 140), or with a Diploma (F' = 7.74, p < 0.01, df = 63 and 140), or with a Bachelors degree (F' = 7.25, p < 0.01, df = 63 and 140), production/services organizations with a Diploma (F' = 5.95, p < 0.01, df = 63 and 140), or with and Honours or equivalent degree (F' = 9.16, p < 0.01, df = 63 and 140), or with a Masters or Doctoral degree (F' = 5.16, p < 0.01, df = 63 and 140), who worked in research and development organizations and had a Diploma (F' = 4.56, p < 0.01, df = 63 and 140), or Masters or Doctoral degree (F' = 10.78, p < 0.01, df = 63 and 140), and who worked in academic/auxiliary services organizations and who had an Honours or equivalent degree (F' = 8.29, p < 0.01, df = 63 and 140). In all of the nine comparisons the mean score for subjects working in production/services organizations and who had a Grade 12 or lower was significantly higher than for the other nine organization-qualification combinations meaning that the former experienced higher levels of overt aggression than the latter groupings.

The third comparison that was found involved subjects that worked in academic/auxiliary services organizations and who had a Masters or Doctoral degree. They differed significantly form seven other organization-qualification groupings of which those working in production/services with a Grade 12 or lower has been mentioned previously. The remaining

groupings included namely subjects that worked in financial organizations with a Grade 12 or lower (F' = 10.47, $p < 0.01$, *df* = 63 and 140), or with a Diploma (F' = 4.45, $p < 0.01$, *df* = 63 and 140), or a Bachelors degree (F' = 4.30, $p < 0.05$, *df* = 63 and 140), subjects working for production/services organizations with an Honours or equivalent degree (F' = 5.75, $p < 0.01$, *df* = 63 and 140), worked in an research and development organizations with a Masters or Doctoral degree (F' = 7.60, $p < 0.01$, *df* = 63 and 140), and who worked in academic/auxiliary services environments and who had an Honours or equivalent degree (F' = 4.79, $p < 0.01$, *df* = 63 and 140). The mean value for the former was significantly higher than for the latter, which meant that subjects that worked in academic/auxiliary services organizations and who had a Masters or Doctoral degree experienced higher levels of overt aggression than the subjects that worked in the other seven organization-qualification combinations.

Finally one more significant comparison was found. Subjects that worked in financial organizations and who had a Diploma differed significantly from four other organization-qualification combinations of which those working in production/services organizations with a Grade 12 or lower, or a Bachelors degree, and working in academic/auxiliary services organizations with a Masters or Doctoral degree has been mentioned previously. They also differed significantly from subjects working in academic/auxiliary services organizations with a Diploma (F' = 4.51, $p < 0.01$, *df* = 63 and 140).

Table 9.42: Mean values for experienced overt aggression by organization and qualification grouping

Qualification Group	Type of Organization Grouping							
	Financial		Prod/Serv		R&D		Acad/Aux Services	
	Mean	N	Mean	N	Mean	N	Mean	N
Gr 1	9.79	39	13.54	13	-	-	-	-
Gr 2	9.71	7	10.50	14	10.20	5	11.71	7
Gr 3	9.25	4	12.88	8	10.40	5	11.43	7
Gr 4	11.33	9	9.43	7	10.00	3	10.07	14
Gr 5	-	-	10.29	7	10.03	33	11.75	20

A second series of two-way Scheffé tests were carried out where the five qualification groupings were paired-off with the four age groupings. Each of the qualification-age grouping pairs was then compared to another pair to determine if a significant difference did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. The most significant comparison referred to respondents that had a Grade 12 or lower and were 50 years or older who differed significantly from all the other qualification-age groupings, namely from subjects who all had a Grade 12 or lower and ranged from 20 to 29 years of age (F' = 17.94, $p < 0.01$, *df* = 63 and 140), or 30 to 39 years of age (F' = 26.10, $p < 0.01$, *df* = 63 and 140), or 40 to 49 years of age (F' = 24.54, $p < 0.01$, *df* = 63 and 140), who all had a

Diploma and who ranged from 20 to 29 years of age (F' = 16.52, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 19.42, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 5.74, p < 0.01, *df* = 63 and 140), or 50 years or older (F' = 18.18, p < 0.01, *df* = 63 and 140), who all had a Bachelors degree and who ranged from 20 to 29 years of age (F' = 14.20, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 5.74, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 13.70, p < 0.01, *df* = 63 and 140), or 50 years or older (F' = 7.52, p < 0.01, *df* = 63 and 140), who all had an Honours or equivalent degree and who ranged from 20 to 29 years of age (F' = 13.24, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 18.83, p < 0.01, *df* = 63 and 140), 40 to 49 years of age (F' = 19.18, p < 0.01, *df* = 63 and 140), or 50 years or older (F' = 13.00, p < 0.01, *df* = 63 and 140), and who had a Masters or Doctoral degree and who fell between 20 to 29 years of age (F' = 14.65, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 19.99, p < 0.01, *df* = 63 and 140), 40 to 49 years of age (F' = 19.40, p < 0.01, *df* = 63 and 140), or 50 years or older (F' = 13.14, p < 0.01, *df* = 63 and 140). In all of the above comparisons the mean score for subjects with a Grade 12 or lower and who were 50 years or older was significantly higher than for any of the other qualification-age group combinations implying that the former experienced higher levels of overt aggression than the latter groupings.

The second significant comparison involved subjects who had a Diploma and ranged from 40 to 49 years of age. They differed significantly from subjects from six other qualification-age groupings of which Grade 12 or lower and who were 50 years or older has been mentioned previously. They also included subjects who also had a Grade 12 or lower and ranged from 20 to 29 years of age (F' = 4.28, p < 0.05, *df* = 63 and 140), or from 30 to 39 years of age (F' = 5.68, p < 0.01, *df* = 63 and 140), or from 40 to 49 years of age (F' = 5.18, p < 0.01, *df* = 63 and 140), or who had Diploma and ranged from 20 to 29 years of age (F' = 4.56, p < 0.01, *df* = 63 and 140), and who had an Honours or equivalent degree and ranged from 40 to 49 years of age (F' = 3.96, p < 0.05, *df* = 63 and 140). In all of the six comparisons the mean score for subjects who had had a Diploma and ranged from 40 to 49 years of age was significantly higher than for the six qualification-age group combinations meaning that the former experienced higher levels of overt aggression than the latter groupings.

A third significant comparison was found involving subjects that had a Bachelors degree and that were 30 to 39 years of age. They differed significantly form subjects from six other qualification-age groupings, of which Grade 12 or lower and who were 50 years or older has been mentioned previously. These included subjects who had a Grade 12 or lower and ranged from 20 to 29 years of age (F' = 4.27, p < 0.05, *df* = 63 and 140), or from 30 to 39 years of age (F' = 5.68, p < 0.01, *df* = 63 and 140), or from 40 to 49 years of age (F' = 5.18, p < 0.01, *df* = 63 and 140), and from subjects who had a Diploma and who ranged from 20 to 29 years of age (F' = 4.56, p < 0.01, *df* = 63 and 140), and who had an Honours or equivalent degree ranging from

40 to 49 years of age (F' = 3.96, p < 0.05, *df* = 63 and 140),. The mean value for the former was significantly higher than for the latter, which meant that subjects who had a Bachelors degree and who were between 30 and 39 years of age experienced higher levels of overt aggression than the subjects of the other six combinations.

Table 9.43: Mean values for experienced overt aggression by qualification and age grouping

Age Groups	Qualification Groupings									
	Grade 10 or lower		Diplomas		Bachelors Degrees		Honours Degrees		Masters or Doctoral Degrees	
	Mean	N	Mean	N	Mean	N	Mean	N	Mean	N
20-29	9.67	6	9.25	4	10.00	5	9.33	3	10.17	6
30-39	9.95	21	10.31	13	12.13	8	10.38	13	10.61	23
40-49	10.00	18	12.13	8	9.75	4	10.00	9	10.60	20
50+	14.86	7	10.00	8	11.50	6	10.75	8	11.00	11

A third series of two-way Scheffé tests were carried out where the three position levels were paired-off with the four age groupings. Each of the position level-age groupings pairs was then compared to another pair to determine if a significant difference did exist or not. For all of the comparisons it was found that F_{crit} at p < 0.05 was equal to 3.96 and p < 0.01 was equal to 4.41. The most significant comparison referred to respondents that were in middle management and who were 50 years or older differed significantly from ten other position level-age groupings, namely from subjects who were in senior management and ranged from 20 to 29 years of age (F' = 9.30, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 9.81, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 11.36, p < 0.01, *df* = 63 and 140), or 50 years or older (F' = 13.87, p < 0.01, *df* = 63 and 140), who were in middle management and ranged from 20 to 29 years of age (F' = 11.81, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 17.71, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 12.74, p < 0.01, *df* = 63 and 140), and who were among specialist staff and ranging from 20 to 29 years of age (F' = 13.75, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 5.88, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 7.41, p < 0.01, *df* = 63 and 140). In all of the ten comparisons the mean score for subjects who were in middle management and were 50 years or older was significantly higher than for the ten position level-age group combinations meaning that the former experienced higher levels of overt aggression than the latter groupings.

The second significant comparison involved subjects who were specialist staff and who were 50 years or older. They differed significantly from subjects from nine other position level-age groupings, namely from subjects who were in senior management and ranged from 20 to 29 years of age (F' = 7.22, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 7.39, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 8.96, p < 0.01, *df* = 63 and 140), or 50 years or older (F' = 11.51, p < 0.01, *df* = 63 and 140), who were in middle management and ranged from

20 to 29 years of age (F' = 9.47, p < 0.01, *df* = 63 and 140), or 30 to 39 years of age (F' = 15.84, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 10.32, p < 0.01, *df* = 63 and 140), and who were specialist staff and ranging from 20 to 29 years of age (F' = 11.34, p < 0.01, *df* = 63 and 140), or 40 to 49 years of age (F' = 5.39, p < 0.05, *df* = 63 and 140). In all of the nine comparisons the mean score for subjects who were found among specialist staff and who were 50 years or older was significantly higher than for the nine qualification-age group combinations meaning that the former experienced higher levels of overt aggression than the latter groupings.

Table 9.44: Mean values for experienced overt aggression by age group and position level

| Position Level | Age Groups | | | | | | | |
| | 20-29 | | 30-39 | | 40-49 | | 50+ | |
	Mean	N	Mean	N	Mean	N	Mean	N
Senior Mangement	9.50	4	10.86	36	10.65	37	10.17	23
Middle Management	9.50	6	9.80	30	10.18	17	13.71	7
Specialist Staff	9.93	14	11.17	12	10.20	5	13.00	10

9.4.3.3 IPAT Anxiety Scale

Each of the subscales of the IPAT Anxiety Scale was subjected to the General Linear Model with ANOVA option. Scheffé's tests were calculated from the raw scores as indicated in paragraph 9.4.3.

1)   Factor -C

The first comparison involved factor –C, ego weakness or lack of ego weakness of the respondents. The analysis of variance is given in Table 9.45. The F value of 1.11 was not significant (p > 0.05), which was indicative that not one of the subgroups differed in terms of the dependent variable ego weakness or lack of ego strength. There were no significant two-way interactions that occurred in the comparison.

Table 9.45: Analysis of variance for ego weakness or lack of ego strength

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	401.47	6.37	1.11	0.3062
Error	138	793.50	5.75		
Corrected Total	201	1194.98			
	R-Square	Coeff Var	Root MSE	-C Mean	
	0.34	64.93	2.40	3.69	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	1.99	0.66	0.12	0.9509
Qualification	4	6.82	1.71	0.30	0.8798
Position	2	0.14	0.07	0.01	0.9875
Age	3	13.67	4.56	0.79	0.4999
Org*Qual	10	37.16	3.72	0.65	0.7720
Org*Pos	6	31.67	5.28	0.92	0.4840
Org*Age	9	53.19	5.91	1.03	0.4210
Qual*Pos	8	57.86	7.23	1.26	0.2706
Qual*Age	12	21.80	1.82	0.32	0.9856
Pos*Age	6	54.02	9.00	1.57	0.1616

2)   Factor L

The second comparison involved factor L, suspiciousness or paranoid insecurity of the respondents. The analysis of variance is given in Table 9.46.

Table 9.46: Analysis of variance for suspiciousness

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	268.03	4.25	1.27	0.1224
Error	138	461.12	3.34		
Corrected Total	201	729.15			
	R-Square	Coeff Var	Root MSE	L Mean	
	0.37	54.22	1.83	3.37	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	2.46	0.82	0.25	0.8645
Qualification	4	26.42	6.60	1.98	0.1014
Position	2	0.60	0.30	0.09	0.9142
Age	3	8.63	2.88	0.86	0.4629
Org*Qual	10	48.89	4.89	1.46	0.1596
Org*Pos	6	28.82	4.80	1.44	0.2047
Org*Age	9	15.31	1.70	0.51	0.8660
Qual*Pos	8	28.08	3.51	1.05	0.4017
Qual*Age	12	54.43	4.54	1.36	0.1938
Pos*Age	6	9.80	1.63	0.49	0.8158

The F value of 1.27 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable suspiciousness. There were no significant two-way interactions that occurred in the comparison.

3)   Factor O

The third comparison involved factor O, guilt proneness of the respondents. The analysis of variance is given in Table 9.47.

Table 9.47: Analysis of variance for guilt proneness

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	1286.39	20.42	1.37	0.0666
Error	138	2061.73	14.94		
Corrected Total	201	3348.12			
	R-Square	**Coeff Var**	**Root MSE**	**O Mean**	
	0.38	46.84	3.87	8.25	
Source	**DF**	**Type III SS**	**Mean Square**	**F Value**	**Pr > F**
Organization	3	16.55	5.52	0.37	0.7753
Qualification	4	10.02	2.51	0.17	0.9545
Position	2	2.94	1.47	0.10	0.9065
Age	3	11.82	3.94	0.26	0.8515
Org*Qual	10	290.88	29.09	1.95*	0.0438
Org*Pos	6	105.71	17.62	1.18	0.3209
Org*Age	9	169.52	18.84	1.26	0.2638
Qual*Pos	8	156.62	19.58	1.31	0.2432
Qual*Age	12	64.55	5.38	0.36	0.9749
Pos*Age	6	46.99	7.83	0.52	0.7892

The F value of 1.37 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable guilt proneness. There was only one significant two-way interaction that occurred in the comparison, namely type organization with qualification grouping. However analysis of this two-way interaction was deemed unnecessary because of the main effect F ratio's insignificance.

4)   Factor -Q_3

The fourth comparison involved factor –Q_3, defective integration and lack of self-sentiment of the respondents. The analysis of variance is given in Table 9.48. The F value of 0.97 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable defective integration and lack of self-sentiment. Again there was only one significant two-way interaction that occurred in the comparison, namely type organization with qualification grouping. However analysis of this two-way interaction was deemed unnecessary due to the insignificant overall F ratio of 0.97.

Table 9.48: Analysis of variance for defective integration and lack of self-sentiment

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	511.09	8.11	0.97	0.5640
Error	138	1154.46	8.37		
Corrected Total	201	1665.54			

	R-Square	Coeff Var	Root MSE	-Q$_3$ Mean	
	0.31	59.62	2.89	4.85	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	38.93	12.98	1.55	0.2041
Qualification	4	27.26	6.81	0.81	0.5179
Position	2	17.05	8.52	1.02	0.3637
Age	3	7.18	2.39	0.29	0.8354
Org*Qual	10	181.57	18.16	2.17*	0.0230
Org*Pos	6	74.12	12.35	1.48	0.1905
Org*Age	9	17.09	1.90	0.23	0.9902
Qual*Pos	8	92.06	11.51	1.38	0.2124
Qual*Age	12	53.97	4.50	0.54	0.8870
Pos*Age	6	35.41	5.90	0.71	0.6457

5)   Factor Q$_4$

The fifth comparison involved factor Q$_4$, frustrative tension or id pressure of the respondents. The analysis of variance is given in Table 9.49. The F value of 1.46 was significant ($p < 0.05$). However not one of the subgroups differed in terms of the dependent variable frustrative tension or id pressure. Also there were no significant two-way interactions that occurred in the comparison.

Table 9.49: Analysis of variance for frustrative tension or id pressure

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	1205.05	19.13	1.46*	0.0341
Error	138	1806.48	13.09		
Corrected Total	201	3011.53			

	R-Square	Coeff Var	Root MSE	Q$_4$ Mean	
	0.40	55.08	3.62	6.57	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	18.11	6.04	0.46	0.7099
Qualification	4	32.59	8.15	0.62	0.6473
Position	2	17.95	8.97	0.69	0.5055
Age	3	32.45	10.82	0.83	0.4815
Org*Qual	10	169.87	16.99	1.30	0.2376
Org*Pos	6	119.99	20.00	1.53	0.1735
Org*Age	9	54.48	6.05	0.46	0.8976
Qual*Pos	8	80.12	10.02	0.77	0.6340
Qual*Age	12	227.70	18.97	1.45	0.1509
Pos*Age	6	43.06	7.18	0.55	0.7707

6)   Score A

The sixth comparison involved Score A, covert anxiety of the respondents. The analysis of variance is given in Table 9.50. The F value of 1.08 was not significant (p > 0.05), which was indicative that not one of the subgroups differed in terms of the dependent variable covert anxiety. Furthermore not one significant two-way interaction occurred in the comparison.

Table 9.50: Analysis of variance for covert anxiety

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	2586.80	41.06	1.08	0.3444
Error	138	5229.60	37.90		
Corrected Total	201	7816.40			
	R-Square	Coeff Var	Root MSE	SCOREA Mean	
	0.33	44.25	6.16	13.91	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	27.14	9.05	0.24	0.8692
Qualification	4	39.27	9.82	0.26	0.9037
Position	2	0.66	0.33	0.01	0.9913
Age	3	33.04	11.01	0.29	0.8321
Org*Qual	10	495.52	49.55	1.31	0.2322
Org*Pos	6	145.47	24.24	0.64	0.6982
Org*Age	9	107.97	12.00	0.32	0.9685
Qual*Pos	8	249.04	31.13	0.82	0.5850
Qual*Age	12	391.88	32.66	0.86	0.5872
Pos*Age	6	41.67	6.94	0.18	0.9811

7)   Score B

The seventh comparison involved Score B, overt anxiety of the respondents. The analysis of variance is given in Table 9.51. The F value of 1.12 was not significant (p > 0.05), which was indicative that not one of the subgroups differed in terms of the dependent variable overt anxiety. Again not one significant two-way interaction occurred in the comparison.

Table 9.51: Analysis of variance for overt anxiety

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	3250.65	51.60	1.12	0.2883
Error	138	6354.29	46.05		
Corrected Total	201	9604.94			

	R-Square	Coeff Var	Root MSE	SCOREB Mean	
	0.34	52.90	6.79	12.83	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	6.38	2.13	0.05	0.9868
Qualification	4	23.18	5.80	0.13	0.9729
Position	2	5.29	2.65	0.06	0.9441
Age	3	40.96	13.65	0.30	0.8279
Org*Qual	10	702.98	70.30	1.53	0.1360
Org*Pos	6	452.15	75.36	1.64	0.1415
Org*Age	9	272.17	30.24	0.66	0.7466
Qual*Pos	8	257.64	32.21	0.70	0.6916
Qual*Age	12	370.53	30.88	0.67	0.7772
Pos*Age	6	125.85	20.98	0.46	0.8400

8)   Total anxiety

Finally the eighth comparison involved the total anxiety experienced by the respondents. The analysis of variance is given in Table 9.52. The F value of 1.16 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable overt anxiety. Once more not one significant two-way interaction occurred in the comparison.

Table 9.52: Analysis of variance for the total anxiety score

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	9973.76	158.31	1.16	0.2301
Error	138	18765.34	135.98		
Corrected Total	201	28739.09			

	R-Square	Coeff Var	Root MSE	TOT Mean	
	0.35	43.61	11.66	26.74	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	49.04	16.35	0.12	0.9481
Qualification	4	97.28	24.32	0.18	0.9490
Position	2	6.57	3.29	0.02	0.9761
Age	3	142.18	47.39	0.35	0.7903
Org*Qual	10	2053.22	205.32	1.51	0.1419
Org*Pos	6	945.57	157.60	1.16	0.3319
Org*Age	9	580.79	64.53	0.47	0.8897
Qual*Pos	8	798.71	99.84	0.73	0.6611
Qual*Age	12	1055.65	87.97	0.65	0.7988
Pos*Age	6	244.04	40.67	0.30	0.9364

9.4.3.4 Beck Depression Inventory

The Beck Depression Inventory was subjected to the General Linear Model with ANOVA option. Scheffé's tests were calculated from the raw scores as indicated in paragraph 9.4.3.

The comparison involved the depression experienced by the respondents. The analysis of variance is given in Table 9.53. The F value of 0.86 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable of depression. No significant two-way interactions occurred in the comparison.

Table 9.53: Analysis of variance for depression

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	2229.22	35.38	0.86	0.7467
Error	139	5715.94	41.12		
Corrected Total	202	7945.16			
	R-Square	Coeff Var	Root MSE	BDITOT Mean	
	0.28	95.16	6.41	6.74	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	93.37	31.12	0.76	0.5202
Qualification	4	108.03	27.01	0.66	0.6231
Position	2	57.39	28.70	0.70	0.4994
Age	3	53.24	17.75	0.43	0.7307
Org*Qual	10	350.21	35.02	0.85	0.5800
Org*Pos	6	296.46	49.41	1.20	0.3091
Org*Age	9	179.29	19.92	0.48	0.8832
Qual*Pos	8	258.53	32.32	0.79	0.6158
Qual*Age	12	579.92	48.33	1.18	0.3067
Pos*Age	6	264.21	44.03	1.07	0.3830

9.4.3.5 Penn State Worry Questionnaire

The Penn State Worry Questionnaire was subjected to the General Linear Model with ANOVA option. Scheffé tests were calculated from the raw scores as indicated in paragraph 9.4.3.

The comparison involved the worry experienced by the respondents. The analysis of variance is given in Table 9.54. The F value of 1.23 was not significant ($p > 0.05$), which was indicative that not one of the subgroups differed in terms of the dependent variable of worry. No significant two-way interactions occurred in the comparison.

Table 9.54: Analysis of variance for worry

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	9062.00	143.84	1.23	0.1549
Error	137	15959.63	116.49		
Corrected Total	200	25021.62			
	R-Square	Coeff Var	Root MSE	WQTOT Mean	
	0.36	26.12	10.79	41.32	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	180.00	60.00	0.52	0.6726
Qualification	4	181.22	45.31	0.39	0.8163
Position	2	108.52	54.26	0.47	0.6286
Age	3	115.75	38.58	0.33	0.8028
Org*Qual	10	879.33	87.93	0.75	0.6718
Org*Pos	6	1324.18	220.70	1.89	0.0860
Org*Age	9	1558.46	173.16	1.49	0.1588
Qual*Pos	8	1540.38	192.55	1.65	0.1155
Qual*Age	12	872.80	72.73	0.62	0.8187
Pos*Age	6	256.08	42.68	0.37	0.8992

9.4.3.6 Social Problem-Solving Inventory-Revised

Each of the subscales of the Social Problem-Solving Inventory-Revised was subjected to the General Linear Model with ANOVA option. Scheffé tests were calculated from the raw scores as indicated in paragraph 9.4.3.

1)   Positive problem orientation

The first comparison involved the positive problem orientation the respondents perceived to have. The analysis of variance is given in Table 9.55. The F value of 1.09 was not significant (p > 0.05), which was indicative that not one of the subgroups differed in terms of the dependent variable positive problem orientation. Not one significant two-way interaction occurred in the comparison.

Table 9.55: Analysis of variance for positive problem orientation

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	667.00	10.59	1.09	0.3302
Error	139	1347.19	9.69		
Corrected Total	202	2014.19			
	R-Square	Coeff Var	Root MSE	PPO Mean	
	0.33	16.99	3.11	18.32	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	40.90	13.63	1.41	0.2435
Qualification	4	15.95	3.99	0.41	0.8002
Position	2	41.14	20.57	2.12	0.1236
Age	3	13.56	4.52	0.47	0.7063
Org*Qual	10	79.59	7.96	0.82	0.6088
Org*Pos	6	98.46	16.41	1.69	0.1270
Org*Age	9	80.94	8.99	0.93	0.5031
Qual*Pos	8	90.05	11.26	1.16	0.3269
Qual*Age	12	111.27	9.27	0.96	0.4931
Pos*Age	6	10.63	1.77	0.18	0.9812

2)   Negative problem orientation

The second comparison involved negative problem orientation which the respondents were perceived to have. The analysis of variance is given in Table 9.56. The F value of 1.10 was not significant (p > 0.05). However a significant one-way interaction in the variable organization was observed. However it was not deemed necessary to analyze this interaction. No significant two-way interactions occurred in the comparison.

Table 9.56: Analysis of variance for negative problem orientation

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	2533.56	40.22	1.10	0.3188
Error	139	5083.04	36.57		
Corrected Total	202	7616.60			
	R-Square	Coeff Var	Root MSE	NPO Mean	
	0.33	32.74	6.05	18.47	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	400.46	133.49	3.65	0.0142
Qualification	4	12.87	3.22	0.09	0.9861
Position	2	29.60	14.80	0.40	0.6679
Age	3	74.29	24.76	0.68	0.5674
Org*Qual	10	145.84	14.58	0.40	0.9453
Org*Pos	6	54.89	9.15	0.25	0.9585
Org*Age	9	287.05	31.89	0.87	0.5518
Qual*Pos	8	181.46	22.68	0.62	0.7597
Qual*Age	12	414.81	34.57	0.95	0.5042
Pos*Age	6	136.86	22.81	0.62	0.7110

3) Rational problem solving

The third comparison involved the rational problem solving abilities the respondents perceived to have. The analysis of variance is given in Table 9.57.

Table 9.57: Analysis of variance for rational problem solving

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	10845.46	172.15	1.30	0.1038
Error	139	18421.70	132.53		
Corrected Total	202	29267.16			

	R-Square	Coeff Var	Root MSE	RPS Mean	
	0.37	16.99	11.51	67.74	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	479.93	159.98	1.21	0.3096
Qualification	4	280.31	70.08	0.53	0.7148
Position	2	730.21	365.10	2.75	0.0671
Age	3	1446.29	482.10	3.64*	0.0145
Org*Qual	10	2163.32	216.33	1.63	0.1034
Org*Pos	6	2709.89	451.65	3.41*	0.0036
Org*Age	9	1306.06	145.12	1.09	0.3704
Qual*Pos	8	889.97	111.25	0.84	0.5695
Qual*Age	12	2254.47	187.87	1.42	0.1647
Pos*Age	6	444.56	74.09	0.56	0.7622

The F value of 1.30 was not significant ($p > 0.05$). Again only one significant one-way interaction for the variable age could be delineated. However it was not deemed necessary to analyze this interaction. One significant two-way interaction occurred in the comparison, namely organization with position level. Here too it was not deemed necessary to analyze this two-way interaction because of the overall insignificant F ratio.

4) Problem definition and formulation

The fourth comparison involved the ability of the respondents to define and formulate a problem. The analysis of variance is given in Table 9.58. The F value of 1.24 was not significant ($p > 0.05$). Two significant one-way interactions were observed, namely the variables position level and age. However it was not deemed necessary to analyze these interactions. One significant two-way interaction occurred in the comparison, namely organization with position level. Here too it was not deemed necessary to analyze this two-way interaction because of the insignificant F ratio of 1.24.

Table 9.58: Analysis of variance for problem definition and formulation

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	772.67	12.26	1.24	0.1453
Error	139	1369.60	9.85		
Corrected Total	202	2142.27			

	R-Square	Coeff Var	Root MSE	PDF Mean	
	0.36	17.59	3.14	17.85	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	52.08	17.36	1.76	0.1573
Qualification	4	16.62	4.15	0.42	0.7928
Position	2	71.13	35.56	3.61*	0.0296
Age	3	105.50	35.17	3.57*	0.0158
Org*Qual	10	134.98	13.50	1.37	0.2003
Org*Pos	6	161.60	26.93	2.73*	0.0153
Org*Age	9	115.15	12.79	1.30	0.2430
Qual*Pos	8	53.79	6.72	0.68	0.7065
Qual*Age	12	167.11	13.93	1.41	0.1666
Pos*Age	6	57.96	9.66	0.98	0.4410

5)   Generation of alternatives

The fifth comparison involved the ability of the respondents to generate alternatives. The analysis of variance is given in Table 9.59. The F value of 1.64 was significant ($p < 0.05$). Significant differences were found for age groupings and significant interactions were found for type of organization grouping with position levels (Table 9.60).

Table 9.59: Analysis of variance for the generation of alternatives

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	1009.81	16.03	1.64*	0.0087
Error	139	1360.87	9.79		
Corrected Total	202	2370.68			

	R-Square	Coeff Var	Root MSE	GAS Mean	
	0.43	18.13	3.13	17.26	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	45.72	15.24	1.56	0.2027
Qualification	4	66.29	16.57	1.69	0.1551
Position	2	55.55	27.77	2.84	0.0620
Age	3	110.82	36.94	3.77*	0.0122
Org*Qual	10	115.83	11.58	1.18	0.3073
Org*Pos	6	214.86	35.81	3.66*	0.0021
Org*Age	9	91.65	10.18	1.04	0.4114
Qual*Pos	8	92.56	11.57	1.18	0.3143
Qual*Age	12	184.76	15.40	1.57	0.1063
Pos*Age	6	30.34	5.06	0.52	0.7951

A series of Scheffé tests were carried out where the four age groupings were paired-off two at a time. Two of the six comparisons showed a significant difference regarding the respondents' perceived ability to generate alternatives. For the two comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Subjects who were 20 to 29 years of age differed significantly from the subjects who were 40 to 49 years of age ($F' = 9.62$, $p < 0.01$, $df = 63$ and 140). The mean score for the 20 to 29 years of age group was significantly lower than for the 40 to 49 years of age group, which meant the former seemed to generate less alternatives than the latter group. Secondly subjects who were 40 to 49 years of age differed significantly from the subjects who were 50 years of age or older ($F' = 7.26$, $p < 0.01$, $df = 63$ and 140). Here the mean score for the subjects who fell into the age group 40 to 49 years of age was significantly higher than of the 50 years of age or older group implying that the former saw themselves generating more alternatives than the latter group.

Another series of Scheffé tests were carried out where the four types of organization groupings were paired-off with the three position levels. Each of the organization-position level pairs was then compared to another pair to determine if a significant difference did exist or not. For all of the comparisons it was found that F_{crit} at $p < 0.05$ was equal to 3.96 and $p < 0.01$ was equal to 4.41. Most significantly respondents that worked for financial organizations and who worked as specialist staff differed significantly form seven other organization-position level groupings, namely from subjects who also worked in financial organizations and who were in senior management ($F' = 6.39$, $p < 0.01$, $df = 63$ and 140), who worked in production/services organizations and were in senior management ($F' = 7.95$, $p < 0.01$, $df = 63$ and 140) as well as those who were also specialist staff ($F' = 11.52$, $p < 0.01$, $df = 63$ and 140) , those who worked in research and development organizations and who were in senior management ($F' = 12.39$, $p < 0.01$, $df = 63$ and 140), who worked in academic/auxiliary services organizations and were in senior management ($F' = 4.18$, $p < 0.05$, $df = 63$ and 140) as well as in middle management ($F' = 12.82$, $p < 0.01$, $df = 63$ and 140) and who were specialist staff ($F' = 8.52$, $p < 0.01$, $df = 63$ and 140). In all of the above comparisons the mean score for subjects working in financial organizations and who were among specialist staff was significantly higher than for the other organization-position level combinations implying that the former perceived themselves as generating higher levels of alternatives than the latter groupings.

The second significant comparison involved subjects that worked for academic/auxiliary services organizations and who were in middle management. They differed significantly from subjects from four other organization-position level groupings, of which those working in financial organizations and who were found among specialist staff have been reported previously. Furthermore they differed from subjects who worked in financial organizations and were in senior management ($F' = 4.19$, $p < 0.05$, $df = 63$ and 140), those who worked in

production/services organizations and were in middle management (F' = 4.41, p < 0.01, *df* = 63 and 140), and who worked in research and development organizations and who were in middle management (F' = 7.68, p < 0.01, *df* = 63 and 140). In all of the four comparisons the mean score for subjects working in academic/auxiliary services organizations and who were in middle management positions was significantly lower than for the other four organization-position level combinations meaning that the former generated lower levels of alternatives than the latter groupings.

The third significant comparison involved subjects that worked for academic/auxiliary services organizations and who were in senior management. They differed significantly from subjects from three other organization-position level groupings, of which those working in financial organizations and who were specialist staff have been reported previously. They also differed from those who worked in production/services organizations and were in middle management (F' = 4.08, p < 0.05, *df* = 63 and 140) and from those working in academic/auxiliary organizations and who were also in middle management (F' = 7.23, p < 0.01, *df* = 63 and 140). In all of the three comparisons the mean score for subjects working in academic/auxiliary services organizations and who were in senior management was significantly lower than for the other three organization-position level combinations meaning that the former generated lower levels of alternatives than the latter groupings.

Finally a fourth significant comparison was found. Subjects that worked in academic/auxiliary services organizations and who were in middle management differed significantly form three other organization-position level groupings, of which those involving subjects that also worked in a research and development organization and who were in senior management as well as in an academic/auxiliary services environment and who were in middle management have been reported previously. The only other grouping involved subjects working in a production/services organization and who were working as specialist staff (F' = 6.25, p < 0.01, *df* = 63 and 140). The mean value for the subjects who were found in academic/auxiliary services organizations was significantly higher than for the three comparison groupings, which meant that the former generated more alternatives than the latter.

Table 9.60: Mean values for generation of alternatives by organization grouping and position level

| Qualification Group | Type of Organization Grouping | | | | | | | |
| | Financial | | Prod/Serv | | R&D | | Acad/Aux Services | |
	Mean	N	Mean	N	Mean	N	Mean	N
Senior Management	17.50	46	16.86	21	15.84	19	17.81	16
Middle Management	17.50	6	18.17	12	18.40	25	15.72	18
Specialist staff	20.71	7	15.94	17	20.00	2	16.53	15

6)	Decision making

The sixth comparison entailed the ability of the respondents to make decisions regarding a problem. The analysis of variance is given in Table 9.61. The F value of 1.14 was not significant ($p > 0.05$). One significant one-way interaction was observed which involved the variable age. However it was not deemed necessary to analyze this interaction. One significant two-way interaction also occurred in the comparison, namely organization with position level. Here too it was not deemed necessary to analyze this two-way interaction because of the insignificant F ratio of 1.14.

Table 9.61: Analysis of variance for decision making

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	710.59	11.28	1.14	0.2615
Error	139	1375.71	9.90		
Corrected Total	202	2086.31			
	R-Square	Coeff Var	Root MSE	DM Mean	
	0.34	19.12	3.15	16.45	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	8.06	2.69	0.27	0.8459
Qualification	4	18.57	4.64	0.47	0.7583
Position	2	27.37	13.69	1.38	0.2543
Age	3	94.69	31.56	3.19*	0.0257
Org*Qual	10	152.58	15.26	1.54	0.1308
Org*Pos	6	146.81	24.47	2.47*	0.0265
Org*Age	9	86.37	9.60	0.97	0.4678
Qual*Pos	8	43.86	5.48	0.55	0.8139
Qual*Age	12	127.86	10.65	1.08	0.3844
Pos*Age	6	32.52	5.42	0.55	0.7711

7)	Solution implementation and verification

The seventh comparison looked at the ability of the respondents to implement and verify solutions regarding a problem. The analysis of variance is given in Table 9.62. The F value of 1.00 was not significant ($p > 0.05$). Not one significant one-way interaction was observed. One significant two-way interaction did occur in the comparison, namely organization with position level. Here too it was not deemed necessary to analyze this two-way interaction because of the insignificant F ratio of 1.00.

190

Table 9.62: Analysis of variance for solution implementation and verification

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	855.30	13.58	1.00	0.4930
Error	139	1890.96	13.60		
Corrected Total	202	2746.26			
	R-Square	Coeff Var	Root MSE	SIV Mean	
	0.31	22.79	3.69	16.18	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	41.28	13.76	1.01	0.3897
Qualification	4	14.90	3.73	0.27	0.8944
Position	2	46.84	23.42	1.72	0.1826
Age	3	102.30	34.10	2.51	0.0616
Org*Qual	10	232.50	23.25	1.71	0.0843
Org*Pos	6	182.37	30.40	2.23*	0.0434
Org*Age	9	111.15	12.35	0.91	0.5204
Qual*Pos	8	109.17	13.65	1.00	0.4366
Qual*Age	12	229.88	19.16	1.41	0.1690
Pos*Age	6	44.90	7.48	0.55	0.7692

8) Impulsivity/carelessness style

The eighth comparison involved the respondent's impulsivity and carelessness style when approaching a problem. The analysis of variance is given in Table 9.63. The F value of 1.20 was not significant (p > 0.05). Not a single significant one-way interaction or two-way interaction was observed.

Table 9.63: Analysis of variance for impulsivity/carelessness style

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	2006.37	31.85	1.20	0.1887
Error	139	3689.06	26.54		
Corrected Total	202	5695.43			
	R-Square	Coeff Var	Root MSE	ICS Mean	
	0.35	28.17	5.15	18.29	
Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	195.40	65.13	2.45	0.0658
Qualification	4	48.61	12.15	0.46	0.7665
Position	2	6.22	3.11	0.12	0.8895
Age	3	126.94	42.31	1.59	0.1935
Org*Qual	10	168.66	16.87	0.64	0.7814
Org*Pos	6	300.80	50.13	1.89	0.0868
Org*Age	9	309.50	34.39	1.30	0.2445
Qual*Pos	8	211.93	26.49	1.00	0.4403
Qual*Age	12	246.54	20.55	0.77	0.6761
Pos*Age	6	204.29	34.05	1.28	0.2690

9) Avoidance style

The sixth comparison entailed the ability of the respondents to make decisions regarding a problem. The analysis of variance is given in Table 9.64. The F value of 1.16 was not significant ($p > 0.05$). Again not one significant one-way interaction or two-way interaction could be delineated.

Table 9.64: Analysis of variance for avoidance style

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	1169.40	18.56	1.16	0.2412
Error	139	2233.59	16.07		
Corrected Total	202	3403.00			

	R-Square	Coeff Var	Root MSE	GAS Mean	
	0.34	31.52	4.01	12.72	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	86.81	28.94	1.80	0.1499
Qualification	4	31.31	7.83	0.49	0.7452
Position	2	28.35	14.18	0.88	0.4162
Age	3	45.86	15.29	0.95	0.4178
Org*Qual	10	244.69	24.47	1.52	0.1373
Org*Pos	6	101.90	16.98	1.06	0.3915
Org*Age	9	103.24	11.47	0.71	0.6955
Qual*Pos	8	63.27	7.91	0.49	0.8602
Qual*Age	12	185.10	15.43	0.96	0.4900
Pos*Age	6	29.47	4.91	0.31	0.9951

10) Total social problem solving

The tenth comparison encompassed the total problem solving ability of the respondents regarding a problem. The analysis of variance is given in Table 9.65. The F value of 1.24 was not significant ($p > 0.05$). Not one significant one-way interaction was observed. One significant two-way interaction occurred in the comparison, namely organization with position level. Again it was not deemed necessary to analyze this two-way interaction because of the insignificant F ratio of 1.24.

Table 9.65: Analysis of variance for total problem solving

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	63	413.01	6.56	1.24	0.1535
Error	140	743.02	5.31		
Corrected Total	203	1156.03			

	R-Square	Coeff Var	Root MSE	SPS Mean	
	0.36	13.97	2.30	16.49	

Source	DF	Type III SS	Mean Square	F Value	Pr > F
Organization	3	33.98	11.33	2.13	0.0987
Qualification	4	11.61	2.90	0.55	0.7016
Position	2	10.09	5.05	0.95	0.3889
Age	3	28.86	9.62	1.81	0.1476
Org*Qual	10	52.12	5.21	0.98	0.4619
Org*Pos	6	81.27	13.55	2.55	0.0224
Org*Age	9	28.26	3.14	0.59	0.8023
Qual*Pos	8	20.50	2.56	0.48	0.8668
Qual*Age	12	47.08	3.92	0.74	0.7111
Pos*Age	6	23.00	3.83	0.72	0.6323

9.5 Co-relationships

The various series of analyses focused on the Pearson correlation coefficients between on the one hand Experience of Work and Life Circumstances Questionnaire and its subscales with on the other hand Aggression in the Workplace Questionnaire and its subscales, both witnessed and experienced, the IPAT Anxiety Scale, the Beck Depression Inventory, the Penn State Worry Questionnaire, and the Social Problem-Solving Inventory-Revised and its subscales. The analyses were done for the total group, the two genders, the four age groups, the two marital categories, the four business sectors, the five qualification divisions, and the three position levels. Only the correlations that occurred on the 5% or 1% level of probability were considered significant. Furthermore when interpreting the results for the variables organizational functioning, task characteristics, physical working conditions, career matters, social matters, and remuneration, fringe benefits and personnel policy it must be borne in mind that the raw scores are reversed according to the scoring manual for this test (Van Zyl & Van der Walt, 1991: 14). In these instances negative correlation coefficients thus reflect positive statistical relationships.

9.5.1 Total group

9.5.1.1 *Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire*

Correlation analyses involving the Pearson correlation coefficients for each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the

Aggression in the Workplace Questionnaire-experienced and -witnessed were undertaken for the total group (Appendix B).

The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with the main variable of the Aggression in the Workplace Questionnaire (witnessed as well as experienced) for the total group are as follows:

$$H_0: \rho_{LOS,OWS} = 0.00 \quad \text{or} \quad H_0: \rho_{IWSOF\text{-}IWSRF} = 0.00$$
$$H_1: \rho_{LOS,OWS} \approx 1.00 \quad\quad\quad H_1: \rho_{IWSOF\text{-}IWSRF} \approx -1.00$$
$$H_2: \rho_{LOS,OWS} \approx -1.00 \quad\quad\quad H_2: \rho_{IWSOF\text{-}IWSRF} \approx 1.00$$

The reader is referred to Appendix B. This addendum contains details of all the relevant correlation coefficients. The results of only the main scales will be presented here.

1) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed

From the results it can be seen that the main scale scores of the subjects, namely level of stress (LOS) correlated positively and significantly with the witnessed total aggression (WTOT, r = 0.386) scale of the Aggression in the Workplace Questionnaire (AWQ).

The three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV), supported the main scale witnessed total aggression (WTOT).

The correlation obtained for level of stress with witnessed total aggression was the most consistent co-relationship. Thus the indicator level of stress correlated significantly with witnessed total aggression in the workplace. High levels of perceived stress on this indicator co-related to high levels of witnessed aggression in the workplace and vice versa. This main indicator thus confirmed the alternative hypothesis H_1.

2) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced

Level of stress (LOS) scores correlated positively and significantly with the experienced total aggression (ETOT, r = 0.306) scale of the Aggression in the Workplace Questionnaire (AWQ).

The three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV), supported the main scale witnessed total aggression (WTOT).

The correlation obtained for LOS with experienced aggression was the most consistent co-relationship. This indicator, namely level of stress correlated significantly with witnessed total aggression in the workplace. Again high levels of perceived stress on this indicator co-related to high levels of witnessed total aggression in the workplace and vice versa. Again this indicator confirmed the alternative hypothesis H_1.

9.5.1.2 *Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale*

In this section correlation analyses focused on Pearson correlation coefficients describing the co-relationship between each of the variables of the Experience of Work and Life Circumstances Questionnaire and all the variables of the IPAT Anxiety Scale (IAS), for the group as a whole (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with the main variable of the IPAT Anxiety Scale, namely the total anxiety score (TAS) for the total group are as follows:

$$H_0: \rho_{LOS,OWS.TAS} = 0.00 \quad \text{or} \quad H_0: \rho_{IWSOF\text{-}IWSRF.TAS} = 0.00$$
$$H_1: \rho_{LOS,OWS.TAS} \approx 1.00 \quad\quad\quad H_1: \rho_{IWSOF\text{-}IWSRF.TAS} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.TAS} \approx -1.00 \quad\quad\quad H_2: \rho_{IWSOF\text{-}IWSRF.TAS} \approx 1.00$$

The reader will find detailed information in Appendix B. Thus the results of only the main scales will be presented.

The level of stress (LOS) scores of the subjects correlated positively and significantly with the total anxiety score (TAS, r = 0.586) scale of the IPAT Anxiety Scale (IAS).

The five subscales, namely factor -Q_3, factor Q_4, factor -C, factor L, factor O and the two derived subscales Score A and Score B supported the main scale, namely the total anxiety scale (TAS) for LOS.

Again the correlation found between level of stress and the total anxiety scale was the most consistent. Thus the indicator level of stress correlated significantly with the total anxiety score. High levels of perceived stress on this indicator correlated with high levels of total anxiety. Again this indicator confirmed the alternative hypothesis H_1.

9.5.1.3 *Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory*

Correlation analyses by means of the Pearson correlation coefficients focused on the relationship between each of the variables of the Experience of Work and Life Circumstances

Questionnaire with those of the Beck Depression Inventory (BDI), once again done for the total group (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for the total group are as follows:

$$H_0: \rho_{LOS,OWS.BDI} = 0.00 \quad \text{or} \quad H_0: \rho_{IWSOF\text{-}IWSRF.BDI} = 0.00$$
$$H_1: \rho_{LOS,OWS.BDI} \approx 1.00 \quad\quad\quad H_1: \rho_{IWSOF\text{-}IWSRF.BDI} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.BDI} \approx -1.00 \quad\quad H_2: \rho_{IWSOF\text{-}IWSRF.BDI} \approx 1.00$$

Appendix B contains a detailed series of correlation coefficients. The discussion of results focuses on the main scales only.

A significant and positive correlation was found between the subjects' level of stress (LOS, r = 0.656) scores and depression.

The correlation obtained for LOS and depression was the most consistent co-relationship. Thus the indicator level of stress correlated significantly with depression. High levels of perceived stress on this indicator co-related with high levels of depression and vice versa. Once again this indicator confirmed the alternative hypothesis H_1.

9.5.1.4 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire

The next correlation analyses were based on the Pearson correlation coefficients obtained for each of the variables of the Experience of Work and Life Circumstances Questionnaire with those of the Penn State Worry Questionnaire (PSWQ), once more for the total group (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the Penn State Worry Questionnaire for the total group are as follows:

$$H_0: \rho_{LOS,OWS.PSWQ} = 0.00 \quad \text{or} \quad H_0: \rho_{IWSOF\text{-}IWSRF.PSWQ} = 0.00$$
$$H_1: \rho_{LOS,OWS.PSWQ} \approx 1.00 \quad\quad\quad H_1: \rho_{IWSOF\text{-}IWSRF.PSWQ} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.PSWQ} \approx -1.00 \quad\quad H_2: \rho_{IWSOF\text{-}IWSRF.PSWQ} \approx 1.00$$

The detailed co-relations are provided in Appendix B. Here only the results of the main scales will be presented.

A positive and significant correlation was found for the subjects' level of stress (LOS, r = 0.499).

Again the main scale, namely level of stress was the most consistent co-relationship. High levels of perceived stress on this indicator co-related to high levels of worry and vice versa. This indicator thus confirmed the alternative hypothesis H_1.

9.5.1.5 *Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised*

Correlation analyses of the Pearson correlation coefficients between each of the variables of the Experience of Work and Life Circumstances Questionnaire and those of the variables of the Social Problem-Solving Inventory-Revised (SPSIR) were next done for the total group (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with the main variable of the Social Problem-Solving Inventory-Revised, namely social problem solving (SPS) for the total group are as follows:

$$H_0: \rho_{LOS,OWS.SPS} = 0.00 \qquad \text{or} \qquad H_0: \rho_{IWSOF\text{-}IWSRF.SPS} = 0.00$$
$$H_1: \rho_{LOS,OWS.SPS} \approx 1.00 \qquad\qquad\qquad H_1: \rho_{IWSOF\text{-}IWSRF.SPS} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.SPS} \approx -1.00 \qquad\qquad\quad H_2: \rho_{IWSOF\text{-}IWSRF.SPS} \approx 1.00$$

If necessary, refer to Appendix B for detailed information. The results of only the main scales will be described.

A negative but significant correlation was obtained for the subjects' level of stress (LOS, r = -0.333) with the main scale of the SPSIR, namely social problem solving (SPS).

In the case of LOS only four scales supported the main scale SPS, namely positive problem orientation (PPO), negative problem orientation (NPO), impulsivity/carelessness style (ICS), and avoidance style (AS).

A consistent co-relationship was obtained for levels of stress with social problem solving in general. The results also showed that the indictor level of stress correlated significantly with social problem solving. High levels of perceived stress co-related to lower levels of social problem solving and vice versa thus confirming the alternative hypothesis H_2.

9.5.2 Gender

9.5.2.1 *Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire*

The next correlation analyses involved Pearson correlation coefficients between each of the variables of the Experience of Work and Life Circumstances Questionnaire and all of the

variables of the Aggression in the Workplace Questionnaire, both experienced and witnessed aggression, per gender subgroup (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the Aggression in the Workplace Questionnaire-experienced and -witnessed for gender are as follows:

$$H_0: \rho_{LOS,OWS.AWQ} = 0.00 \quad \text{or} \quad H_0: \rho_{IWSOF-IWSRF.AWQ} = 0.00$$
$$H_1: \rho_{LOS,OWS.AWQ} \approx 1.00 \qquad\qquad H_1: \rho_{IWSOF-IWSRF.AWQ} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.AWQ} \approx -1.00 \qquad\qquad H_2: \rho_{IWSOF-IWSRF.AWQ} \approx 1.00$$

The reader might refer to Appendix B that contains detailed co-relational information. Only the main scales will be analysed.

1) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed

The level of stress (LOS) scores for both the males and females correlated significantly and positively with the witnessed total aggression scale (WTOT) of the Aggression in the Workplace Questionnaire (AWQ). The respective correlations for the former was 0.295 and for the latter 0.504.

The three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV) for both males and females supported the main scale witnessed total aggression for LOS.

In the case of the males and the females the indicator level of stress was the most consistent co-relationship with witnessed aggression in the workplace. High levels of perceived stress on this indicator co-related to high levels of total witnessed aggression in the workplace. The alternative hypothesis H_1 was confirmed in general for this indicators.

2) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced

The scores for level of stress (LOS) correlated significantly and positively with experienced total aggression (ETOT) only for the females (r = 0.516).

For the females the main scale, namely LOS was supported by all three of the subscales, namely experienced expressions of hostility (EEH), experienced obstructionism (EOB), and experienced overt aggression (EOB).

For males no significant correlation was found between the indicator level of stress and experienced total aggression in the workplace. Level of stress generally confirmed the null hypothesis. When considering the females a consistent correlation was obtained between the indicator level of stress and experienced total aggression in the workplace. High levels of perceived stress on this indicator co-related with high levels of experienced total aggression in the workplace and vice versa. Thus the alternative hypothesis H_1 was confirmed in general for this indicator.

9.5.2.2 *Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale*

The ensuing correlation analyses focused on Pearson correlation coefficients derived from each of the variables of the Experience of Work and Life Circumstances Questionnaire being associated with each of the variables of the IPAT Anxiety Scale (IAS), separately done for each gender group (Appendix B). The three hypotheses that were formulated for each of the variables of the Experience of Work and Life Circumstances Questionnaire compared with all of the variables of the IPAT Anxiety Scale (IAS), for gender are as follows:

$$H_0: \rho_{LOS,OWS.IPAT} = 0.00 \qquad \text{or} \qquad H_0: \rho_{IWSOF-IWSRF.IPAT} = 0.00$$
$$H_1: \rho_{LOS,OWS.IPAT} \approx 1.00 \qquad \qquad \qquad H_1: \rho_{IWSOF-IWSRF.IPAT} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.IPAT} \approx -1.00 \qquad \qquad \quad H_2: \rho_{IWSOF-IWSRF.IPAT} \approx 1.00$$

Appendix B contains detailed information related to the series of analyses. The results of the main scales will be presented.

The level of stress (LOS) scores for males and females correlated significantly and positively with the total anxiety score (TAS) scale of the IAS. The correlation for the former was 0.621 and for the latter was 0.562.

The main scale, TAS in the case of LOS for both males and females were supported by all seven of the subscales of the IAS.

In the case of males and females the correlations between the indicator levels of stress was the most consistent. Thus high levels of perceived stress on this indicator co-related to higher levels of total anxiety. Again this indicator confirmed the alternative hypothesis H_1.

9.5.2.3 *Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory*

Analyses of Pearson correlation coefficients calculated between each of the variables of the Experience of Work and Life Circumstances Questionnaire and those of the Beck Depression

Inventory (BDI) were done per gender group (Appendix B). The three hypotheses that were studied for all variables of the Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory, by gender, are as follows:

H_0: $\rho_{LOS,OWS.BDI} = 0.00$ or H_0: $\rho_{IWSOF-IWSRF.BDI} = 0.00$
H_1: $\rho_{LOS,OWS.BDI} \approx 1.00$ H_1: $\rho_{IWSOF-IWSRF.BDI} \approx -1.00$
H_2: $\rho_{LOS,OWS.BDI} \approx -1.00$ H_2: $\rho_{IWSOF-IWSRF.BDI} \approx 1.00$

Only the results of only the main scales will be presented here. A detailed set of relevant calculations are provided in Appendix B.

A significant and positive correlation was found for males and females level of stress (LOS) scores with depression. The correlations for the former was 0.652 and for the latter 0.674.

In the case of both males and females the correlation between level of stress and depression was the most consistent. Thus the indicator level of stress in both cases correlated significantly with depression. High levels of perceived stress on this indicator co-related with high levels of depression and vice versa. Throughout this indicator confirmed the alternative hypothesis H_1.

9.5.2.4 *Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire*

Correlation analyses based on an assessment of Pearson correlation coefficients for each of the variables of the Experience of Work and Life Circumstances Questionnaire and the Penn State Worry Questionnaire (PSWQ) were done for each gender grouping (refer to Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire, per gender grouping, are as follows:

H_0: $\rho_{LOS,OWS.PSWQ} = 0.00$ or H_0: $\rho_{IWSOF-IWSRF.PSWQ} = 0.00$
H_1: $\rho_{LOS,OWS.PSWQ} \approx 1.00$ H_1: $\rho_{IWSOF-IWSRF.PSWQ} \approx -1.00$
H_2: $\rho_{LOS,OWS.PSWQ} \approx -1.00$ H_2: $\rho_{IWSOF-IWSRF.PSWQ} \approx 1.00$

Detailed relevant statistics are contained in Appendix B. Results of the main scales only will be presented.

For both males and females, significant and positive correlations with the main scale, level of stress (LOS) were noticed. The correlation for the former was 0.596 and for the latter 0.430.

For both males and females a consistent co-relationship was found for level of stress and worry. The indicator level of stress correlated significantly with the variable worry. High levels of

perceived stress on this indicator co-related with high levels of worry and vice versa. Throughout this indicator confirmed the alternative hypothesis H_1.

9.5.2.5 *Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised*

The next set of correlation analyses considered those Pearson correlation coefficients that were derived from a comparison between each of the variables of the Experience of Work and Life Circumstances Questionnaire and each of the variables of the Social Problem-Solving Inventory-Revised (SPSIR), again being differentiated by gender (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire related to all the variables of the Social Problem-Solving Inventory-Revised (SPSIR) for gender are as follows:

$$H_0: \rho_{LOS,OWS.SPSIR} = 0.00 \quad \text{or} \quad H_0: \rho_{IWSOF\text{-}IWSRF.SPSIR} = 0.00$$
$$H_1: \rho_{LOS,OWS.SPSIR} \approx 1.00 \quad\quad\quad H_1: \rho_{IWSOF\text{-}IWSRF.SPSIR} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.SPSIR} \approx -1.00 \quad\quad\quad H_2: \rho_{IWSOF\text{-}IWSRF.SPSIR} \approx 1.00$$

The results of only the main scales will be presented while detailed relevant information is available in Appendix B.

The level of stress (LOS) scores for both males and females correlated significantly but negatively with social problem solving (SPS), with their respective correlations being -0.415 and -0.248.

In the case of the males the main scale, namely social problem solving (SPS) for LOS was only supported by four of the scales of the SPSIR, namely positive problem orientation (PPO), negative problem orientation (NPO), impulsivity/carelessness style (ICS), and avoidance style (AS).

In the case of both males and females a consistent co-relationship was found between the indicator level of stress and social problem solving. This indicator correlated significantly with social problem solving for both genders. Thus high levels of perceived stress on this indicator co-related to low levels of social problem solving. Again this indicator confirmed the alternative hypothesis H_2.

9.5.3 Marital status

9.5.3.1 *Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire*

Statistical analyses of those Pearson correlation coefficients that were derived from the association of each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the Aggression in the Workplace Questionnaire, either experienced or witnessed, were done for each marital status group (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the Aggression in the Workplace Questionnaire (experienced and witnessed) for marital status are as follows:

$$H_0: \rho_{WLQ.AWQ} = 0.00$$
$$H_1: \rho_{WLQ.AWQ} \approx 1.00$$
$$H_2: \rho_{WLQ.AWQ} \approx -1.00$$

Appendix B once again contains further detailed information. The following discussion is limited to the main scales only.

1)   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed

The level of stress (LOS) scores for both the married and the non-married group correlated significantly and positively with the witnessed total aggression (WTOT) scale of the Aggression in the Workplace Questionnaire (AWQ). The corresponding correlation for the married group was 0.313 and the non-married group called other was 0.633.

For both the married and the non-married groups all three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV) confirmed the observed trends arising from the association of the main scale witnessed total aggression with the LOS scale.

In the case of the married and non-married subjects the indicator level of stress and witnessed total aggression was the most consistent co-relationship. For both groups this indicator correlated significantly with witnessed total aggression. High levels of perceived stress on this indicator co-related with high levels of witnessed aggression in the workplace and vice versa. The alternative hypothesis H_1 was confirmed for this indicator.

2) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced

Level of stress (LOS) correlated significantly and positively for both the married and non-married subjects with the main scale, namely experienced total aggression (ETOT) of the AWQ. The corresponding correlations were found to be 0.201 and 0.699 respectively.

The three subscales, namely experienced expressions of hostility (EEH), experienced witnessed obstructionism (EOB), and experienced overt aggression (EOV) for both the married group and the non-married group supported the main scale experienced total aggression (ETOT) in the case of LOS.

In the case of both married and non-married subjects the indicator level of stress with experienced total aggression produced the most consistent co-relation. The indicator level of stress correlated significantly with experienced total aggression. High levels of perceived stress on these indicators co-related to high levels of experienced aggression in the workplace and vice versa. The alternative hypothesis H_1 was confirmed in general for these indicators.

9.5.3.2 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale

Analyses of relevant Pearson correlation coefficients that were made available by each of the comparisons between the variables of the Experience of Work and Life Circumstances Questionnaire and each of the variables of the IPAT Anxiety Scale (IAS) were done for the marital status groups (Appendix B). The three hypotheses that were invoked for each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the IPAT Anxiety Scale for marital status are as follows:

$$H_0: \rho_{WLQ.IPAT} = 0.00$$
$$H_1: \rho_{WLQ.IPAT} \approx 1.00$$
$$H_2: \rho_{WLQ.IPAT} \approx -1.00$$

As usual, a detailed set of additional information is contained in Appendix B. The results of only the main scales will be explained in somewhat more detail.

Significant and positive correlations once again were obtained for both the married and non-married groups when level of stress (LOS) was associated with the main scale, namely the total anxiety score (TAS) of the IAS. The corresponding correlations were found to be 0.565 and 0.635 respectively.

The statistical association between the main scale and LOS was confirmed by all seven subscales, namely factor $-Q_3$, factor Q_4, factor $-C$, factor L, factor O, Score A, and Sore B, for both the married and non-marred subjects.

For both married and non-married subjects the indicators level of stress and total anxiety produced the most consistent co-relationship. The indicator level of stress correlated significantly with total anxiety. High levels of perceived stress on this indicator co-related with high levels of total anxiety and vice versa. The alternative hypothesis H_1 in general was confirmed by this indicator.

9.5.3.3 *Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory*

Further correlation analyses *of* the Pearson correlation coefficients were done for each of the variables of the Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory (BDI). Analyses were obtained for each marital status group (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for marital status are as follows:

$$H_0: \rho_{WLQ.BDI} = 0.00$$
$$H_1: \rho_{WLQ.BDI} \approx 1.00$$
$$H_2: \rho_{WLQ.BDI} \approx -1.00$$

Further detailed information is presented in Appendix B. Accordingly, only the results of the main scales will be presented here.

For both the married and non-married groups significant and positive correlations were obtained for level of stress (LOS) and depression. The corresponding correlations were found to be 0.612 and 0.757 respectively.

For both the married and non-married subjects the most consistent co-relationship was found between level of stress and depression. This indicator correlated significantly with depression. Again high levels of perceived stress on this indicator co-related to high levels of depression and vice versa. The indicator confirmed the alternative hypothesis H_1.

9.5.3.4 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire

The following correlation analyses of the Pearson correlation coefficients focused on the co-relation between each of the variables of the Experience of Work and Life Circumstances Questionnaire and the Penn State Worry Questionnaire (PSWQ), done for each marital status group (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for marital status are as follows:

$$H_0: \rho_{WLQ.WORRY} = 0.00$$
$$H_1: \rho_{WLQ.WORRY} \approx 1.00$$
$$H_2: \rho_{WLQ.WORRY} \approx -1.00$$

The reader is referred to Appendix B for detailed information. In the next section the focus will be on the results of only the main scales.

Once again significant and positive correlations for both marital status groups were found for level of stress (LOS) (OWS) and worry. The respective correlations were 0.425 for the married group and 0.695 for the non-married group.

Again the most consistent co-relationship was obtained for level of stress with worry for both the married and non-married subjects. This indicator correlated significantly with worry. High levels of perceived stress on this indicator co-related to high levels of worry and vice versa. The alternative hypothesis H_1 was thus confirmed for this indicator.

9.5.3.5 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised

Correlation analyses of the Pearson correlation coefficients derived for each of the variables of the Experience of Work and Life Circumstances Questionnaire and each of the variables of the Social Problem-Solving Inventory-Revised (SPSIR) were done per marital status group (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with all the variables of the Social Problem-Solving Inventory-Revised (SPSIR) for marital status are as follows:

$$H_0: \rho_{WLQ.SPSIR} = 0.00$$
$$H_1: \rho_{WLQ.SPSIR} \approx 1.00$$
$$H_2: \rho_{WLQ.SPSIR} \approx -1.00$$

The reader will find relevant detailed information analysis in Appendix B. Here only the results of the main scales will be presented.

For both marital status groups level of stress (LOS) correlated significantly but negatively with the main scale social problem solving (SPS). The corresponding correlation for the married group was -0.298 and that for the non-married group -0.426.

In the case of the married group, level of stress (LOS) correlated with four of the seven scales and subscales, namely positive problem orientation (PPO), negative problem orientation (NPO), impulsivity/carelessness style (ICS), and avoidance style (AS). For the non-married group the main LOS scale co-varied with three of the nine scales and subscales, namely positive problem orientation (PPO), negative problem orientation (NPO), and avoidance style (AS).

Regarding both the married and non-married subjects the most consistent co-relationships were found for level of stress and social problem solving. This indicator also correlated significantly with social problem solving. High levels of perceived stress on these indicators co-related to low levels of social problem solving and vice versa. The alternative hypothesis H_2 was confirmed in general for this indicator.

9.5.4 Age groups

9.5.4.1 *Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire*

Correlation analyses of the Pearson correlation coefficients for each of the variables of the Experience of Work and Life Circumstances Questionnaire associated with all of the variables of the Aggression in the Workplace Questionnaire (both experienced and witnessed) were undertaken for each of the four age groups (Appendix B). The three hypotheses that were postulated for all variables of the Experience of Work and Life Circumstances Questionnaire compared to all the variables of the Workplace Questionnaire (both experienced and witnessed), for the four age groups are as follows:

$$H_0: \rho_{LOS,OWS.AWQ} = 0.00 \qquad \text{or} \qquad H_0: \rho_{IWSOF\text{-}IWSRF.AWQ} = 0.00$$
$$H_1: \rho_{LOS,OWS.AWQ} \approx 1.00 \qquad\qquad\qquad H_1: \rho_{IWSOF\text{-}IWSRF.AWQ} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.AWQ} \approx -1.00 \qquad\qquad\qquad H_2: \rho_{IWSOF\text{-}IWSRF.AWQ} \approx 1.00$$

Once again detailed statistical information is provided in Appendix B. Discussion of results will be limited to the main scales.

1)   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed

The level of stress (LOS) scores for subjects belonging to the age group 20-29 and 40-49 did not correlate significantly with the witnessed total aggression (WTOT) scale of the AWQ. For the

age group 30-39 and 50 years or older a significant and positive correlation was obtained with witnessed total aggression (WTOT), namely 0.531 and 0.425 respectively. In both cases WTOT was supported by the three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV).

For the 20-29 and 40-49 year old subjects no significant correlation occurred between the indicators level of stress and witnessed total aggression. Associated levels of stress for both age groups generally confirmed the null hypothesis.

The most consistent co-relationships were found for the age groups 30-39 and 50 years or older for the indicator level of stress with witnessed total aggression in the workplace. This indicator, namely level of stress correlated significantly with witnessed total aggression in the workplace. Again high levels of perceived stress co-related to high levels of witnessed aggression in the workplace and vice versa. Thus this indicator once again confirmed the alternative hypothesis H_1.

2) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced

For the age group 20-29 and 30-39 level of stress (LOS) scores correlated significantly and positively with experienced total aggression (ETOT) of the AWQ with the correlations being 0.572 for the former and 0.522 for the latter. In both analyses all three subscales, namely experienced expression of hostility (EEH), experienced obstructionism (EOB), and experienced overt aggression (EOV) confirmed the trends of the main scale. However for the age group 40-49 and 50 years or older no significant correlations could be traced.

For the age group 20-29 and 30-39 correlations between the indicator level of stress and experienced total aggression were the most consistent co-relationships. This indicator also correlated significantly with experienced total aggression in the workplace. High levels of stress on this indicator co-related to high levels of experienced aggression in the workplace and vice versa thus confirming the alternative hypothesis H_1.

Regarding the 40-49 year old and 50 years or older subjects, no significant correlation between the two main scales LOS and ETOT was obtained. In this case level of stress generally confirmed the null hypothesis.

9.5.4.2 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale

Analyses of relevant Pearson correlation coefficients for each of the variables of the Experience of Work and Life Circumstances Questionnaire associated with the each of the variables of the IPAT Anxiety Scale (IAS) were done for each age grouping (refer to Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire associated with all of the variables of the IPAT Anxiety Scale per age groups are as follows:

$$H_0: \rho_{LOS,OWS.IPAT} = 0.00 \quad \text{or} \quad H_0: \rho_{IWSOF\text{-}IWSRF.IPAT} = 0.00$$
$$H_1: \rho_{LOS,OWS.IPAT} \approx 1.00 \quad\quad\quad H_1: \rho_{IWSOF\text{-}IWSRF.IPAT} \approx -1.00$$
$$H_2: \rho_{LOS,OWS.IPAT} \approx -1.00 \quad\quad\quad H_2: \rho_{IWSOF\text{-}IWSRF.IPAT} \approx 1.00$$

Detailed correlation coefficients appear in Appendix B. Hence only the results of only the main scales will be presented.

The level of stress (LOS) scores for the age groups 20-29, 30-39, 40-49, and 50 years or older correlated significantly and positively with the main scale, namely the total anxiety score (TAS) of the IAS producing corresponding correlations of 0.529, 0.554, 0.623, and 0.608 respectively. The main scale was supported by all of the subscales, namely factor $-Q_3$, factor Q_4, factor -C, factor L, factor O, Score A, and Score B in the case of the second and third age groups. In the case of the first age group it was supported only by five of the seven, namely factor $-Q_3$, factor Q_4, factor O, Score A, and Score B for the first age group and by six of the seven subscales, namely factor $-Q_3$, factor Q_4, factor -C, factor O, Score A, and Score B.

The most consistent co-relationship was obtained for level of stress associated with total anxiety for each of the four age groups, namely 20-29, 30-39, 40-49, and 50 years or older. The indicator level of stress for all four age groups correlated significantly with the scale total anxiety. High levels of stress on this indicator co-related to high levels of total anxiety and vice versa thus confirming the alternative hypothesis H_1.

9.5.4.3 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory

Correlation analyses of appropriate Pearson correlation coefficients derived from the association between each of the variables of the Experience of Work and Life Circumstances Questionnaire and the Beck Depression Inventory (BDI) were done for each of the four age groups (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for the age groups are as follows:

H_0: $\rho_{WLQ.BDI} = 0.00$
H_1: $\rho_{WLQ.BDI} \approx 1.00$
H_2: $\rho_{WLQ.BDI} \approx -1.00$

The reader will find further detailed information in Appendix B. Only the results of the main scales will be presented here.

For all four age groups, namely 20-29, 30-39, 40-49, and 50 years or older a significant and positive correlation was found for level of stress (LOS) and the depression scale of the Beck Depression Inventory (BDI). The respective correlations for the four age groups were 0.649, 0.674, 0.627, and 0.754.

The most consistent co-relationship was delineated for level of stress and depression for subjects from the age groups 20-29, 30-39, 40-49, and 50 years or older. This indicator also correlated significantly with depression. High levels of stress on this indicator co-related to high levels of depression and vice versa thus confirming the alternative hypothesis H_1.

9.5.4.4 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire

Correlation analyses deriving the Pearson Correlation Coefficients for each of the variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire (PSWQ) were obtained for the four age groups (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for the age groups are as follows:

H_0: $\rho_{WLQ.WORRY} = 0.00$
H_1: $\rho_{WLQ.WORRY} \approx 1.00$
H_2: $\rho_{WLQ.WORRY} \approx -1.00$

For a detailed analysis the reader is referred to Appendix B as the results of only the main scales will be presented.

For the subjects' belonging to the four age groups, namely 20-29, 30-39, 40-49, and 50 years or older a significant and positive correlation was obtained for their level of stress (LOS) scores. Their corresponding correlations were found to be 0.615, 0.498, 0.447, and 0.626 respectively.

Again the most consistent co-relationships were delineated for the age group 20-29, 30-39, 40-49, and 50 years or older for level of stress with worry. Once again these indicators correlated

significantly with worry. High levels of stress on any indicator co-related to high levels of worry and vice versa thus confirming the alternative hypothesis H_1.

9.5.4.5 *Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised*

Correlation analyses of the Pearson correlation coefficients for each of the variables of the Experience of Work and Life Circumstances Questionnaire being associated with each of the variables of the Social Problem-Solving Inventory-Revised (SPSIR) were done for the four age groups (Appendix B). The three hypotheses that were studied for all variables of the Experience of Work and Life Circumstances Questionnaire co-related with all the variables of the Social Problem-Solving Inventory-Revised (SPSIR) for the different age groups are as follows:

$$H_0: \rho_{WLQ.SPSIR} = 0.00$$
$$H_1: \rho_{WLQ.SPSIR} \approx 1.00$$
$$H_2: \rho_{WLQ.SPSIR} \approx -1.00$$

Detailed statistical information is included in Appendix B. The results of the main scales will be highlighted.

Level of stress (LOS) correlated significantly but negatively with the social problem solving (SPS) scale of the SPSIR with regard to the age groups 30-39 and 40-49, the respective values being -0.302 and -0.432. The main scale for the former was supported by three of the nine scales and subscales, namely negative problem orientation (NPO), impulsivity/carelessness style (ICS), and avoidance style (AS) and for the latter by four, namely positive problem orientation (PPO), negative problem orientation (NPO), problem definition and formulation (PDF), and impulsivity/carelessness style (ICS).

No significant correlations were observed for the age groups 20-29 and 50 years or older. Likewise, for these two age groups no significant correlations were found between the main scale SPS and level of stress thus generally confirming the null hypothesis.

In the case of the 30-39 and 40-49 year old subjects' the indicator level of stress, when associated with social problem solving, produced the most consistent co-relationship. Furthermore this indicator correlated significantly with social problem solving. High levels of perceived stress on this indicator co-related to low levels of social problem solving and vice versa. They thus confirmed the alternative hypothesis H_2.

9.5.5   Organization groupings

9.5.5.1   *Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire*

Correlation analyses next targeted the Pearson correlation coefficients between each of the variables of the Experience of Work and Life Circumstances Questionnaire and all of the variables of the Aggression in the Workplace Questionnaire (experienced and witnessed) and differentiated for each type of organization grouping (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with all the variables of the Workplace Questionnaire-experienced and -witnessed for type of organization grouping are as follows:

$$H_0: \rho_{WLQ.AWQ} = 0.00$$
$$H_1: \rho_{WLQ.AWQ} \approx 1.00$$
$$H_2: \rho_{WLQ.AWQ} \approx -1.00$$

As usual detailed statistical data is presented in Appendix B. Hence, only the results of the main scales will be presented.

1)   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed

From the results it can be seen that for both production/services organizations and academic/auxiliary service groupings the level of stress (LOS) scores of the subjects correlated significantly and positively with the main scale, namely witnessed total aggression (WTOT) of the AWQ. The respective correlation coefficients were found to be 0.406 and 0.652. The main scale trends in both cases were supported by all three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV). No significant correlations were obtained for the remaining two types of organization groupings.

For both financial and research and development organizations level of stress did not correlate significantly with witnessed total aggression. In this instance, the indicator level of stress therefore confirmed the null hypothesis.

Regarding production/services and academic/auxiliary services organizations the most consistent co-relationships were obtained for level of stress and witnessed total aggression. The indicator level of stress correlated again significantly with witnessed total aggression. High levels of perceived stress on this indicator co-related to high levels of witnessed aggression in

2)   Experience of Work and Life Circumstances Questionnaire with the Aggression in the
Workplace Questionnaire-experienced

In the case of the financial, production/services, and academic/auxiliary services organization
groupings, level of stress (LOS) correlated significantly and positively with the main AWQ scale,
namely experienced total aggression (ETOT). The respective correlations were found to be
0.364, 0.354, and 0.283. The main scale trend for the first organization grouping was supported
by experience expressions of hostility (EEH) and experienced overt aggression (EOV), for the
second organization grouping by EEH and experienced obstructionism (EOB), and for the third
organization grouping by all three subscales. No significant correlation could be delineated for
research and development organizations.

For financial, production/services as well as academic/auxiliary organizations the most
consistent co-relationship was found between level of stress and experienced total aggression.
Again the indicator level of stress correlated significantly with experienced total aggression.
High levels of perceived stress on this indicator co-related to high levels of experienced
aggression in the workplace and vice versa. The alternative hypothesis H$_1$ was confirmed in
general for this indicator.

Only in the case of research and development organizations was no significant correlation with
level of stress found. Thus the indicator level of stress generally confirmed the null hypothesis.

9.5.5.2 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale

Correlation analyses next focused on those Pearson correlation coefficients calculated for each
of the variables of the Experience of Work and Life Circumstances Questionnaire and each of
the variables of the IPAT Anxiety Scale (IAS), done for each type of organization grouping
(Appendix B). The three hypotheses that were investigated for each of the variables of the
Experience of Work and Life Circumstances Questionnaire with all of the variables of the IPAT
Anxiety Scale for type of organization grouping are as follows:

$$H_0: \rho_{WLQ.IPAT} = 0.00$$
$$H_1: \rho_{WLQ.IPAT} \approx 1.00$$
$$H_2: \rho_{WLQ.IPAT} \approx -1.00$$

The contents of Appendix B provide detailed information relevant to theses analyses. Once
again the results of only the main scales will be presented.

Level of stress (LOS) correlated significantly and positively with the total anxiety score (TAS) of the IAS main scale, the conclusion holding for all four organization groupings, namely financial (r = 0.717), production/services (r = 0.660), research and development (r = 0.451), and academic/auxiliary organizations (r = 0.434). The main scale in the first and second case was supported by all seven IAS subscales, namely factor -Q_3, factor Q_4, factor -C, factor L, factor O, Score A, and Sore B. For the third organization grouping LOS co-related with six of the seven IAS subscales, namely factor -Q_3, factor Q_4, factor -C, factor O, Score A, and Sore B and in the last case by five of the seven subscales, namely factor Q_4, factor -C, factor O, Score A, and Sore B.

For financial, production/services, research and development, and academic/auxiliary services organizations the most consistent co-relationship was found between level of stress and total anxiety. The indicator level of stress correlated significantly with total anxiety. High levels of perceived stress on this indicator co-related to high levels of total anxiety and vice versa. The alternative hypothesis H_1 was confirmed in general for this indicator.

9.5.5.3 *Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory*

Correlation analyses of the Pearson correlation coefficients between on the one hand each of the variables of the Experience of Work and Life Circumstances Questionnaire and on the other hand the Beck Depression Inventory (BDI) followed next done separately for each type of organization grouping (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for type of organization grouping are as follows:

$$H_0: \rho_{WLQ.BDI} = 0.00$$
$$H_1: \rho_{WLQ.BDI} \approx 1.00$$
$$H_2: \rho_{WLQ.BDI} \approx -1.00$$

For a detailed analysis the reader is referred to Appendix B as the results of only the main scales will be presented.

A significant and positive correlation was obtained between level of stress (LOS) and depression, as measured by the Beck Depression Inventory (BDI), for all four types of organization groupings. The respective correlations were for financial organizations 0.738, production/services organizations 0.701, research and development organizations 0.498, and academic/auxiliary services organizations 0.619.

The most consistent co-relationships between level of stress and depression were observed with regard to financial, production/services, research and development, as well as academic/auxiliary services organizations. Again the indicator level of stress correlated significantly with depression. High levels of perceived stress on this indicator co-related to high levels of depression and vice versa. The alternative hypothesis H_1 was again confirmed in general for this indicator.

9.5.5.4 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire

Correlation analyses based on the Pearson correlation coefficients obtained for each of the variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire (PSWQ), were done next by type of organization grouping (Appendix B). The three hypotheses that were investigated considered the co-variation between all variables of the Experience of Work and Life Circumstances Questionnaire and the Penn State Worry Questionnaire per type of organization grouping and are as follows:

$$H_0: \rho_{WLQ.WORRY} = 0.00$$
$$H_1: \rho_{WLQ.WORRY} \approx 1.00$$
$$H_2: \rho_{WLQ.WORRY} \approx -1.00$$

The reader might peruse Appendix B for more detailed information. Here the focus will be on the results of the main scales.

The subjects' level of stress (LOS) scores correlated significantly and positively with worry as measured by the Penn State Worry Questionnaire (PSWQ) for all four types of organization groupings, namely financial (r = 0.452), production/services (r = 0.587), research and development (r = 0.485), and academic/auxiliary services organizations (r = 0.488).

In the case of financial, production/services, research and development, and academic/auxiliary services organizations the most consistent co-relationship with worry appeared to be the level of stress. The indicator level of stress correlated significantly with worry. High levels of perceived stress on this indicator co-related to high levels of worry and vice versa. The alternative hypothesis H_1 was confirmed in general for this indicator.

9.5.5.5 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised

Correlation analyses next were directed at the Pearson correlation coefficients relating to each of the variables of the Experience of Work and Life Circumstances Questionnaire and all the

variables of the Social Problem-Solving Inventory-Revised (SPSIR), once again done per type of organization grouping (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire and the Social Problem-Solving Inventory-Revised (SPSIR) by type of organization grouping are as follows:

$$H_0: \rho_{WLQ.SPSIR} = 0.00$$
$$H_1: \rho_{WLQ.SPSIR} \approx 1.00$$
$$H_2: \rho_{WLQ.SPSIR} \approx -1.00$$

The reader will find more detailed information in Appendix B. Thus only the results of the main scales will be discussed here.

The subjects' level of stress (LOS) scores correlated significantly but negatively with the main scale of the SPSIR, namely social problem solving (SPS) but for only financial (r = -0.530) and production/services organizations (r = -0.449). In the former case the main scale supported by eight of the nine subscales, namely positive problem orientation (PPO), negative problem orientation (NPO), rational problem solving (RPS), problem definition and formulation (PDF), generation of alternatives (GA), decision making (DM), impulsivity/carelessness style (ICS), and avoidance style (AS) and for the latter case by four scales and subscales of the SPSIR, namely positive problem orientation (PPO), negative problem orientation (NPO), impulsivity/carelessness style (ICS), and avoidance style (AS). No significant correlations could be found for research and development and academic/auxiliary services organizations.

Regarding financial and production/services organizations the most consistent co-relationship was found for level of stress associated with social problem solving. The indicator level of stress correlated significantly with social problem solving. High levels of perceived stress on this indicator co-related to low levels of social problem solving and vice versa. The alternative hypothesis H_2 was confirmed in general for this indicator.

In the case of research and development academic/auxiliary services organizations no significant co-relationships were found. The indicator level of stress generally confirmed the null hypothesis for both organization groupings.

9.5.6   *Qualification groupings*

9.5.6.1   *Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire*

Correlation analyses were also done on the Pearson correlation coefficients derived for each of the variables of the Experience of Work and Life Circumstances Questionnaire compared with

all of the variables of the Aggression in the Workplace Questionnaire (both experienced and witnessed), in this case for each the five qualification groupings (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with all variables of the Aggression in the Workplace Questionnaire (experienced and witnessed) for each of the five qualification groupings are as follows:

$$H_0: \rho_{WLQ.AWQ} = 0.00$$
$$H_1: \rho_{WLQ.AWQ} \approx 1.00$$
$$H_2: \rho_{WLQ.AWQ} \approx -1.00$$

Detailed information is once more provided in Appendix B. Only the results of the main scales will be presented.

1) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed

From the results it can be seen that the subjects' level of stress (LOS) scores correlated significantly and positively with their scores on the AWQ, namely for witnessed total aggression (WTOT) for all subjects with Grade 12 or lower ($r = 0.366$), all holders of Diplomas ($r = 0.359$), Honours or equivalent degrees ($r = 0.587$), and Masters or Doctoral degrees ($r = 0.393$). For subjects with Grade 12 or lower or Honours or equivalent degrees, the main scale correlations were supported by all three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV). In the case of all subjects with Diplomas the main scale trend was supported by only WOB and for those with Masters or Doctoral degrees by WEH and WOV. No significant correlations with LOS were at all found for recipients of Bachelors degrees.

For subjects with Grade 12 or lower, holders of Diplomas, Honours or equivalent degrees, and for graduates with Masters or Doctoral degrees the most consistent co-relationship was found for level of stress when associated with witnessed total aggression. The indicator level of stress correlated significantly with witnessed total aggression. High levels of perceived stress on these indicators co-related to high levels of witnessed aggression in the workplace and vice versa. The alternative hypothesis H_1 was confirmed in general for this indicator.

In the case of holders of Bachelors degrees no significant co-relationship was obtained. The indicator level of stress generally confirmed the null hypothesis.

2)   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced

The subjects' level of stress (LOS) scores correlated significantly and positively with their scores on the main scale of the AWQ, namely witnessed total aggression (WTOT).   The aforementioned conclusion held for all subjects with Grade 12 or lower (r = 0.378), those with Honours or equivalent degrees (r = 0.650), and for those with Masters or Doctoral degrees (r = 0.379). The main scale trend was supported by all three subscales, namely witnessed expressions of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOV) in the case of subjects with Honours or equivalent degrees and holders of Masters or Doctoral degrees. In the case of subjects who had achieved Grade 12 or lower, the observed trend was supported by EEH and EOB. No significant correlations with LOS were obtained for holders of Diplomas or Bachelors degrees.

For those participants with Grade 12 or lower, Honours or equivalent degrees, or Masters or Doctoral degrees the most consistent co-relationship was found for level of stress when associated with experienced total aggression. The indicator level of stress correlated significantly with experienced total aggression. High levels of perceived stress on this indicator co-related to high levels of experience aggression in the workplace and vice versa. The alternative hypothesis H_1 was confirmed in general for this indicator.

In the case of all Diplomas and all Bachelors degrees no significant co-relationship was delineated. The indicator level of stress generally confirmed the null hypothesis.

9.5.6.2 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale

Correlation analyses aimed at the Pearson correlation coefficients that were obtained when comparing the variables of the Experience of Work and Life Circumstances Questionnaire with all the variables of the IPAT Anxiety Scale (IAS) were done for each qualification grouping (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the IPAT Anxiety Scale for qualification grouping are as follows:

H_0: $\rho_{WLQ.IPAT} = 0.00$
H_1: $\rho_{WLQ.IPAT} \approx 1.00$
H_2: $\rho_{WLQ.IPAT} \approx -1.00$

Appendix B once again contains relevant detailed information. The discussion hereafter will be limited to the results of the main scales.

Once more the subjects' level of stress (LOS) scores correlated significantly and positively with their total anxiety scores on the IAS, an assumption holding for all five qualification groupings, namely for those with Grade 12 or lower (r = 0.740), Diplomas (r = 0.597), Bachelor degrees (r = 0.582), Honours or equivalent degrees (r = 0.564), and Masters or Doctoral degrees (r = 0.447). In the case of subjects with grade 12 or lower the main scale trend was supported by all seven of the subscales of the IAS, namely factor $-Q_3$, factor Q_4, factor $-C$, factor L, factor O, Score A, and Sore B. For all holders of Diplomas, Honours or equivalent degrees, and Masters or Doctoral degrees the trend was supported by six of the seven subscales excluding factor $-C$ for the first grouping, factor $-Q_3$ for the second grouping, and factor L for the last grouping. In the case of subjects with Bachelor degrees the main scale was supported by five of the subscales, namely factor Q_4, factor $-C$, factor O, Score A, and Sore B.

The most consistent co-relationship for all five qualification groupings, namely persons with Grade 12 or lower, Diplomas, Bachelors degrees, Honours or equivalent degrees, and Masters or Doctoral degrees was found when level of stress was associated with total anxiety. The indicator level of stress correlated significantly with total anxiety. High levels of perceived stress on this indicator co-related to high levels of total anxiety and vice versa. The alternative hypothesis H_1 was confirmed in general for this indicator.

9.5.6.3 *Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory*

The following correlation analyses centred on Pearson correlation coefficients that were calculated for each of the variables of the Experience of Work and Life Circumstances Questionnaire related to the Beck Depression Inventory (BDI), and were done for each qualification grouping (Appendix B). The three hypotheses that were investigated for all comparisons involving the variables of the Experience of Work and Life Circumstances Questionnaire and the Beck Depression Inventory for the qualification groupings are as follows:

H_0: $\rho_{WLQ.BDI} = 0.00$
H_1: $\rho_{WLQ.BDI} \approx 1.00$
H_2: $\rho_{WLQ.BDI} \approx -1.00$

Further detailed information appears in Appendix B. As a result only the effect of the main scales will be presented.

Also in this case the subjects' level of stress (LOS) scores did correlate significantly and positively for all five qualification groupings, namely for subjects with Grade 12 or lower (r = 0.773, all holders of Diplomas (r = 0.757), Bachelor degrees (r = 0.439), Honours or equivalent degrees (r = 606), and Masters or Doctoral degrees (r = 0.614).

218

The most consistent co-relationship with depression was found for level of stress: this also held for all five qualification groupings, namely subjects with Grade 12 or lower, holders of Diplomas, Bachelors degrees, Honours or equivalent degrees, and for those with Masters or Doctoral degrees. The indicator level of stress correlated significantly with depression. High levels of perceived stress on this indicator co-related to high levels of depression and vice versa. The alternative hypothesis H_1 was confirmed in general for this indicator.

9.5.6.4 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire

Correlation analyses were done by means of the Pearson correlation coefficients that resulted for the association of each of the variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire (PSWQ) and were undertaken per qualification grouping (Appendix B). The three hypotheses that were investigated by associating all variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire, done for each qualification grouping, are as follows:

$$H_0: \rho_{WLQ.WORRY} = 0.00$$
$$H_1: \rho_{WLQ.WORRY} \approx 1.00$$
$$H_2: \rho_{WLQ.WORRY} \approx -1.00$$

The reader will once more find detailed information in Appendix B. Here the results of only the main scales will be presented.

The subjects' level of stress scores correlated significantly and positively with worry for four of the five qualification groupings, namely for participants with Grade 12 or lower (r = 0.601, Diplomas (r = 0.508), Honours or equivalent degrees (r = 0.590), and Masters or Doctoral degrees (r = 0.531). Only in the case of graduates with Bachelor degrees no significant correlations were obtained.

The most consistent co-relationship with worry was found for level of stress, a trend that held for four of the five qualification groupings, namely for those with Grade 12 or lower, Diplomas, Honours or equivalent degrees, and Masters or Doctoral degrees. The indicator level of stress noticeably correlated with worry. High levels of perceived stress on this indicator co-related to high levels of worry and vice versa. The alternative hypothesis H_1 in general was confirmed in general for this indicator. However in the case of persons with Bachelors degrees no significant correlation with the indicator level of stress was found. Thus for this qualification grouping the null hypothesis was confirmed.

9.5.6.5 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised

Correlation analyses of all Pearson correlation coefficients derived from the comparison of all the variables of the Experience of Work and Life Circumstances Questionnaire with every variable of the Social Problem-Solving Inventory-Revised (SPSIR) were done next per qualification grouping (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with all the variables of the Social Problem-Solving Inventory-Revised (SPSIR) for qualification grouping are as follows:

$$H_0: \rho_{WLQ.SPSIR} = 0.00$$
$$H_1: \rho_{WLQ.SPSIR} \approx 1.00$$
$$H_2: \rho_{WLQ.SPSIR} \approx -1.00$$

More detailed information appears in Appendix B. Hence only the results of the main scales will be presented.

The subjects' level of stress (LOS) scores correlated significantly but negatively with their scores on the main scale of SPSIR, namely social problem solving (SPS), but only for subjects with Grade 12 or lower ($r = -0.614$) or Masters or Doctoral degrees ($r = -0.313$). The remaining qualification groupings did not produce significant correlations. For participants with Grade 12 or lower, the main scale trend was supported by all nine scales and subscales of the SPSIR, namely positive problem orientation (PPO), negative problem orientation (NPO), rational problem solving (RPS), problem definition and formulation (PDF), generation of alternatives (GA), decision making (DM), solution implementation and verification (SIV), impulsivity/carelessness style (ICS), as well as avoidance style (AS). In the case of participants with Masters or Doctoral degrees the trend was supported by only three of the scales and subscales, namely positive problem orientation (PPO), negative problem orientation (NPO), and avoidance style (AS).

The most consistent co-relationship with level of stress was found for social problem solving but for only two of the five qualification groupings, namely subjects with Grade 12 or less or Masters or Doctoral degrees. The indicator level of stress correlated significantly with social problem solving. High levels of perceived stress on this indicator co-related with low levels of social problem solving and vice versa. In general the alternative hypothesis H_1 was confirmed for this indicator. However in the case of all participants with Diplomas, Bachelors degrees, or Honours or equivalent degrees, no significant correlation with the indicator level of stress was found. Thus for these three qualification groupings the null hypothesis was confirmed.

9.5.7 Position levels

9.5.7.1 *Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire*

Correlation analyses of relevant Pearson correlation coefficients arising from the comparisons of each of the variables of the Experience of Work and Life Circumstances Questionnaire with those of the Aggression in the Workplace Questionnaire, for both experienced and witnessed aggression, were done for each of the three position levels (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with all the variables of the Workplace Questionnaire-experienced and -witnessed for the three position levels are as follows:

$$H_0: \rho_{WLQ.AWQ} = 0.00$$
$$H_1: \rho_{WLQ.AWQ} \approx 1.00$$
$$H_2: \rho_{WLQ.AWQ} \approx -1.00$$

More detailed statistical information appears in Appendix B. Here the results of the main scales will be presented.

1) Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed

Level of stress (LOS) scores of the subjects' correlated significantly and positively with their witnessed total aggression scores (WTOT) on the AWQ, a trend that held for all three position levels, namely senior management (r = 0.335), middle management (r = 0.484), and specialist staff (r = 0.387). For participants from senior management, middle management as well as specialist staff, the main scale WTOT was supported by all three of the subscales of the AWQ, namely witnessed expression of hostility (WEH), witnessed obstructionism (WOB), and witnessed overt aggression (WOB).

For all three position levels, namely senior management, middle management, and specialist staff the most consistent co-relationship with level of stress was found for witnessed total aggression. The indicator level of stress correlated significantly. High levels of perceived stress on this indicator co-related to high levels of witnessed aggression in the workplace and vice versa. The alternative hypothesis H_1 was confirmed in general for this indicator.

2)   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced

The subjects' level of stress (LOS) scores correlated significantly and positively with their experienced total aggression (ETOT), as measured by the AWQ, producing coefficients of 0.549 in the case of middle management, and 0.356 in the case of specialist staff. No significant correlation was delineated for senior management.

The main scale ETOT for both middle management and specialist staff was supported by two of the three subscales of the AWQ, namely witnessed expression of hostility (WEH) and witnessed obstructionism (WOB).

Again the most consistent co-relationship was found for level of stress but only for those from the middle management level and among specialist staff. The indicator level of stress correlated significantly with experienced total aggression. High levels of perceived stress on this indicator co-related to high levels of experienced aggression in the workplace and vice versa. In the case of middle management and specialist staff the alternative hypothesis H_1 was confirmed in general for this indicator. Senior management on the other hand did not correlate significantly with the indicator level of stress thus confirming the null hypothesis.

9.5.7.2 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale

Correlation analyses based on Pearson correlation coefficients pertaining to each of the variables of the Experience of Work and Life Circumstances Questionnaire and those of the IPAT Anxiety Scale (IAS) were done once again for each individual position level (Appendix B). The three hypotheses that were investigated for each of the variables of the Experience of Work and Life Circumstances Questionnaire with all of the variables of the IPAT Anxiety Scale for the three position levels are as follows:

$$H_0: \rho_{WLQ.IPAT} = 0.00$$
$$H_1: \rho_{WLQ.IPAT} \approx 1.00$$
$$H_2: \rho_{WLQ.IPAT} \approx -1.00$$

The reader is referred to Appendix B for more detailed information. Here the results of only the main scales will be highlighted.

 A significant and positive correlation was obtained for level of stress with the total anxiety score of the IAS for the three position levels, namely senior management (r = 0.611), middle management (r = 0.504), and specialist staff (r = 0.610).

The main scale for both senior and middle management was supported by all seven subscales of the IAS, namely factor -Q_3, factor Q_4, factor -C, factor L, factor O, Score A, and Sore B. However for specialist staff the main scale was supported by five of the seven subscales excluding factor -C and factor L.

For all three position levels, namely senior management, middle management, and specialist staff, level of stress once again produced the most consistent co-relationship. This indicator correlated significantly with total anxiety. High levels of perceived stress on this indicator co-related with high levels of total anxiety and vice versa. For all three position levels the alternative hypothesis H_1 was confirmed in general for this indicator.

9.5.7.3 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory

The next correlation analyses focused on Pearson correlation coefficients for calculated for each of the variables of the Experience of Work and Life Circumstances Questionnaire as they related to the Beck Depression Inventory (BDI) and were obtained for each position level (Appendix B). The three underlying hypotheses that were formulated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for the three position levels are as follows:

$$H_0: \rho_{WLQ.BDI} = 0.00$$
$$H_1: \rho_{WLQ.BDI} \approx 1.00$$
$$H_2: \rho_{WLQ.BDI} \approx -1.00$$

Detailed co-relational information is provided in Appendix B. Results of the main scales will be presented here.

The level of stress (LOS) scores of the subjects' correlated significantly and positively with depression, namely for all three position levels, that is for participants from senior management ($r = 0.727$), middle management ($r = 0.617$), and specialist staff ($r = 0.534$).

The most consistent co-relationship for the three position levels, namely senior management, middle management, and specialist staff, was the level of stress. The indicator level of stress correlated significantly with depression. High levels of perceived stress on this indicator co-related with high levels of depression and vice versa. In general the alternative hypothesis H_1 was confirmed for this indicator.

9.5.7.4 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire

The penultimate correlation analyses targeted those Pearson correlation coefficients that were produced when comparing each of the variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire (PSWQ) scores: analyses were done for each of the three position levels (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for the three position levels are as follows:

$$H_0: \rho_{WLQ.WORRY} = 0.00$$
$$H_1: \rho_{WLQ.WORRY} \approx 1.00$$
$$H_2: \rho_{WLQ.WORRY} \approx -1.00$$

Detailed information appears in Appendix B. Here only the results of the main scales will be discussed.

Again for all three position segments, the level of stress (LOS) scores of the subjects' correlated significantly and positively with worry, namely for senior management (r = 0.610), middle management (r = 0.367), and for specialist staff (r = 0.512).

For the three position levels, namely senior management, middle management, and specialist staff, the most consistent co-relationship with worry again was found to be the level of stress. This particular indicator correlated significantly with worry. High levels of perceived stress on this indicator co-related with high levels of worry and vice versa. For all three position levels the alternative hypothesis H_1 in general was confirmed for this indicator.

9.5.7.5 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised

The final correlation analyses investigated all Pearson correlation coefficients derived at by associating each of the variables of the Experience of Work and Life Circumstances Questionnaire with each of the variables of the Social Problem-Solving Inventory-Revised (SPSIR), and were done for each of the three position levels (Appendix B). The three hypotheses that were investigated for all variables of the Experience of Work and Life Circumstances Questionnaire with all the variables of the Social Problem-Solving Inventory-Revised (SPSIR) for position levels are as follows:

H_0: $\rho_{WLQ.SPSIR} = 0.00$
H_1: $\rho_{WLQ.SPSIR} \approx 1.00$
H_2: $\rho_{WLQ.SPSIR} \approx -1.00$

Appendix B contains further detailed information. The results of the main scales will be presented here.

Again the subjects' level of stress (LOS) scores correlated significantly but negatively with the social problem solving scale of the SPSIR, but only for two of the three position levels, namely senior (r = -0.342) and middle management (r = -0.421). No significant correlation was found for the specialist staff category. Three of the nine scales and subscales of the SPSIR supported the main scale trend, namely negative problem orientation (NPO), impulsivity/carelessness style (ICS), and avoidance style (AS) with regard to senior management. In the case of middle management the main scale was supported by four of the nine scales and subscales, namely positive problem orientation (PPO), negative problem orientation (NPO), impulsivity/carelessness style (ICS), and avoidance style (AS).

For senior and middle management the most consistent co-relationship with social problem solving once again proved to be level of stress. The indicator level of stress correlated significantly with social problem solving. High levels of perceived stress on this indicator co-related to low levels of social problem solving and vice versa. For these two position levels the alternative hypothesis H_1 was confirmed in general for this indicator. However in the case of specialist staff no significant correlations could be found. Thus in this case the indicator level of stress in general confirmed the null hypothesis.

9.6   Effect size, d

The effect size was calculated by means of of the d-transformation formula:

$$d = \frac{\bar{x}_1 - \bar{x}_2}{S_{pooled}}$$

where subscript 1 designated the arithmetic mean of the total sample (or experimental group) and subscript 2 to that of the subsample (or control group). Any bias was corrected using the following formula (Hedges & Olkin in Coe, 2000):

$$d_{corrected} \cong d \times \left(1 - \frac{3}{\{4(N_E + N_C) - 9\}}\right)$$

9.7   Conclusion

Quantitative analysis of the scored data collected by means of the questionnaires was completed. It included descriptive statistics for the variables measured by each questionnaire, determination of the Cronbach alpha reliability coefficients for each of these instruments, inferential statistics including z-tests, t-tests for related groups, general linear modelling with ANOVA option, Scheffé tests, the determination of Pearson correlation coefficients between the various variables measured by the tests, and effect size with respect to the total group, the two genders, the four age groups, the two marital categories, the four business sectors, the five qualification divisions, and the three position levels. The results obtained allow the researcher to determine the similarities and differences that occur for this specific group of participants as a whole, but also for the five biographical variables. Also the Pearson correlation coefficients give the researcher an indication of the underlying relationships that exist between the dependent an independent variables. The results obtained in the analysis as outlined in this chapter will now be interpreted and discussed in more detail in the following chapter.

CHAPTER 10

DISCUSSION

10.1   Introduction

The purpose of this chapter is to discuss the findings obtained for the quantitative analysis of the scored data collected by means of the questionnaires. The discussion will focus on Cronbach's alpha reliability coefficients, inferential statistics and a range of Pearson correlation coefficients calculated for the total group, the two genders, the four age groups, as well as for the two marital categories, the four business sectors, the five qualification groupings, and the three position levels with reference to the eight scales of the Experience of Work and Life Circumstances Questionnaire, the four scales for both experienced and witnessed aggression of the Aggression in the Workplace Questionnaire, the eight IPAT Anxiety Scales, the Beck Depression Inventory, the Penn State Worry Questionnaire, and the ten scales and subscales of the Social Problem-Solving Inventory– Revised. Effect size will also be briefly considered. A number of shortcomings and implications for further research will be made based on the results and the discussion.

10.2   Cronbach alpha reliability coefficients

10.2.1 Experience of Work and Life Circumstances Questionnaire

The Experience of Work and Life Circumstances Questionnaire (WLQ) was developed by the HSRC for the South African context to assess the levels of overall stress and the different sources of stress experienced by the individual in the workplace (Van Zyl & Van der Walt, 1991: 1).

The Cronbach alpha reliability coefficient was determined for the WLQ and its subscales. Good to very good reliability could be demonstrated for all the subscales and the overall scale. In comparison, Van Zyl and Van der Walt (1991: 21) reported reliability coefficients for all of the subscales ranging from 0.83 to 0.92 (KR) compared to 0.74 to 0.95 obtained in this study. There is no immediate further need to re-evaluate the reliability of this questionnaire. The scales can therefore be interpreted with confidence both in research and in counselling.

10.2.2 Aggression in the Workplace Questionnaire

Baron and Neuman (1996: 161) developed the Aggression in the Workplace Questionnaire (AWQ) to assess non-violent types of aggression that individuals either witness or experience in the workplace.

The Cronbach alpha reliability coefficient was determined for the AWQ and its main and subscales. All subscales produced adequate to good reliability, with coefficients ranging from 0.57 to 0.91 for witnessed aggression and from 0.60 to 0.92 for experienced aggression. Coefficients of 0.94 for the overall scale of witnessed aggression and 0.95 for experienced aggression were calculated. The estimates supported effective use of the questionnaire in organizational research and individual counseling. No comparative data was available as Baron and Neuman (1996: 161) did not report any reliability coefficients.

10.2.3 IPAT Anxiety Scale

The IPAT Anxiety Scale was developed as a brief, non-stressful instrument to measure anxiety.

Again the Cronbach alpha reliability coefficient was calculated for the IPAT Anxiety Scale and its eight scales. All of the eight scales had very good reliability coefficients with their values ranging from 0.84 to 0.98. For purposes of comparison, Cattell, Scheier, and Madge (1995: 5) reported reliability estimates based only on the total score, and these ranged from 0.78 to 0.83 (Ferguson's variation on Kuder-Richardson 20) depending on the sample. For the specific sample under consideration in this study the reliability coefficient for the total score was 0.98. The results are indicative that the IPAT Anxiety Scale may be used with confidence in research and individual counselling.

10.2.4 Beck Depression Inventory

The Beck Depression Inventory (BDI) was developed as a brief and efficient means of detecting and determining the severity of depression. McDowell and Newell (in Michalak *et al*, 2004: 100) generally consider it to be one of the best screening tools for depression.

The Cronbach alpha reliability coefficient was also obtained for the BDI. A coefficient of 0.95 was achieved, indicating very good reliability. In a literature review focusing on the psychometric properties of the BDI with both psychiatric and non-psychiatric samples, mean coefficient alphas of 0.86 for the former and 0.81 for the latter were obtained (Beck *et al*, 1988: 80). The result confirms that the BDI may be used with confidence in both research and counselling.

10.2.5 Penn State Worry Questionnaire

The Penn State Worry Questionnaire (PSWQ) was developed to research the phenomenon of worry and its relationship to anxiety.

The Cronbach alpha reliability coefficient for the 16-item PSWQ was determined and judged to have a very high reliability, namely a coefficient of 0.91. Comparatively it has been found to possess high internal consistency in both college samples (Davey; Ladouceur *et al*; Meyer *et al* in Molina & Borkovec, 1994: 269) and in a large sample of persons with mixed anxiety disorders and GAD clients (Brown *et al* in Molina & Borkovec, 1994: 269). In these studies the coefficient alphas varied from 0.86 to 0.95. Again the result indicated that the questionnaire might be used with confidence in both research and counselling.

10.2.6 Social Problem-Solving Inventory–Revised

The Social Problem-Solving Inventory-Revised (SPSIR) was developed to assess the social problem solving abilities of individuals.

Cronbach alpha reliability coefficients for the scales and subscales were calculated and showed good to very good reliability with values ranging from 0.73 to 0.94. These results compare well with those reported in the manual of the SPSIR (D'Zurilla, Nezu, & Maydeu-Olivares, 2002: 56), where the reliability coefficients for the SPSIR in four different samples for all five scales of the SPSI-R showed adequate to high internal consistency with the coefficient alpha varying from 0.69 to 0.95. The test-retest reliability for two samples was also adequate to high varying from 0.68 to 0.91 (D'Zurilla, Nezu, & Maydeu-Olivares, 1996: 19). The result once more supports confident use of the questionnaire in both research and counselling.

10.3   Experience of stress and its consequences

10.3.1 Total sample, gender, marital status, and age

The subjects that made up the total sample generally reported low levels of stress, which was a good indication that they did not experience negative circumstances which otherwise would have led to the experience of negative feelings, such as restlessness, irritability, boredom, and guilt for example. Subjects generally did not feel that their circumstances whether within or outside the workplace contributed to any significant levels of stress, whether due to causes outside the workplace such as problems at home, finances, health, transport among others, organizational functioning, task characteristics, physical working conditions and job equipment, career matters,

social matters, or remuneration, fringe benefits and personnel policy. Furthermore when it came to subjects' expectations regarding their work situation, concerning organizational functioning, task characteristics, physical working conditions and job equipment, career matters, social matters, or remuneration, fringe benefits and personnel policy, the results showed that these were generally met for most subjects. When looking at the level of stress the subjects belonging to the sample experienced, it was found to fall within the normal range. In general the number of subjects falling within the normal range fell between 70.9% and 89.8% depending on the variable (Appendix A). These results to some extent paralleled the results Van Zyl (in Van Zyl, 2002: 26) reported in an investigation conducted in South Africa. He found that 34.7% of Coloureds, 38.1% of Whites and Asians, and 35% of black South Africans experienced high levels of stress. Correspondingly both male and female subjects experienced similar low levels of stress as well as perceiving their circumstances and expectations within the workplace as satisfactory. Generally the result corresponds with the research regarding males and females when performing the same type of job and positioned at the same level (Torkelson & Muhonen, 2003: 177). Furthermore no significant differences could be found between the married and the non-married groups for seven of the eight variables of the Work and Life Experiences Questionnaire. The married, single and divorced subjects experienced similar low levels of stress and also perceived their circumstances and expectations as satisfactory, except in the case of stress due to causes outside the work situation. Married subjects reported lower levels of stress due to causes outside the workplace than the single and divorced subjects. This meant that the married group found their circumstances outside the workplace far more satisfactory than their single and divorced counterparts. This difference was not surprising as one could expect that married subjects with intact marriages would experience less stress and less of a spill over into the workplace. Regarding age, the results also showed insignificant differences between the different age categories implying that a specific age category did not impact on the individual's level of stress and experience of his or her circumstances both within and outside the workplace. However when age was combined with organization grouping, it impacted on the subjects' experience of their circumstances and expectations for task characteristics and remuneration, fringe benefits and personnel policy (see section 10.3.2.3). In the case of age and qualification, it only affected remuneration, fringe benefits and personnel policy (see section 10.3.2.1).

Stress is hypothesized to impact upon an individual specifically within the context of the workplace. Stress experienced due to the demands and stressors placed on the individual may lead to behavioural, psychological, and physical consequences. The research focussed on one possible behavioural outcome, namely the witnessing and experience of workplace aggression and three possible psychological consequences.

The first ramification that was considered was that of witnessed and experienced aggression. The results showed that subjects of the entire sample generally did not witness or experience significant levels of workplace aggression in its varying forms. This result could be expected based on the fact that the entire group experienced low levels of stress and that they judged their circumstances and expectations to be within tolerable levels. Expressions of hostility, such as belittling others' opinions, talking behind their backs, obstructionism, such as failure to return phone calls or respond to memos, failure to transmit needed information, interfering with activities important to the target, and overt aggression, for example physical assault, theft or destruction of property, threats of physical violence, therefore, occurred at low levels within those environments in which participants operated. This did not impact significantly over the long term.   Neuman and Baron (1998: 398) report that expressions of hostility occur more often than either obstructionism or overt aggression that also is the least prevalent. Furthermore the results suggest that workplace aggression is witnessed more often than actually experienced by the subjects. The Pearson correlations did confirm significant relationships between the level of stress experienced by the subjects and the level of witnessed and experienced aggression in the workplace. In both cases low levels of stress were associated with low levels of witnessed and experienced aggression in the workplace. No significant differences with regard to witnessed aggression were found between males and females which meant that both groups witnessed similar low levels of workplace aggression in its various forms. In the case of experienced aggression a significant difference was found for experienced obstructionism (for example failing to return phone calls or respond to memos, failing to transmit information needed by the target, et cetera). Here males experienced significantly higher levels of aggression than their female co-workers. It is generally assumed that males more often than their female counterparts resort to aggression (Bettencourt & Miller in Rutter & Hine, 2005: 254). Rutter and Hine (2005: 262) confirmed these findings within the workplace. They found that males more often than females engaged in all three types of aggression, namely expressions of hostility, obstructionism, and overt aggression. The Pearson correlation coefficients suggest significant relationships between the experience of stress and witnessed as well as experienced aggression in the workplace. By implication the experience of stress was linked to low levels of witnessed aggression for both males and females and low levels of experienced aggression in the workplace only for females. Males on the other hand did not show such an association with experienced aggression. The Pearson correlations described significant relationships between the experiences of stress by both genders and witnessed as wells as experienced aggression.

With regard to both witnessed and experienced aggression the subjects belonging to both marital status groups did not differ significantly from one another and therefore most married, single and divorced subjects witnessed and experienced similar low levels of aggression within the workplace.

Both groups obviously worked in environments where they witnessed and experienced few expressions of hostility, low levels of obstructionism, and overt aggression. No specific research could be found to in the literature to support this finding. The magnitude of the Pearson correlations suggests a significant relationship between the experience of stress and witnessed as well as experienced aggression in the workplace.

Significant differences occurred in the four age brackets, specifically for witnessed and experienced overt aggression. More specifically the age group 20-29 years witnessed higher levels of overt aggression in the workplace than subjects in the remaining age groups. Furthermore the age group 30-39 also witnessed higher levels of over aggression compared to subjects in the age group 40-49 as well as in the age group 50 years and older. Subjects found in the age group 50 years of age and older experienced higher levels of over aggression in the workplace than subjects found in any of the remaining age groups. Here the findings of the Pearson correlation suggest significant relationships between the experience of stress and witnessed aggression for only the subjects found in age groups 30-39 and 50 years or older. The other two age groups were not affected by the witnessing of aggression in the workplace. However a significant relationship also was delineated between the experience of stress and experienced aggression in the workplace for only the subjects belonging to the 20-20 and 30-39 year old age groups.

The second ramification involved the experience of anxiety as determined by the IPAT Anxiety Scale. The results implied that the subjects as a group could be described as having adequate levels of ego strength and lacking in ego weakness, showing neither too high levels of trust or suspiciousness, and that they were neither inclined towards untroubled adequacy or guilt proneness. Furthermore they reported average levels of defective integration and lack of self-sentiment, as well as average levels of frustrative tension. The sample also experienced average levels of covert hidden anxiety and overt, symptomatic, and conscious anxiety. Also most of the subjects experienced average levels of total anxiety. In general the subjects comprising the sample therefore could be described as well adjusted. This result again was predictable based on the fact that the group did not report high levels of stress and problems regarding their circumstances or their expectations. Low levels of wellbeing are often defined, amongst others, as including anxiety (Salmela-Aro in Kaukianen *et al*, 2001: 362). Terluin *et al* (2004: 195) also found that the levels of anxiety in a working population were very low. Absence of significant levels of anxiety in the sample implies that most of the subjects experienced a sense of wellbeing that could be characteristic of subjects who were generally well adjusted. The Pearson correlations also confirmed a significant relationship between the level of stress experienced by the subjects and the level of total anxiety reported. Low levels of stress were associated with low levels of anxiety. Males and females had

similar average levels of trust and suspiciousness as well as covert hidden anxiety. Females however did differ from males in that they had slightly less ego strength and more ego weakness, a greater tendency to guilt proneness and lower tendency towards untroubled adequacy, were more prone to defective integration and lack of self-sentiment as well as frustrative tension, higher levels of overt, symptomatic, and conscious anxiety, and generally a higher level of total anxiety. Although differences did occur, these were still within the average range.

The findings of the two marital status groups, furthermore, did not differ with regard to their levels of suspiciousness, frustrative tension and covert hidden anxiety. Subjects belonging to the married group differed from the single and divorced subjects in that they had slightly more ego strength and less ego weakness, a lesser tendency to guilt proneness and higher tendency towards untroubled adequacy, less prone to defective integration and lack of self-sentiment, a lower level of overt, symptomatic, and conscious anxiety, and generally a slightly lower level of total anxiety. The result probably could be better understood in terms of social support. The size of the Pearson correlation suggests a significant relationship between the experience of stress and total anxiety. No specific differences were found for subjects belonging to each of the age categories. Pearson correlations suggest significant relationships between the experience of stress and total anxiety for both genders, marital status groups, and the four age categories.

A third possible outcome of stress is depression. To ascertain the level of depression the Beck Depression Inventory was used. The subjects that made up the sample reported significantly low levels of depression. Again this result could be predicted as low levels of stress were reported, as well as no particular problems due to their circumstances or expectations. The most common indicators associated with absence of wellbeing are depression and depressive symptoms (Salmela-Aro in Kaukianen *et al*, 2001: 362; Terluin *et al*, 2004: 195). The absence of any significant levels of depression in the sample could thus be again indicative of a sense of general wellbeing. Here the Pearson correlation confirmed a significant relationship between the level of stress experienced by the subjects and the level of depression reported. Low levels of stress were associated with low levels of depression. No statistically significant differences could be found between the two genders, marital status groups, and four age categories. This meant that males and females, subjects belonging to one of the marital status groups, and subjects belonging to the four age categories experienced similar low levels of depression. The magnitudes of the Pearson correlation also suggest significant relationships between the experience of stress and depression for both genders, both marital status groups, and all four age categories.

Next the role of worry was considered. To obtain a measure of worry the Penn State Worry Questionnaire was used. It was found that most subjects that made up the sample reported significantly low levels of worry. Worry is seen as a form of task-oriented coping, a form of problem solving, specifically at a non-clinical level (Davey in Keogh, French, & Reidy, 1998: 68). Furthermore worry has often been found to be related to the level of anxiety (Davey in Keogh *et al*, 1998: 67). This result could be expected as the subjects, a non-clinical sample, only reported low levels of both anxiety and worry, and generally good levels of social problem solving (see next paragraph). The Pearson correlations again confirmed a significant relationship between the level of stress experienced by the subjects and the level of worry found. Thus the low levels of stress were also associated with low levels of worry. However a statistically significant difference between males and female subjects and married and single or divorced subjects was found. Despite the relevant levels of worry being low, females compared to males, tended to worry significantly more. Similarly non-married subjects worried more than married subjects. In the case of the subjects belonging to the four age groupings no significant differences were obtained for the level of worry. The findings of the Pearson correlations also suggest significant relationships between the experience of stress and worry for both genders, both marital status groups, and all of the four age groupings.

Finally to answer the question as to how the subjects that made up the sample coped with stress the Social Problem-Solving Inventory-Revised was used. The results showed that most of the subjects in the sample had a high positive problem orientation, a corresponding low negative problem orientation, good rational problem solving skills, which included good problem definition and formulation abilities, significant abilities to generate alternatives, effective decision making abilities, adequate ability to implement and verify solutions, a limited tendency to resort to an impulsivity and/or carelessness as well as an avoidance style, that all added up to high levels of total social problem solving ability. The results meant that most of the subjects had a general disposition that allowed them to appraise a problem as a challenge rather than a threat, a believe that any problem was solvable, basic trust that they had the ability to solve a problem, a willingness to put in time and effort, persistence and generally to commit themselves to solving a problem at hand. They also would not easily become frustrated and upset when dealing with a given problem. When the majority of subjects applied themselves to a given problem, they were able to carefully and systematically gather facts and information, identify demands and obstacles, set problem-solving goals, generate a variety of alternatives, and then choose and implement a solution whilst carefully monitoring and evaluating outcomes. For most of the subjects their attempts at problem-solving were not narrow, impulsive, careless, hurried, and incomplete. Furthermore they were not plagued by procrastination, passivity or inaction, and dependency. In general D'Zurilla and Chang

(D'Zurilla, Nezu, & Maydeu-Olivares, 2002: 61) found that especially positive problem orientation and rational problem solving were related to the adaptive, problem-engagement coping strategies, which the individual 'uses to either change the stressful situation for the better through direct action, or change the meaning of the situation to make it less threatening'. Furthermore negative problem orientation was found to correlate significantly with psychological distress and general psychological symptomatology (Chang & D'Zurilla in D'Zurilla, Nezu, & Maydeu-Olivares, 2002: 63).The findings of the Pearson correlation suggest a significant relationship between the experience of stress and social problem solving in general. Furthermore the highest contribution to the main scale is made by negative problem orientation supporting the earlier findings for Chang and D'Zurilla (Chang & D'Zurilla in D'Zurilla, Nezu, & Maydeu-Olivares, 2002: 63). Thus the results not only suggest that low levels of experienced stress is associated with high levels of social problem solving, but also associated with low levels of negative problem orientation.

No significant differences could be found between male and female subjects for seven of the scales and subscales of the Social Problem-Solving Inventory-Revised except with regard to negative problem orientation, generation of alternatives, and overall problem solving ability. Females had a greater negative problem orientation, a lesser ability to generate alternatives, and a lesser overall problem solving ability. Females tended to see a problem as slightly more threatening to their wellbeing, were slightly more pessimistic, slightly doubted their ability to solve problems successfully, and becoming a little more frustrated and upset when confronted with problems of existence. Due to these slight differences the total problem- solving score was slightly lower for the females than for the males but still occurred within the range of effectiveness. Gender differences were also found in some studies (D'Zurilla in D'Zurilla, Nezu, & Maydeu-Olivares, 2002: 55). However the only consistent difference throughout these studies was that women scored higher on the negative problem orientation-scale than men. The present study did overlap with the literature regarding the negative problem orientation-scale. The findings of the Pearson correlation suggest a significant relationship between the experience of stress and social problem solving in general.

Significant differences could be found between the married and the non-married groups regarding their positive and negative problem orientation, rational problem-solving abilities, impulsivity and carelessness style, avoidance style, and overall problem-solving ability. Although the married subjects appear to outperform single and divorced subjects regarding their ability to define and formulate a problem, this conclusion was confounded by the fact that differences also occurred within the groups. The remaining results implied that the married subjects had a general disposition that would allow them to appraise a problem slightly better as a challenge rather than a threat, to believe that a problem was more solvable, to trust that they had the ability to solve the problem

more, to be willing to put in the time and effort more, persist and generally commit themselves more to solving the problem at hand than the single and divorced subjects. They would also be somewhat less easily frustrated and upset when dealing with a given problem. The married subjects were able to apply themselves to a given problem more effectively than the single and divorced subjects and they were able to carefully and systematically gather facts and information slightly more effectively, identify demands and obstacles better, while carefully monitoring and evaluating the outcome better. Both groups could equally well generate a variety of alternatives, set a problem-solving goal, and then choose and implement a solution. The married subjects generally were fractionally better off than their single and divorced counterparts in their attempts at problem solving. No research findings have been reported in the literature regarding marital status. The findings of the Pearson correlation suggest a significant relationship between the experience of stress and social problem solving in general for both marital status groups.

Again no significant differences regarding most of the subjects belonging to the four different age groups with regard to problem solving were found except in the case of subjects who were between 40 and 49 years old and who felt that they were more effective in generating alternatives than their counterparts who were between 20 to 29 years of age. The former also perceived themselves as more effective generators of alternatives than the subjects who were 50 years or older. The Pearson correlations for the four age groups suggest significant relationships between the experience of stress and age specifically for the subjects belonging to the age groups 30-39 and 40-49. This result could be understood in terms of the type of work they could be involved in and the level of experience within that field.

10.3.2 Type of organization grouping

An analysis of variance was done on each of the eight variables of the Work and Life Experiences Questionnaire to determine which of the four types of organization groupings the subjects worked for could be described as the most stressful. Subjects employed in all four groups of organizations, namely financial, production/services, research and development, as well as academic/auxiliary services, experienced very similar low levels of stress. The subjects working for any one of the various types of organization groupings experienced their circumstances, for instance outside the workplace, organizational functioning, and social matters, as satisfactory. Similarly their expectations regarding organizational functioning and social matters were also fulfilled. However significant differences for both their circumstances and expectations were found with regard to task characteristics, physical working conditions and job equipment, career matters, and remuneration, fringe benefits and personnel policy. Subjects working in research and development organizations

found task characteristics far more problematic than those subjects working in financial, production/services or academic/auxiliary services organizations. Subjects working in academic/auxiliary services apparently found their physical working conditions and job equipment far more bothersome than those working in financial, research and development, as well as in production/services organizations. Subjects found in financial and research and development organizations reported similar levels of problems but both still had greater levels than production/services organizations (Academic or auxiliary services > financial = research and development > production or services). Subjects working for financial or production/services organizations did not differ significantly in their assessment of career matters nor did the subjects working for academic/auxiliary services or research and development organizations. However subjects belonging to the former two organization groupings experienced career matters as less worrisome than subjects working for the latter (academic/auxiliary services = research and development > financial = production/services). For those subjects working in academic/auxiliary organizations remuneration, fringe benefits and personnel policy was experienced far more worrisome than for those working in financial, production/services or research and development organizations. Those subjects in financial organizations found it more perturbing than those in research and development organizations. Interestingly no differences were found between financial and production/services organizations as well as between production/services as well as the research and development organizations.

The first ramification to be considered was that of witnessed and experienced aggression. In terms of the four organizational groupings no differences could be found between them for each type of witnessed or experienced aggression. Thus the subjects working in the four types of organization groupings witnessed and experienced similar low levels of workplace aggression whether expressions of hostility, obstructionism, or overt aggression. For the second ramification the subjects in each type of organization grouping reported similar levels of lack of ego weakness and ego strength, lower levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, average levels of overt and covert anxiety, as well as total anxiety. In the case of the third and fourth ramification, for example depression and worry the subjects found in each type of organization grouping experienced similar low levels of depression and worry. No specific differences between the four types of organizational groupings and social problem solving could be delineated.

The findings of the Pearson correlation suggest a significant relationship between the experience of stress and witnessed aggression for production/services and academic/auxiliary services organizations. It did not play a role in financial or research and development organizations. For

financial, production/services, and academic/auxiliary organizations a significant relationship also existed between the experience of stress and experienced aggression in the workplace. Finally significant relationships occurred between the experience of stress and total anxiety, depression, and worry for subjects working in all four types of organization groupings. Furthermore these findings also suggest a significant relationship between the experience of stress and social problem solving in general but only for subjects working for financial and production/services organizations.

10.3.2.1 Organization grouping with qualification level

The role that the level of qualifications played for the subjects regarding their experience of stress, their circumstances within and without the workplace and their expectations within the workplace within each organization was ascertained. The level of qualification did not impact on their experience of stress nor did their circumstances regarding causes outside the workplace, their physical working conditions and job equipment, and social matters as well as their expectations regarding their physical working conditions and job equipment and social matters reflect the role of qualification. However significant differences were found for organizational functioning, task characteristics, career matters, and remuneration, fringe benefits and personnel policy. Only the most significant results will be presented.

Firstly, with regard to organizational functioning, subjects with a Masters or Doctors degree working in an academic/auxiliary services environment differed from thirteen other organization-qualification combinations, with participants employed in financial organizations and holding Masters or Doctors degrees, in research and development organizations with a Grade 12 or lower or a Bachelor degree, and academic/auxiliary services organizations with a Grade 12 or lower, or Diploma or a Bachelor degree, being the exceptions. Throughout they experienced organizational functioning with their work environment as more problematic than the others.

When it came to task characteristics the qualification level of the subjects also played an important role. Here the most important was for subjects working for research and development organizations with Diplomas which differed significantly from nine other organization-qualification combinations. Essentially they found task characteristics far less bothersome those working in financial organizations with a Grade 12 or lower, a Diploma, a Bachelors degree, an Honours or equivalent degree, production/services organizations with a Grade 12 or lower or a Bachelors degree, and academic/auxiliary organizations with Diplomas, Bachelors degrees or Masters or Doctoral degrees. In the case of career matters qualification differences did play and important role. Most significantly subjects working in academic/auxiliary services organizations with a Masters or

Doctoral degree experienced career matters as more worrisome than subjects working in financial organizations with a Grade 12 or lower, a Diploma, and Bachelors degree, in production/services organizations with a Diploma, a Bachelors degree, an Honours or equivalent degree, and a Masters or Doctoral degree, in research and development organizations with a Bachelors degree and a Masters or Doctoral degree, and in academic/auxiliary services organization with an Honours or equivalent degree. Also subjects working in academic/auxiliary services organizations with a Diploma found career matters more problematic than subjects found in financial organizations with Grade 12 or lower, a Diploma, and a Bachelors degree, in production/services organizations with a Diploma, an Honours or equivalent degree, and a Masters or Doctoral degree, in research and development with a Bachelors degree, and in academic/auxiliary services organizations with an Honours or equivalent degree.

Finally for remuneration, fringe benefits and personnel policy qualification also played an important role. Firstly for subjects working in academic/auxiliary organizations with a Masters or Doctoral degree experienced remuneration, fringe benefits and personnel policy as greater concern than subjects working in financial organizations with a Grade 12 or lower and a Bachelors degree, in production/services organizations with a Diploma, a Bachelors degree and an Honours or equivalent degree, in research and development organizations with a Diploma, a Bachelors degree and a Masters or Doctoral degree. Similarly subjects working in financial organizations with an Honours or equivalent degree also found remuneration, fringe benefits and personnel policy as more problematic than subjects working in financial organizations with a Bachelors degree, in production/services with a Diploma, a Bachelors degree and an Honours or equivalent degree, in research and development organizations with a Diploma, a Bachelors degree and a Masters or Doctoral degree. However subjects working in research and development with a Diploma felt more satisfied with their remuneration, fringe benefits and personnel policy than subjects working in financial organizations with a Grade 12 or lower, an Honours or equivalent degree and Masters or Doctoral degree, in production/services organizations with a Grade 12 or lower, in academic/auxiliary services organizations with a Diploma, a Bachelors degree and an Honours or equivalent degree.

The first ramification to be assessed was that involving witnessed and experienced aggression. In terms of type of organization grouping and qualification specific differences could be found for only witnessed overt aggression. More specifically, subjects working in production/services organizations and who had a Grade 12 or lower witnessed higher levels of overt aggression in the workplace than subjects working in six other organization-qualification groupings, when compared to subjects working in financial organizations and had a Grade 12 or lower, or in financial

organizations and had a Diploma, who worked in production/services organizations and had an Honours or equivalent degree, who worked in research and development organizations and had a Bachelor degree or Masters or Doctoral degree, and who were found in academic/auxiliary services organizations and had an Honours or equivalent degree. However when considering experienced aggression, the subjects also experienced significant differences when it came to experienced overt aggression. The most significant results involved those subjects that worked in production/services organizations and had a Grade 12 or lower experienced the higher levels of overt aggression than their counterparts form fourteen other organization-qualification groupings, namely from subjects who worked in financial services organizations and had a Grade 12 or lower, or Diploma, or a Bachelors degree, or an Honours or equivalent degree, who worked in production/services organizations and had a Diploma, or an Honours or equivalent degree, or a Masters or Doctoral degree, who worked in research and development organizations and who had a Diploma, or a Bachelors degree, or an Honours or equivalent degree, or a Masters or Doctoral degree, who a worked in academic/auxiliary services organizations and had a Bachelors degree, or an Honours or equivalent degree, or a Masters or Doctoral degree. Also the subjects with a Bachelor degree working in production/services organizations experienced higher levels of overt aggression than subjects from nine other organization-qualification groupings, namely from subjects who worked in financial organizations and had a Grade 12 or lower, or with a Diploma, or with a Bachelors degree, production/services organizations with a Diploma, or with and Honours or equivalent degree, or with a Masters or Doctoral degree, who worked in research and development organizations and had a Diploma, or Masters or Doctoral degree, and who worked in academic/auxiliary services organizations and who had an Honours or equivalent degree.

For the second ramification the subjects in each organization-qualification combination reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, average levels of overt and covert anxiety, as well as total anxiety. This was also the case for the third and fourth ramification. Subjects again experienced similar low levels of depression and worry.

The fifth ramification, namely social problem solving was assessed. The subjects reported a similarly high positive problem orientation and a corresponding low negative problem orientation, high levels of rational problem solving ability, good problem definition and formulation ability, a good ability to generate alternatives, effective decision making as well as solution implementation and verification abilities, a low impulsivity/carelessness and avoidance style, and a high overall social problem solving ability.

10.3.2.2 Organization grouping with position level

The role that the position level played regarding the subjects' experience of stress, their circumstances within and without the workplace, and their circumstances within the type of organization grouping was also ascertained. Significant results were found only regarding their circumstances and expectations for task characteristics. Only the most significant results will be presented.

The most significant comparison involved subjects found in the specialist staff category and working in research and development organizations. They described task characteristics as more problematic compared to subjects working in financial organizations in senior management, middle management, and as specialist staff, in production/services in senior management, middle management and as specialist staff, research and development organizations in senior and middle management, and in academic/auxiliary organizations in senior management and as specialist staff.

When it came to the first ramification the subjects found in each organization grouping-position level combination both witnessed and experienced similar low levels workplace aggression. Put in another way they did not witness or experience worrying expressions of hostility, high levels of obstructionism, or overt aggression. For the second ramification the subjects in each organization grouping-position level combination reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, average levels of overt and covert anxiety, as well as total anxiety. Again for the third and fourth ramification the subjects working in each organization grouping-position level combination experienced similar low levels of depression and worry.

The fifth ramification, namely social problem solving was evaluated. Again no significant differences could be found regarding the subjects social problem solving abilities in general. However the only exception was found specifically for subjects working in financial organizations as specialist staff who considered themselves more effective at generating alternatives than subjects working in financial organizations and working in senior management, in production/services organizations in senior management and as specialist staff, in research and development organizations in senior management, and who worked in academic/auxiliary services organizations in senior management, middle management, and as specialist staff. The opposite was true for subjects working in academic/auxiliary services organization. These participants being active at the level of middle management, felt that they were less good at generating alternatives than subjects working in

financial organizations and found and operating at both senior management and specialist staff level, in production/services organizations found in middle management, as well as in research and development organizations and also found in middle management.

10.3.2.3 Organization grouping with age

Age also played a significant role regarding both the circumstances and the expectations the subjects had for task characteristics and remuneration, fringe benefits and personnel policy within their respective organization groupings. They had similar low level of stress and they experienced their circumstances outside the work situation as well as within the organization grouping for organizational functioning, physical working conditions and job equipment, career matters, and social matters as satisfactory. Similarly their expectations for organizational functioning, physical working conditions and job equipment, career and social matters seemed to be met.

The most important result involved subjects between 30 to 39 years of age and working in academic/auxiliary organizations that found task characteristics more bothersome than those working in financial organizations between 20 and 29 years of age, and 30 and 39 years of age, production/services organizations between 30 and 39 years of age and 50 years of age or older, in research and development organizations between 30 and 39 years of age, 40 and 49 years of age, and 50 years or older, and in academic/auxiliary services organizations 50 years of age or older. Also those subjects 50 years of age or older that worked if financial organizations also experienced task characteristics as more perturbing than subjects working in financial organizations between 20 and 29 years of age, in production/services organizations between 30 and 39 years of age and 50 years of age or older, in research and development organizations between 30 and 39 years of age, 40 and 49 years of age, and 50 years of age or older, and in academic/auxiliary services organizations 50 years of age or older.

With regard to the impact of age, those subjects working in research and development organizations and between 40 and 49 years of age found remuneration, fringe benefits and personnel policy felt more satisfactory than their counterparts between the ages of 40 and 49 years and who worked in financial organizations, those of 50 years or older in production/services organizations, and participants from 20 all the way up to 50 years or older and working in academic/auxiliary services organizations, However subjects working in academic/auxiliary services organizations and being aged 30 and 39 years reported a greater concern with their remuneration, fringe benefits and personnel policy than fellow participants also aged between 30 an 39 years and working in financial organizations or production/services organizations or in

research and development organizations and being 30 to 39 years old, between 40 and 49 years and 50 years of age or older. Similarly subjects aged between 30 and 39 years and working in academic/auxiliary services organizations found their remuneration, fringe benefits and personnel policy more worrisome compared to their counterparts working in financial organizations production/services organizations and being aged between 30 and 39 years, as well as working in research and development organizations and being aged from 30 to 50 years or older.

The first ramification to be considered was that of witnessed aggression. In terms of the four organization grouping-age combinations significant differences could be found between them and only witnessed overt aggression. Actually the youngest age group 20-29 witnessed relatively more acts of workplace aggression than the subjects of the older groupings. Also the age group 30-39 witnessed more than the remaining older two groups. However regarding the experience of aggression in the work context the subjects belonging to the oldest group reported higher levels of experienced overt aggression than any of the remaining age groups.

For the second ramification the subjects in each organization grouping-age combination reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, overt and covert anxiety, as well as total anxiety. Again in the case of the third and fourth ramification the subjects working in each organization grouping-age combination experienced similar low levels of depression and worry. The fifth ramification, namely social problem solving was also assessed. The subjects reported similar good levels of social problem solving in general.

10.3.3 Qualification level

The role of the level of qualification had on the subjects was also determined. However no significant differences between each category for the subjects could be found implying that qualification on its own did not impact on their experience of stress. Furthermore they experienced their circumstances outside the work situation and within the workplace as favourable. Similarly an analysis of the responses confirmed that the qualifications of subjects did not impact on their expectations they had within the workplace regarding organizational functioning, task characteristics, physical working conditions and job equipment, career matters, social matters, and remuneration, fringe benefits and personnel policy. However when it came to organization grouping taken with qualification level it did affect some of the variables as discussed previously.

The first ramification to be considered for qualification was that of witnessed and experienced aggression. In terms of the five qualification levels no differences could be found between them for each form of witnessed or experienced aggression. Thus the subjects witnessed and experienced similar low levels of workplace aggression whether expressions of hostility, obstructionism, or overt aggression. In the case of the second ramification the subjects in each qualification grouping reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, overt and covert anxiety, as well as total anxiety. For the third and fourth ramification, the subjects found in each qualification grouping reported similar low levels of depression and worry. The fifth ramification, namely social problem solving was also evaluated. The subjects reported similar levels of social problem solving in general.

The Pearson correlation did highlight a significant relationship between the experience of stress and qualification level. With regard to witnessed aggression, the relationships for four of the five qualification groupings, with subjects having Bachelors degrees being the exception, were significant. For experienced aggression it was only applicable to Grade 12 or lower, Honours and equivalent degrees, and Masters or Doctoral degrees. For total anxiety and depression it was applicable to all five qualification levels. In the case of worry it applied to four of five qualification levels, with the exception of those holding Bachelors degrees. Finally for social problem solving a significant relationship was suggested for Grade 12 or lower and Masters or Doctoral degrees.

10.3.3.1 Qualification level with age

The role of qualification level and age for the eight variables of the work and life circumstances questionnaire was assessed. Only remuneration, fringe benefits and personnel policy showed significant differences. It was found that the subjects that had a Diploma and were between the ages of 30 and 39 found their remuneration, fringe benefits and personnel policy more satisfying than their counterparts with a Grade 12 or lower and between the ages of 30 and 49, with a Diploma and 50 years of age or older, with an Honours or equivalent degree and between 20 and 29 and 40 and 49 years, and with a Masters or Doctoral degree and 50 years of age or older.

The first ramification to be considered was that of witnessed and experienced aggression. In terms of the five qualification groupings with age, differences could be found specifically for experienced overt aggression. Specifically subjects who had a Grade 12 or lower and were 50 years or older, experienced higher levels of overt aggression than their counterparts from all the other qualification-age groupings.

For the second ramification the subjects in each qualification-age combination reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, average levels of overt and covert anxiety, as well as total anxiety. With regard to the third and fourth ramification the subjects again experienced similar low levels of depression and worry. In the case of the fifth ramification the subjects reported similar levels of social problem solving in general.

10.3.3.2 Qualification level with position level

Throughout the subjects in each qualification-position level combination reported similar low levels of stress. They also experienced their circumstances as good regarding stress due to causes originating outside the work situation, organizational functioning, task characteristics, physical working conditions and job equipment, career matters, social matters, and remuneration, fringe benefits and personnel policy. Furthermore their expectations were met when it came to organizational functioning, task characteristics, physical working conditions and job equipment, career matters, social matters, and remuneration, fringe benefits and personnel policy.

No differences were observed for the first ramification, namely witnessed and experienced aggression in the workplace. Again the subjects reported low levels of both witnessed and experienced expressions of hostility, obstructionisms, or overt aggression at work. For the second ramification the subjects in each organization reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, overt and covert anxiety, as well as total anxiety. Regarding the third and fourth ramification the subjects also experienced similar low levels of depression and worry. The fifth ramification, namely social problem solving was assessed. Here the subjects reported good levels of social problem solving in general.

10.3.4 Position level

The role that the position level played was also determined. Again the results showed no significant differences implying that position level on its own did not impact on the level of stress, nor did it affect the participants' experience of their circumstances within or without the workplace negatively. Also their expectations regarding organizational functioning, task characteristics, physical working conditions and job equipment, career matters, social matters, and remuneration, fringe benefits and personnel policy were met. However, when position level within an organization grouping was

considered, it did impact on their experience of their circumstances and expectations when it came to task characteristics as discussed previously.

The first ramification to be considered was that of witnessed and experienced aggression. In terms of the three position levels no differences could be found between them for each form of witnessed or experienced aggression in the workplace. Thus they neither witnessed nor experienced bothersome levels of expressions of hostility, obstructionisms, or overt aggression at work. For the second ramification the subjects working in each position reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, average levels of overt and covert anxiety, as well as total anxiety. When considering the third and fourth ramification, namely depression and worry, the subjects found in the different position levels experienced similar low levels of depression and worry. The fifth ramification, namely social problem solving, was evaluated. The subjects again reported good levels of social problem solving in general.

10.3.4.1 Position level with age

Subjects, irrespective of their position level-age combinations, reported similar levels of stress and they found their circumstances worthwhile both within and without the workplace. They also found their expectations regarding organizational functioning, task characteristics, physical working conditions and job equipment, career matters, social matters, and remuneration, fringe benefits and personnel policy being met.

When it came to the first ramification subjects did not differ regarding any forms witnessed aggression. However respondents that were in middle management and who were 50 years or older, experienced higher levels of overt aggression than their counterparts found in ten other position level-age groupings, namely from subjects who were in senior management and ranged from 20 to 29 years of age, or 30 to 39 years of age, or 40 to 49 years of age, or 50 years or older, who were in middle management and ranged from 20 to 29 years of age, or 30 to 39 years of age, or 40 to 49 years of age, and who worked as specialist staff and ranging from 20 to 29 years of age, or 30 to 39 years of age, or 40 to 49 years of age.

For the second ramification the subjects in each position level-age combination reported similar levels of lack of ego weakness and ego strength, low levels of suspiciousness, guilt proneness, defective integration and lack of self-sentiment, frustrative tension, average levels of overt and covert anxiety, as well as total anxiety. In the case of the third and fourth ramifications again no

246

differences were found with regard to depression and worry. In the case of the fifth ramification, namely social problem solving the subjects reported similar levels of social problem solving in general.

10.4   Coping

The question arises as to how to explain the results of the present study, namely why were the majority of subjects able to cope effectively with the stressors occurring outside as well as within the organization. The first possibility is to consider the role of the organization. Is it possible that the organizations involved in the study were doing something right? At the time the questionnaire was completed the researcher was not aware that any of the organizations involved in the study were implementing stress management interventions such as job and task redesign for example. Some of the sectors within the financial and production/services organizations made use of an EAP which on a regular basis presented stress management courses. This awareness may have impacted on the individual but cannot be regarded as something the organization did to reduce or change the impact of organizational stressors. It is well known that in contemporary organizations employees are more likely to experience multiple environmental stressors in the workplace within a 2-to 3-year period (Sikora *et al*, 2004: 11). The types of stressors may be either chronic or acute. Furthermore changes, whether extraorganizational or occurring within the organization, whether on a macro or micro level, do not occur sequentially but more often simultaneously. Change and stress are inevitable within any organization.

What then could explain the fact that most of the subjects experienced acceptable levels of overall stress and generally found that their circumstances and expectations fell within normal levels and thus manageable? What is each individual doing that allows him or her to deal effectively with chronic and acute stressors arising from their work environment? The most likely explanation lies with the individuals that make up the sample. These participants can be viewed as individuals who have the necessary resources, strengths and skills to either manage or resolve their concerns (Presbury *et al*, 2002: 208). Furthermore the subjects' ability to deal effectively with the demands and stressors may be due to eustress (Nelson & Simmons, 2002: 104). They view the stress response as both positive and negative, the former indicated by the presence of positive psychological states (e.g., positive affect, meaningfulness, and hope), and the latter indicated by the presence of negative psychological states (such as negative affect). Eustress may reflect 'the extent to which cognitive appraisal of a situation or event is seen to either benefit an individual or enhance his or her well-being'. Most situations including work are expected to elicit both positive

and negative responses in individuals. Probably the majority of subjects in the sample were able to accentuate the positive.

Generally the literature focuses on two general coping strategies that may influence the outcome: emotion-focused and problem-focused or active coping (Elfering *et al*, 2005: 238). Wellbeing is generally associated negatively with emotion-focused coping and positively with problem-focused coping (Parker & Endler, in Elfering, 2005: 238). Emotion-focused coping is associated with situations where the controllability is low and with behaviours such as withdrawal, self-blame, or smoking a cigarette for example. On the other hand problem-focused coping is associated with circumstances where controllability is high and with attempts to change the situation. Emotion-focused coping has been measured in a problematic way leading to the perception that it is maladaptive. Instead it has also been shown to lead to positive outcomes (Elfering *et al*, 2005: 240, Stanton *et al*, 2005: 150). Strategies include ways to regulate emotions such as calming down in stressful situations (Perrez & Reicherts in Elfering *et al*, 2005: 239) or the use of emotional processing and expression (Stanton *et al*, 2005: 150). Social support, whether outside or within the workplace, may play an important role in the latter case.

One approach to problem-focused or active coping is through the use of problem solving. How individuals appraise their problem solving skills and whether they generally approach or avoid the many problem situations they may be confronted with determines not only how they cope with problems but also their social and psychological adjustment (Heppner & Lee, 2005: 290). Individuals that see themselves as good problem solvers are more likely to exhibit lower levels of depression and hopelessness under high stress conditions. Furthermore they tend to experience lower levels of anxiety and anger. Generally these individuals also exhibit help-seeking behaviour. Therefore the results may be understood in terms of the participants' ability to use a problem-focused or active coping approach, namely social problem solving. As active coping is seen as having a protective function, either through its direct positive effect on the outcome or as a moderator of the stressor-symptom relationship (Snow *et al*, 2003: 243) it may be concluded that social problem solving as a specific form of active coping does the same. Furthermore researchers have shown that problem solving is significantly related to adjustment deficits and psychological distress, such as depressive symptomatology (Nezu in D'Zurilla *et al*, 2002: 5), anxiety (Nezu and Nezu & Carnevale in D'Zurilla *et al*, 2002: 5), and aggression (D'Zurilla *et al* in D'Zurilla *et al*, 2002: 62). The more effective an individual was with problem solving the lower these indicators were. Worry on the other hand was found to relate to positive problem orientation but not to the actual problem-solving skills (Dugas *et al*, 1995: 117). Also effective problem solving has been shown to impact positively on psychological wellbeing amongst others (Chang & D'Zurilla in D'Zurilla *et al*,

2002: 5). It may be concluded that social problem solving and specifically a high level of positive problem orientation, a low negative problem orientation, good rational problem solving skills, a low impulsivity/carelessness and avoidance style and thus generally a high overall social problem solving score enabled the participants to deal with the demands and stressors within and without the workplace thus also minimizing the negative consequences.

10.5   Overall assessment of effect size

Generally the effect sizes in the investigation under consideration were low, mainly varying between -0.10 to 0.10. The important question that needs to be answered is: How did this impact upon the results of the present study? Organizations participating in this study were involved in a wide range of institutional activities and represented different work spheres that directly or indirectly contributed to South Africa's economy. This state of affairs implied a significant degree of institutional heterogeneity which might be associated with large effect sizes.

However, the subjects that participated in the research were all drawn from two management levels and specialized staff from these institutions. Whilst acknowledging heterogeneity, this final intervention in the composition of the sample implied a greater degree of homogeneity among participating individuals, which would be commensurate with lower effect sizes, as is confirmed by the above range of effect sizes. In using and judging effect size, a researcher needs to assess the presence of homogeneity and/or heterogeneity by accounting for all personal, environmental, institutional, and other relevant factors that might impact upon the population, composition of the sample, and potential results of an intended study.

10.6   Some limitations of the present research

The first limitation of the present study is that no specific information was obtained to determine the individual differences that predispose individuals to cope effectively with stress. Nelson and Simmons (2002: 108) suggest that possible factors that may be included in such studies are amongst others optimism, locus of control, hardiness, self-reliance, and sense of coherence. These factors are also seen as promoting eustress. Factors like these would account for more positive primary appraisals with regard to the demands or stressors placed on them. Also it may influence at a secondary appraisal level the individuals' belief that they may more effectively handle a demand or stressor.

A second limitation of the present study is that a convenience sample was used, consisting of senior management, middle management, and specialist staff components specific to only four organizational sectors and which does not represent all fields of management, types of organizations, and ethnic distribution of all South African managers and specialist staff. The results can therefore not be generalized to the broad spectrum of South African managers and specialist staff.

A third limitation of the present study may be associated with the fact that only self-report data were obtained. While self-report measures are often revealing and accurate, they can also be plagued by many sources of error and bias, such as subjects presenting themselves in a positive light, which can affect the validity of their self-reports (Leak & Parsons, 2001: 23; Bartz *et al*, 1996: 248). It would seem important to develop alternative measures and to incorporate other sources of data. Alternative or complementary sources of information may be obtained from human resources, from one on one or group interviews, and the use of diaries for example.

10.7   Further research

Further research should focus on workplace stress to determine factors that may mediate the individual's response to stress that allows him or her to cope effectively with the demands and stressors in and outside the workplace. These could include such factors as optimism, locus of control, hardiness, self-reliance, and sense of coherence. With regard to workplace aggression further research could focus on the actual frequency of workplace aggression and changes taking place within the organization. Furthermore future research should focus on the application and teaching of problem solving as a skill to aid those employees that are not dealing effectively with the demands and stressors within the workplace. Other areas of interest could include the role of emotion-focused coping thus focusing on the ability of the employee to emotionally adapt to the stressful work situation.

10.7   Conclusion

The study set out to determine the levels and the causes of workplace stress as well as the consequences of stress in terms of aggression in the workplace, both witnessed and experienced, anxiety, depression, and worry for a group of 205 subjects. It also set out to assess the subjects' ability to cope with the experienced stressors with regards to social problem solving. Generally it was found that the subjects experienced normal levels of stress, witnessing and experiencing low levels of workplace aggression, normal levels of anxiety, low levels of depression and worry. Their

ability to cope with the daily stressors in terms of social problem solving showed that they generally had an overall high social problem solving ability and consequently normal levels of stress. The possible explanation of the results was thought to be due to the role problem-focused or active coping in the form of social problem solving played for participants dealing effectively with the demands and stressors experienced in the workplace. The results may also be understood in terms of the five stage model of Cox and McKay (Cox, 1978:18; Cox & MacKay, 1981: 101) which was used as the basis in the development of the Work and Life Experiences Questionnaire (see section 3.2.4.1).

Cox (1978: 19) describes the first stage as representing 'the sources of demand relating to the person' and it forms part of the individual's environment. The demands and stressors impacting on the individual both within and without the organization were measured. The second stage, which consists of the individual's perception of the demands and stressors and his or her ability to cope with these, was also measured. Although it may be expected that the individual will experience different demands and stressors in the workplace, he or she will not experience stress until he or she has reached his or her limitations. The third stage is associated with the physical changes as well as cognitive and behavioural responses. These aim to reduce the immediate impact of the demands and stressors. Here the role of problem-focused coping or active through social problem solving was found to play an important role. For most participants their positive problem orientation as well as their rational problem solving abilities came into play enabling them to deal effectively with the perceived demands and stressors found within and without their workplace. The fourth stage focuses on the consequences of the coping responses, whether actual or perceived. These include the effect of the response both on a cognitive and behavioural level. In terms of the study this included the witnessing and experiencing of workplace aggression, anxiety, depression, and worry. However the levels of each were found to be low or normal as could be expected when a participant dealt effectively with their perceived stress. The fifth and last stage of the model revolves around feedback and is found to occur at all of the other stages influencing the outcome at each of the other stages. This could result in an individual strengthening and consolidating their social problem solving ability in general. Homeostasis may be achieved in the face of a stressful working environment. Furthermore it may be one factor that helps to maintain and even enhance psychological wellbeing.

LIST OF REFERENCES

Alder, G.S. & Tomkins, P.K. (1997). Electronic performance monitoring: An Organizational Justice and Concertive Control Perspective. *Management Communication Quarterly, 10 (3)*, 259 - 289.

Armstrong-Stassen, M. (2002). Designated Redundant but Escaping Lay-off: A Special Group of Lay-off Survivors. *Journal of Occupational and Organizational Psychology, 75 (1)*, 1 - 12.

Arnold, J. (1997). *Managing careers into the 21st century*. London: Paul Chapman Publishing Ltd.

Atkinson, W. (1999). Employee fatigue. *Management Review, 88 (9)*, 56 - 60.

Bandura, A., Taylor, C.B., Williams, S.L., Mefford, I.N., & Barchas, J.D. (1985). Catecholamine Secretion as a Function of Perceived Coping Self-Efficacy. *Journal of Consulting and Clinical Psychology, 53 (3)*, 406 - 414.

Baron, R.A. (2004). Workplace Aggression and Violence. In Griffin, R.W. & O'Leary-Kelly, A.M. (Eds). The *Dark Side of Organizational Behavior.* Hoboken: Jossey-Bass.

Baron, R.A. & Byrne, D. (1997). *Social Psychology*. 8th ed. Boston: Allyn and Bacon.

Baron, R.A. & Byrne, D. (2003). *Social Psychology*. 10th ed. Boston: Allyn and Bacon.

Baron, R.A., & Neuman, J.H. (1996). Workplace Violence and Workplace Aggression: Evidence on their Relative Frequency and Potential Causes. *Aggressive Behavior, 22 (3)*, 161 - 173.

Baron, R.A. & Richardson, D.R. (1994). *Human aggression*. 2nd ed. New York: Plenum.

Baron, R.A., Neuman, J.H., and Geddes, D. (1999). Social and Personal Determinants of Workplace Aggression: Evidence for the Impact of Perceived Injustice and the Type A Behavior Pattern. *Aggressive Behavior, 25 (4)*, 281 - 296.

Bartz, A.E., Blume, N.E., & Rose, J. (1996). Gender Differences in Self-Report Measures of Anger. *Journal of Social Behavior and Personality, 11 (5),* 241 - 253.

Beck, A. T., Steer, R. A., & Carbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8 (1),* 77 - 100.

Berkowitz, L. (1994). Is something missing? In Huessmann, L.R. (Ed.) (1994). *Aggressive Behavior: Current Perspectives.* New York: Plenum Press.

Birkenbihl, V.G. (1989). *Freude durch Stress.* München: Moderne Verlagsgesellschaft GmBH.

Björkqvist, L., Österman, K., and Lagerspetz, K.M.J. (1994). Sex differences in covert aggression among adults. *Aggressive Behavior, 20 (1),* 27 - 33.

Björkqvist, L., Österman, K., and Hjelt-Bäck, M. (1994). Aggression among university employees. *Aggressive Behavior, 20 (3),* 173 - 184.

Book, A.S., Starzyk, K.B., and Quinsey, V.L. (2001). The relationship between testosterone and aggression: a meta-analysis. *Aggression and Violent Behavior, 6 (6),* 579 - 599.

Bordens, K.S. & Abbott, B.B. (2002). *Research Design and Methods: A Process Approach.* 5th Ed. Boston: McGraw-Hill.

Borkovec, T.D. (1994). The nature, functions, and origins of worry. In Davey, G.C.L., & Tallis, F. (Eds.). *Worrying: Perspectives on theory, assessment and treatment. Wiley series in clinical psychology.* Chichester: Wiley.

Brockner, J., Konovsky, M., Cooper-Schneider, R., Folger, R., Martin, C., & Bies, R.J. (1994). Interactive Effects of Procedural Justice and Outcome Negativity on Victims and Survivors of Job Loss. *Academy of Mangement Journal,* 37 (2), 397 - 409.

Brown, J.D. (1991). Staying Fit and Staying Well: Physical Fitness as a Moderator of Life Stress. *Journal of Personality and Social Psychology, 60 (4),* 555 - 561.

Bunce, D. & West, M.A. (1996). Stress Management and Innovation Interventions at Work. *Human Relations, 49 (2),* 209 - 232.

Butcher, J.N., Mineka, S. & Hooley, J.M. (2004). Abnormal Psychology. 12th ed. Boston: Pearson-Allyn and Bacon.

Campbell-Jamison, F., Worral, L. & Cooper, C. (2001). Downsizing in Britain and its effects on survivors and their organizations. *Anxiety, Stress and Coping, 14 (1)*, 35 - 58.

Carlson, D.S., & Perrewé, P.L. (1999). The Role of Social Support in the Stressor-Strain Relationship: An Examination of Work-Family Conflict. *Journal of Management, 25 (4)*, 513 - 540.

Carson, R.C., Butcher, J.N. & Mineka, S. (2000). *Abnormal Psychology and Modern Life.* 11th ed. Boston: Allyn and Bacon.

Cartwright, S. & Cooper, C.L. (1997). *Managing Workplace Stress.* Thousands Oaks: SAGE Publications, Inc.

Carver, C.S. & Scheier, M.F. (2005). Optimism. In Snyder, C.R. & Lopez, S.J. (Eds). *Handbook of Positive Psychology.* New York: Oxford University Press.

Cattell, R.B., Scheier, I.H., & Madge, E.M. (1995). *Manual for the IPAT Anxiety Scale.* Pretoria: HSRC.

Chen, P.Y., & Spector, P.E. (1992). Relationships of Work Stressors with Aggression, Withdrawal, Theft, and Substance Use: An Exploratory Study. *Journal of Occupational and Organizational Psychology, 65 (3)*, 177 - 184.

Chin, N.P., Monroe, A, Fiscella, K. (2000). Social Determinants of (Un)Healthy Behaviors. *Education for Health: Change in Learning and Practice, 13 (3)*, 317 - 328.

Coe, R. (2000). What is an 'Effect Size'? A guide for users. CEM Centre, Durham University.

Cooper, C.L., Dewe, P. & O'Driscoll, M. (2002). Employee Assistance Programs. In Quick, J.P. & Tetrick, L.E. (Eds). *Handbook of Occupational Health Psychology.* Washington: American Psychological Association.

Cotton, D.H.G. (1990). *Stress Management: An Integrated Approach to Therapy.* New York: Bruner/Mazel, Inc.

Cox, T. (1978). *Stress.* London: Mcmillan.

Cox, T. & Ferguson, E. (1991). Individual Differences, Stress and Coping. In Cooper, C.L. and Payne, R. (Eds). *Personality and stress: individual differences in the stress process.* Chichester: John Wiley & Sons Ltd.

Cox, T. & McKay, C. (1981). A transactional approach to occupational stress. In Corlett, E.N. & Richardson, J. (Eds). *Stress, work, design and productivity.* Chichester: Wiley & Sons.

Cummings, T.G. & Cooper, C.L. (1998). A Cybernetic Theory of Organizational Stress. In Cooper, C.L. (Ed.). *Theories of Organizational Stress.* Oxford: Oxford University Press.

Davey, G.C.L. (1994). Pathological worrying as exacerbated problem-solving. In Davey, G.C.L., & Tallis, F. (Eds.). *Worrying: Perspectives on theory, assessment and treatment. Wiley series in clinical psychology.* Chichester: Wiley.

DeFrank, R. S. and Ivancevich, J. M. (1998). Stress on the job: An executive update. *The Academy of Management Executive, 12 (3),* 55 - 66.

Densten, I. L. (2001). Re-thinking burnout. *Journal of Organizational Behavior, 22 (8)*, 833 - 847.

Dormann, & Zapf, (2002). Social stressors at work, irritation, and depressive symptoms: Accounting for unmeasured third variables in a multi-wave study. *Journal of Occupational and Organizational Psychology, 75 (1)*, 33 - 58.

Douglas, S.C. & Martinko, M.J. (2001). Exploring the Role of Individual Differences in the Prediction of Workplace Aggression. *Journal of Applied Psychology, 86 (4),* 547 - 559.

Dugas, J.M., Letarte, H., Rhéaume, J., Freeston, M.H., & Ladouceur, R. (1995). Worry and Problem Solving: Evidence of a Specific Relationship. *Cognitive therapy and Research, 19 (1)*, 109 - 120.

Duvenhage, H. (2002). Lessenaarwoede die nuwe bedreiging by die werk. *Rapport, Sunday, 10th February,* 2002.

D'Zurilla, T.J. & Nezu, A.M. (1990). Development and Preliminary Evaluation of the Social Problem-Solving Inventory. *Psychological Assessment, 2 (2)*, 156 - 163.

D'Zurilla, T.J. Nezu, A.M., & Maydeu-Olivares, A. (1996). *Social Problem-Solving Inventory-Revised (SPSI-R) Test Manual*. State University of New York at Stony Brook, Stony Brook: New York.

D'Zurilla, T.J. Nezu, A.M., & Maydeu-Olivares, A. (2002). *Social Problem-Solving Inventory-Revised (SPSI-R) Test Manual*. Multi-health Systems Inc.: North Tonawanda, NY.

Edwards, D.C. (1999). *Motivation and Emotion: Evolutionary, Physiological, Cognitive, and Social Influences*. Thousand Oaks: SAGE Publications, Inc.

Elfering, A., Grebner, S., Semmer, N.K., Kaiser-Freiburghauser, D., Lauper-Del Ponte, S., & Witschi, I. (2005). Chronic job stressors and job control: Effects on event-related coping success and well-being. *Journal of Occupational and Organizational Psychology, 78*, 237 – 252.

Eron, L.D. (1994). Theories of Aggression. In Huesmann, L.R. (Ed.) (1994*). Aggressive Behavior: Current Perspectives*. New York: Plenum Press.

Executive stress and the art of balanced living. (1991). *Rehabilitation in South Africa, (December),* 102 - 104.

Flannery, R.B. Jr. (1996). Violence in the Workplace, 1970-1995: a review of the literature. *Aggression and Violent Behavior, 1(1)*, 57 - 68.

Forshaw, M. (2002). *Essential Health Psychology*. London: Oxford University Press Inc.

Fresco, D.M., Heimberg, R.G., Mennin, D.S., and Turk, C.L. (2002). Cofirmatory factor analysis of the Penn State Worry Questionnaire. *Behavior Research and Therapy, 40*, 313 - 323.

Gardner, D.G., Cummings, L.L., Dunham, R.B., & Pierce, J.L. (1998). Single-item versus multiple scales: An empirical comparison. *Educational and Psychological Measurement, 58 (6)*, 1 - 13.

Geen, R.G. (2001*). Human Aggression*. (2nd Edition). Buckingham: Open University Press.

Genco, P. (2000). Technostress in Our Schools and Lives. *Book Report, September/ October, 19 (2)*, 42 - 43.

Greenglass, E.R., & Burke, R.J. (2001). Editorial Introduction-Downsizing and Restructuring: Implications for Stress and Anxiety. *Anxiety, Stress & Coping, 14 (1),* 1 - 13.

Goleman, D. (1996). *Emotional Intelligence: Why it can matter more than IQ.* London: Bloomsbury.

Hammer, T.H., Saksvik, P.O., Nytrø, K., Torvatn, H., & Bayazit, M. (2004). Expanding the Psychosocial Work Environment: Workplace Norms and Work-Family Conflict as Correlates of Stress and Health. *Journal of Occupational Psychology, 9 (1)*, 83 - 97.

Hawton, K & Kirk, J. (1989). Problem-solving. In Hawton, K., Salkovskis, P.M., Kirk, J. & Clark, D.M. (Eds). *Cognitive Behaviour Therapy for Psychiatric Problems: A Practical Guide.* Oxford: Oxford University Press.

Heppner, P.P., Kivlighan, D.M.,Jr, & Wampold, B.E. (1992). *Research Design in Counseling.* Pacific Grove: Brooks/Cole Publishing Company.

Heppner, P.P. & Lee, D. (2005). In Snyder, C.R. & Lopez, S.J. (Eds.). *Handbook of Positive Psychology.* New York: Oxford University Press.

Heylin, M. (2004). Employment and Salary Survey. *Chemical and Engineering News, 82 (33)*, 26 - 38.

Hogh, A., Borg, V., & Mikkelsen, K.L. (2003). Work-related violence as a predictor of fatigue: A 5-year follow-up of the Danish Work Environment Cohort Study. *Work & Stress, 17 (2),* 182 - 194.

Jackson, S.E. (1983). Participation in Decision Making: A Strategy for Reducing Job-Related-Strain. *Journal of Applied Psychology, 68 (1)*, 3 - 19.

Jackson, S.L. (2006). *Research Methods and Statistics: A Critical Thinking Approach.* 2nd ed. Belmont: Thomson-Wadsworth.

Jex, S.M. & Thomas, J.L. (2003). Relations between stressors and group perceptions: main and mediating effects. *Work & Stress, 17 (2),* 158 - 169.

Jick, T.D., & Mitz, L.F. (1985). Sex Differences in Work Stress. *Academy of Management Review, 10 (3)*, 408 - 420.

Kant, G.L., D'Zurilla, T.J., and Maydeu-Olivares, A. (1997). Social Problem Solving as a Mediator of Stress-Related Depression and Anxiety in Middle-Aged and Elderly Community Residents. *Cognitive Therapy and Research, 21 (1)*, 73 - 96.

Kaplan, H.I., Sadock, B.J., and Grebb, J.A. (1994). *Synopsis of Psychiatry: Behavioral Sciences Clinical Psychiatry.* 7th ed. Baltimore: Williams & Wilkins.

Kaukiainen, A., Salmivalli, C., Björkqvist, K., Österman, K., Lahtinen, A., Kostamo, A., and Lagerspetz, K. (2001). Overt and Covert Aggression in Work Settings in Relation to the Subjective Well-Being of Employees. *Aggressive Behavior,* 27, 360 - 371.

Keogh, E., French, C., & Reidy, J. (1998). Predictors of Worry. *Anxiety, Stress & Coping, 11(1)*, 67 - 80.

King, J.E. (2000). White-collar reactions to job insecurity and the role of the psychological contract: implications for human resource management. *Human Resource Management, 39 (1)*, 79 - 92.

Kivimäki, M., Vahtera, J., Thomson, L., Griffiths, A., Cox, T. & Pentti, J. (1997). Psychosocial Factors Predicting Employee Sickness Absence During Economic Decline*. Journal of Applied Psychology, 82 (6)*, 858 - 872.

Kivimäki, M., Vahtera, J., Pentti, J. & Ferrie, J.E. (2000). Factors Underlying the Effect of Organizational Downsizing on Health of Employees: Longitudinal Cohort Study. *British Medical Journal, 320 (724)*, 971 - 975.

Kobasa, S.C., Maddi, S.R., & Kahn, S. (1982). Hardiness and health: A prospective study. *Journal of Personality and Social Psychology, 42,* 168 - 177.

Koeske, G.F. & Kirk, S.A. (1993). Coping with Job Stress: Which Strategies work best? *Journal of Occupational & Organizational Psychology, 66 (4)*, 319 - 335.

Krahé, B. (2001).*The Social Psychology of Aggression.* Hove, East Sussex: Psychology Press.

Lazarus, R.S. & Folkman, S. (1984). *Stress, appraisal and coping.* New York: Springer.

Leak, G.K & Parsons, C.J. (2001). The susceptibility of three attachment style measures to socially desirable responding. *Social Behavior and Personality, 29 (1),* 21 - 30.

Leather, P., Lawrence, C., Beale, D., Cox, T., & Dickson, R. (1998). Exposure to occupational violence and the buffering effects of intra-organizational support. *Work & Stress, 12 (2),* 161 - 178.

Lim, V.K.G. (1996). Job Insecurity and Its Outcomes: Moderating Effects of Work-Based and Nonwork-Based Social Support. *Human Relations, 49 (2),* 171 - 194.

Lindsay, J.J. & Anderson, C.A. (2000). From Antecedent Conditions to Violent Actions: A General Affective Aggression Model. *Personality and Social Psychology Bulletin, 26 (5),* 533 - 547.

Lounsbury, J.W. & Hoopes, L.L. (1986). A Vacation from Work: Changes in Work and Nonwork Outcomes. *Journal of Applied Psychology, 71 (3),* 392 - 401.

Luthans, F. (2002). *Organizational Behavior.* 9[th]ed. (International Edition). New York: McGraw-Hill, Inc.

Maddi, S.R. (1996). *Personality Theories: A Comparative Analysis.* 6th ed. Pacific Grove: Brooks/Cole Publishing Company.

Marais, E.N. & Schepers, J.M. (1996). The effect of organizational restructuring on job satisfaction, career aspirations, and stress levels of employees. *Journal of Industrial Psychology, 22 (3),* 1 - 6.

Martinko, M.J. & Zellars, K.L. (1998). Toward a theory of workplace violence and aggression: A cognitive appraisal perspective. In Griffin, R.W., O'Leary-Kelly, A. & Collins, J. M. (Eds). *Dysfunctional behavior in organizations: Violent and deviant behavior* (1 - 42). Stamford, CT: JAI Press Inc.

Maslach, C., Schaufeli, W.B., & Leiter, M. (2001). Job Burnout. *Annual Review of Psychology*, *52,* 397 - 422.

May, R. & Yalom, I. (1989). Existential Psychotherapy. In Corsini, R.J. & Wedding, D. *Current Psychotherapies.* 4th ed. Itasca: F.E. Peacock Publishers, Inc.

Maydeu-Olivares, A., and D'Zurilla, T.J. (1996). A Factor-Analytic Study of the Social Problem-Solving Inventory: An Integration of Theory and Data. *Cognitive Therapy and Research, 20 (2),* 115 - 133.

McKay, M., Rogers, P.D. & McKay, J. (2003). 2nd Ed. *When Anger Hurts: Quieting the Storm Within.* Oakland: New Harbinger.

McMillan, J.H. & Schumacher, S. (2001). *Research in Education: A Conceptual Introduction.* New York: Addison Wesley Longman.

Michalak, E. E., Murray, G., Wilkinson, C., Dowrick, C., Lasa, L., Lehtinen, V., Dalgard, O. S., Ayuso-Mateos, J. L., Vázquez-Barquero, J. L., Casey, P., the ODIN group. (2004). Estimating depression prevalence from the Beck Depression Inventory: is season of administration a moderator? *Psychiatry Research, 129 (1),* 99 - 106.

Molina, S., & Borkovec, T.D. (1994). In G.C.L. Davey. & F. Tallis. (Eds.). *Worrying: Perspectives on theory, assessment and treatment. Wiley series in clinical psychology.* Chichester: Wiley.

Molina, S., Borkovec, T.D., Peasley, C., and Person, D. (1998). Content analysis of worrisome streams of consciousness in anxious and dysphoric participants. *Cognitive Therapy and Research, 22 (2)*, 109 - 123.

Moller, A.T. & Spangenberg, J.J. (1996). Stress and coping amongst South African dentists in private practice. *Journal of the Dental Association of South Africa, 51 (6)*, 347 - 357.

Moorhead, G. & Griffin, R.W. (1989). *Organizational Behavior.* 2nd ed. Boston: Houghton Mifflin Company.

Murphy, L.R. (1995). Managing Job Stress: An Employee Assistance Human Resource Management Partnership. *Personnel Review, 24 (1)*, 41 - 50.

Murphy, L.R. (1996). Stress Management in Work Settings: A Critical Review of the Health Effects. *American Journal of Health Promotion, 11 (2)*, 112 - 135.

Nelson, D.L., & Quick, J.C. (1985). Professional Women: Are Distress and Disease Inevitable? *Academy of Management Review, 10 (2)*, 206 - 218.

Nelson, D.L. & Simmons, B.L. (2002). Health Psychology and Work Stress. In Quick, J.P. & Tetrick, L.E. (Eds). *Handbook of Occupational Health Psychology.* Washington: American Psychological Association.

Neuman, J.H. & Baron, R.A. (1998). Workplace violence and workplace aggression: Evidence concerning specific forms, potential causes, and preferred targets. *Journal of Management, 24 (3)*, 391 - 419.

Nolen-Hoeksema, S., McBride, A. and Larson, J. (1997). Rumination and psychological distress among bereaved partners. *Journal of Personality and Social Psychology, 72*, 855 - 862.

O'Leary-Kelly, A.M., Griffin, A.M., & Glew, D.J. (1996). Organization-motivated aggression: a research framework. *Academy of Management Review, 21 (1)*, 225 - 253.

Parkes, K.R. (1994). Personality and coping as moderators of work stress processes, methods and measures. *Work & Stress, 8 (2)*, 110 - 129.

Perri, M.G., Nezu, A.M. & Viegener, B.J. (1992). *Improving the Long-Term Management of Obesity: Theory, Research, and Clinical Guidelines*. New York: John Wiley & Sons.

Podsakoff, P.M. & Organ, D.W. (1986). Self-Reports in Organizational Research: Problems and Prospects. Journal *or Management, 12 (4)*, 531 - 544.

Pollard, T.M. (2001). Changes in mental well-being, blood pressure and total cholesterol levels during workplace reorganization: the impact of uncertainty. *Work & Stress, 15 (1)*, 14-28.

Presbury, J.H., Echterling, L.G., & McKee, J. E. (2002). *Ideas and Tools for Brief Counseling*. New Jersey: Pearson Education, Inc.

Quick, J.P. & Tetrick, L.E. (Eds). *Handbook of Occupational Health Psychology*. Washington: American Psychological Association.

Quick, J.P., Quick, J.D., Nelson & Hurrell, J.J. (1997). *Preventive Stress Management in Organizations*. Washington: American Psychological Association.

Reader's Digest. (1993). *The Reader's Digest Oxford Complete Wordfinder*. London:The Reader's Digest Association.

Robinson, S.L. & Greenberg, J. (1998). Employees Behaving Badly: Dimensions, determinants, and Dilemmas in the Study of Workplace Deviance, In Rousseau, D.M. & Cooper, C. (Eds.). *Trends in Organizational Behavior*. Vol 5, 1 - 30. New York: Wiley.

Rosa, R.R. (1995). Extended work shifts and excessive fatigue. *Journal of Sleep Research, 4 (Suppl.),* 51 - 56.

Roskies, E. & Louis-Guerin, C. (1990). Job insecurity in managers: Antecedents and consequences. *Journal of Organizational Behavior, 11 (5)*, 345 - 359.

Rutter, A. & Hine, D.W. (2005). Sex Differnces in Workplace Aggression: An Investigation of Moderation and Mediation Effects. *Journal of Aggressive Behavior, 31 (3),* 254 - 270

Sanchez, J. I., Spector, P.E. & Cooper, C. L. (2000). Adapting to a boundaryless world: A developmental expatriate model. *The Academy of Management Executive, 14 (2),* 96 - 106.

Schaufeli, W.B. (2003). Past Performance and Future Perspectives of Burnout Research. *SA Journal of Industrial Psychology, 29 (4),* 1 - 15.

Scheck, C.L. and Kinicki, A.J. (2000). Identifying the antecedents of coping with an organizational acquisition: a structural assessment. *Journal of Organizational Behavior, 21*, 627 - 648.

Schell, B.H. (1997). *A Self-Diagnostic Approach to Understanding Organizational and Personal Stressors.* Westport, Connecticut: Quorum Books.

Schneider, K., & Northcraft, G.B. (1999). Three Social Dilemmas of Workforce Diversity in Organizations: A Social Identity Perspective. *Human Relations, 52 (11)*, 1445 - 1467.

Schonfeld, I.S. (2000). An updated look at depressive symptoms and job satisfaction in first-year women teachers. *Journal of Occupational and Organizational Psychology, 73 (3)*, 363 - 372).

Sikora, P.B., Beaty, E.D. & Forward, J. (2004). Updating Theory on Organizational Stress: The Asynchronous Multiple Overlapping Change (AMOC) Model of Workplace Stress. *Human Resource Development Review, 3 (1)*, 3 - 35.

Smith, C.S., Folkard, S., & Fuller, J.A. (2002). Shiftwork and Working Hours. In Quick, J.P. & Tetrick, L.E. (Eds). *Handbook of Occupational Health Psychology.* Washington: American Psychological Association.

Smithson, J., & Lewis, S. (2000). Is Job Insecurity changing the Psychological Contract? *Personnel Review, 29 (6),* 680 - 698.

Snow, D.L., Swan, S.C., Raghavan, C., Connel, C.M., & Klein, I. (2003). The relationship of work stressors, coping and social support to psychological symptoms among female secretarial employees. *Work & Stress, 17 (3)*, 241 - 263.

Spangenberg, J.J. & Orpen-Lyall, M.R. (2000). Stress and Coping Strategies in a Sample of South African Managers involved in Post-Graduate Managerial Studies. *Journal of Industrial Psychology, 26 (1)*, 6 - 10.

Sparks, K., Faragher , B., and Cooper, C. L. (2001). Well-being and occupational health in the 21st century workplace. *Journal of Occupational and Organizational Psychology, 74 (4)*, 489 - 509.

Strydom, S.C. & Meyer, J.C. (2002). 'n Ondersoek na die Bronne van Werkstevredenheid en Werkstres onder Middelvlakbestuurders in die Wes-Kaap. *South African Journal of Industrial Psychology, 28 (2),* 15 - 22.

Sutherland, V.L., & Cooper, C.L. (2000). *Strategic Stress Management: An Organizational Approach.* Hampshire: Palgrave.

Szondi, L. (1972). *Lehrbuch der experimentellen Triebdiagnostik Band I-Textband*. Bern: Verlag Huber.

Terluin, B., Van Rhenen, W., Schaufeli, W.B., & De Haan, M. (2004). The Four-Dimensional Symptom Questionnaire (4DSQ): measuring distress and other mental health problems in a working population. *Work and Stress, 18 (3)*, 187 - 207.

Tetrick, L.E. & Quick, J.P. (2002). Prevention at Work: Public Health in Occupational Settings. In Quick, J.P. & Tetrick, L.E. (Eds). *Handbook of Occupational Health Psychology.* Washington: American Psychological Association.

Theorell, T. (2002). To be able to Exert Control Over One's Own Situations: A Necessary Condition for Coping with Stressors. In Quick, J.P. & Tetrick, L.E. (Eds). *Handbook of Occupational Health Psychology.* Washington: American Psychological Association.

Torkelson, E. & Muhonen, T. (2003). Stress and health among women and men in a Swedish telecom company. *European Journal of Work and Organizational Psychology, 12 (2)*, 171 - 186.

Tulloch, S. (Ed.). (1993). *Reader's Digest Oxford Complete Wordfinder*. London: The Reader's Digest Association Limited.

Van der Ploeg, E., Dorresteijn, S.M., & Kleber, R.J. (2003). Critical Incidents and Chronic Stressors at Work: Their Impact on Forensic Doctors. *Journal of Occupational Health Psychology, 8 (2),* 157 - 166.

Van Zyl, E.S. (1993). Stress, soos ervaar deur die hoëvlak Swart werknemer in Suid-Afrika. *Journal of Industrial Psychology, 19 (3)*, 36 - 39.

Van Zyl, E.S. (1996). The experience of stress in a group of lower level black and white employees involved in manual tasks. *South African Journal of Management Sciences, 18 (3)*, 118 - 134.

Van Zyl, E.S. (1997). Die verband tussen stress en organisasieklimaat by 'n groep middelvlak bestuurders in die finansiële sektor. *Tydskrif vir Geesteswetenskappe, 19 (3)*, 138 - 143.

Van Zyl, E.S. (1998). Die Effek van Regstellende Aksie op die Streservaring van 'n Groep Swart Werknemers. *Journal of Industrial Psychology, 24 (1)*, 22 - 25.

Van Zyl, E.S. (2002). The Measurement of Work Stress within South African Companies: A Luxury or a Necessity? *South African Journal of Industrial Psychology, 28 (3),* 26 - 31.

Van Zyl, E.S., & Pietersen, C. (1999). An investigation into work stress experienced by a group of secondary school teachers. *South African Journal of Education*, *19 (1)*, 74 - 78.

Van Zyl, E.S., & Van der Walt, H.S. (1991). *Manual for the Experience of Work and Life Circumstances Questionnaire*. Pretoria: HSRC.

Wainwright, D. & Calnan, M. (2002). *Work Stress: The making of a modern epidemic*. Buckingham: Open University Press.

Weiss, H.M., Ilgen, D.R. & Sharbaugh, M.E. (1982). Effects of Life and Job Stress on Information Search Behaviors of Organizational Members. *Journal of Applied Psychology, 67 (1)*, 60 - 66.

Wiebe, D.J. & McCallum, D.M. (1986). Health practices and hardiness of mediators in the stress-illness relationship. *Health Psychology, 5 (5),* 425 - 438.

Williams, K.D., & Sommer, K.L. (1997). Social ostracism by coworkers: Does rejection lead to loafing of compensation? *Personality and Social Psychology Bulletin, 23 (7)*, 693 - 706.

Wills, F. & Sanders, D. (1997). *Cognitive Therapy: Transforming the Image.* London: SAGE Publications.

Whitley, B.E. Jr. (2002). Principles of Research in Behavioral Science. 2nd ed. Boston: McGraw Hill.

1. Descriptive statistics for the total sample

1.1: Experience of Work and Life Circumstances Questionnaire-raw scores

	Subscale	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness
	Level of stress	206	73.76	20.09	1.40	2.06	1.31
	Causes outside the work situation	206	25.30	6.59	0.46	1.28	1.19
Causes within the work situation	Organizational functioning	206	20.31	5.62	0.39	-0.30	-0.34
	Task characteristics	206	50.24	7.17	0.50	-0.66	-0.24
	Physical working conditions	206	24.54	5.87	0.41	0.87	-0.81
	Career matters	206	24.34	6.35	0.44	0.35	-0.62
	Social matters	206	24.56	4.63	0.32	0.83	-0.68
	Remuneration; fringe benefits and personnel policy	206	28.43	8.74	0.61	-0.19	-0.21

1.2: Distribution of standard scores for levels of stress

Subscale	Level of stress	N	%
Level of stress	Normal	146	70.9
	High	35	17.0
	Very high	25	12.1
Causes outside the work situation	Normal	185	89.8
	High	12	5.8
	Very high	9	4.4
Organizational functioning	Normal	155	75.2
	High	39	18.9
	Very high	12	5.8
Task characteristics	Normal	181	87.9
	High	24	11.7
	Very high	1	0.5
Physical working conditions	Normal	179	86.9
	High	19	9.2
	Very high	8	3.9
Career matters	Normal	146	70.9
	High	35	17.0
	Very high	25	12.1
Social matters	Normal	169	82.0
	High	28	13.6
	Very high	9	4.4
Remuneration; fringe benefits and personnel policy	Normal	155	75.2
	High	29	14.1
	Very high	22	10.7

Table 1.3: Experience of Work and Life Circumstances Questionnaire-norm scores

	Subscale	N	Mean	Standard deviation
	Level of stress #	206	1.41	0.70
	Causes outside the work situation #	206	1.14	0.46
Causes within the work situation	Organizational functioning *	206	2.69	0.57
	Task characteristics *	206	2.87	0.35
	Physical working conditions *	206	2.83	0.47
	Career matters *	206	2.59	0.70
	Social matters *	206	2.78	0.51
	Remuneration; fringe benefits and personnel policy *	206	2.65	0.67

\#   Normal = 1, high = 2, very high = 3
*   Normal = 3, high = 2, very high = 1

1.4: Reliability coefficients Cronbach alpha for the Experience of Work and Life Circumstances Questionnaire

Variable		N	Cronbach alpha
Overall WLQ		206	0.848
Level of stress		206	0.950
Causes outside the work situation		206	0.804
Causes within the work situation	Organizational functioning	206	0.829
	Task characteristics	206	0.738
	Physical working conditions	206	0.837
	Career matters	206	0.845
	Social matters	206	0.794
	Remuneration; fringe benefits and personnel policy	206	0.891

1.5: Aggression in the Workplace-witnessed

Scale (Witnessed)	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness
Overall	205	75.58	20.69	1.45	-0.17	0.57
Expressions of Hostility	205	37.27	11.57	0.81	-0.21	0.52
Obstructionism	205	26.43	8.05	0.56	0.43	0.60
Overt Aggression	205	11.87	3.37	0.24	3.60	1.70

1.6: Aggression in the Workplace-experienced

Scale (Experienced)	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness
Overall	206	63.18	19.34	1.35	1.93	0.71
Expressions of Hostility	206	30.30	10.36	0.72	1.53	0.80
Obstructionism	205	22.49	7.98	0.56	1.25	0.98
Overt Aggression	203	10.66	2.78	0.19	12.57	3.07

1.7: Reliability coefficients Cronbach alpha for the Aggression in the Workplace Questionnaire

Witnessed	N	Cronbach alpha	Experienced	N	Cronbach alpha
Overall	205	0.943	Overall	206	0.950
Expressions of Hostility	202	0.881	Expressions of Hostility	202	0.874
Obstructionism	202	0.873	Obstructionism	202	0.876
Overt Aggression	202	0.886	Overt Aggression	202	0.901

1.8: IPAT Anxiety Scale

Scale	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness
Factor -C	206	3.69	2.44	0.17	-0.012	0.61
Factor L	206	3.36	1.92	0.13	-0.47	0.13
Factor O	206	8.24	4.18	0.29	-0.39	0.40
Factor -Q_3	206	4.82	2.89	0.20	0.14	0.52
Factor Q_4	206	6.56	3.91	0.27	-0.66	0.34
Score A	206	13.89	6.29	0.44	-0.12	0.43
Score B	206	12.80	7.04	0.49	-0.41	0.43
Total score	206	26.68	12.17	0.85	-0.22	0.41

1.9: Reliability coefficients Cronbach alpha for the IPAT Anxiety Scale

Scale	N	Cronbach alpha
Factor -C	188	0.916
Factor L	189	0.917
Factor O	203	0.931
Factor -Q_3	192	0.844
Factor Q_4	199	0.930
Score A	205	0.932
Score B	204	0.956
Total score	206	0.977

1.10: Beck Depression Inventory

Scale	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness
Depression	205	6.93	6.57	0.46	3.08	1.70

1.11: Reliability Coefficients Cronbach alpha of the Beck Depression Inventory

Scale	N	Cronbach alpha
Depression	191	0.945

1.12: Penn State Worry Questionnaire

Scale	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness
Worry	203	41.36	11.14	0.78	0.01	0.63

1.13: Reliability of the Penn State Worry Questionnaire

Scale	N	Cronbach alpha
Worry	203	0.910

1.14: Social Problem-Solving Inventory-Revised

Scale	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness
Positive Problem Orientation Scale	205	18.23	3.28	0.23	0.44	-0.43
Negative Problem Orientation Scale	206	18.48	6.24	0.43	1.034	0.93
Rational Problem Solving Scale	205	67.45	12.40	0.87	0.57	-0.35
Problem Definition and Formulation Subscale	205	17.77	3.35	0.23	0.46	-0.25
Generation of Alternatives Subscale	205	17.18	3.50	0.24	0.02	-0.42
Decision Making Subscale	205	16.39	3.29	0.23	0.27	-0.18
Solution Implementation and Verification Subscale	205	16.11	3.75	0.26	0.18	-0.27
Impulsivity/ Carelessness Style Scale	205	18.36	5.33	0.37	1.17	0.99
Avoidance Style Scale	205	12.74	4.10	0.29	0.34	0.75
Social Problem Solving	206	16.44	2.43	0.17	3.74	-1.21

1.15: Reliability coefficients Cronbach alpha for the Social Problem-Solving Inventory

Scale	N	Cronbach alpha
Positive Problem Orientation Scale	205	0.745
Negative Problem Orientation Scale	206	0.889
Rational Problem Solving Scale	205	0.939
Problem Definition and Formulation Subscale	205	0.838
Generation of Alternatives Subscale	205	0.825
Decision Making Subscale	205	0.730
Solution Implementation and Verification Subscale	205	0.870
Impulsivity/ Carelessness Style Scale	205	0.815
Avoidance Style Scale	205	0.753
Social Problem Solving	206	0.887

2. Descriptive statistics for gender

2.1: Experience of Work and Life Circumstances Questionnaire

Subscale		Gender	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Level of stress		Male	121	74.36	20.57	1.87	2.54	1.43	-0.03
		Female	85	72.92	19.47	2.11	1.26	1.13	0.04
Causes outside the work situation		Male	121	25.11	6.17	0.56	1.54	1.16	0.03
		Female	85	25.56	7.17	0.78	0.96	1.19	-0.04
Causes within the work situation	**Organizational functioning**	Male	121	20.27	5.50	0.50	0.05	-0.53	0.01
		Female	85	20.36	5.82	0.63	-0.69	-0.13	-0.01
	Task characteristics	Male	121	50.00	7.14	0.65	-0.91	-0.16	0.03
		Female	85	50.59	7.25	0.79	-0.25	-0.36	-0.05
	Physical working conditions	Male	121	25.17	5.68	0.52	0.61	-0.78	-0.11
		Female	85	23.66	6.04	0.66	1.19	-0.85	0.15
	Career matters	Male	121	24.52	5.97	0.54	0.58	-0.59	-0.03
		Female	85	24.09	6.88	0.75	0.08	-0.61	0.04
	Social matters	Male	121	24.12	4.28	0.39	0.24	-0.54	0.10
		Female	85	25.19	5.04	0.55	1.54	-0.93	-0.13
	Remuneration; fringe benefits and personnel policy	Male	121	28.74	8.53	0.78	0.17	-0.35	-0.04
		Female	85	28.00	9.05	0.98	-0.52	-0.03	0.05

2.2: Aggression in the Workplace Questionnaire-witnessed

Scale (Witnessed)	Gender	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	Male	120	77.11	19.33	1.76	-0.03	0.58	-0.08
	Female	85	73.40	22.41	2.43	-0.24	0.64	0.10
Expressions of Hostility	Male	120	37.75	10.81	0.99	0.05	0.54	-0.04
	Female	85	36.60	12.59	1.37	-0.44	0.55	0.06
Obstructionism	Male	120	27.25	7.57	0.69	1.35	0.72	-0.10
	Female	85	25.28	8.60	0.93	-0.30	0.61	0.14
Overt Aggression	Male	120	12.11	3.68	0.34	3.70	1.75	-0.07
	Female	85	11.52	2.86	0.31	0.92	1.27	0.11

2.3: Aggression in the Workplace Questionnaire-experienced

Scale (Experienced)	Gender	N	Mean	Standard deviation	Standard Error	Kurtosis	Skewness	Effect size
Overall	Male	121	64.69	19.68	1.79	2.19	0.67	-0.08
	Female	85	61.05	18.75	2.03	1.73	0.79	0.11
Expressions of Hostility	Male	121	30.74	10.38	0.94	2.28	0.86	-0.04
	Female	85	29.67	10.36	1.12	0.59	0.72	0.06
Obstructionism	Male	120	23.52	7.85	0.72	1.39	0.94	-0.13
	Female	85	21.05	7.99	0.87	1.54	1.15	0.18
Overt Aggression	Male	119	10.81	3.07	0.28	12.12	3.05	-0.05
	Female	84	10.45	2.30	0.25	9.23	2.72	0.08

2.4: IPAT Anxiety Scale

Scale	Gender	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	Male	121	3.41	2.38	0.22	-0.12	0.58	0.12
	Female	85	4.09	2.48	0.27	0.07	0.65	-0.16
Factor L	Male	121	3.29	1.95	0.18	-0.62	0.13	0.04
	Female	85	3.47	1.88	0.20	-0.18	0.17	-0.06
Factor O	Male	121	7.74	4.09	0.37	0.10	0.63	0.12
	Female	85	8.95	4.22	0.46	-0.70	0.11	-0.17
Factor -Q_3	Male	121	4.60	3.08	0.28	0.39	0.77	0.07
	Female	85	5.13	2.58	0.28	-0.17	0.06	0.11
Factor Q_4	Male	121	6.12	3.85	0.35	-0.47	0.41	0.11
	Female	85	7.20	3.92	0.43	-0.85	0.24	-0.16
Score A	Male	121	13.45	6.52	0.59	0.03	0.69	0.07
	Female	85	14.52	5.94	0.64	-0.03	0.02	-0.10
Score B	Male	121	11.72	6.75	0.61	0.35	0.60	0.16
	Female	85	14.33	7.20	0.78	-1.05	0.20	-0.22
Total score	Male	121	25.17	12.26	1.11	0.33	0.66	0.12
	Female	85	28.85	11.79	1.28	-0.63	0.10	-0.18

2.5: Beck Depression Inventory

Scale	Gender	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Depression	Male	120	6.65	6.31	0.58	3.65	1.81	0.04
	Female	85	7.34	6.94	0.75	2.62	1.59	-0.06

2.6: Penn State Worry Questionnaire

Scale	Gender	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Worry	Male	118	39.25	10.22	0.94	0.02	0.70	0.19 (0.20*)
	Female	85	44.31	11.74	1.27	-0.06	0.47	-0.26

*Uncorrected

2.7: Social Problem-Solving Inventory

Scale	Gender	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	Male	121	18.41	3.25	0.30	0.24	-0.58	-0.05 (-0.06*)
	Female	84	17.96	3.33	0.36	0.90	-0.24	0.08
Negative Problem Orientation Scale	Male	121	17.58	6.06	0.55	1.47	1.24	0.15
	Female	85	19.75	6.31	0.68	1.19	0.60	-0.20
Rational Problem Solving Scale	Male	121	68.62	12.79	1.16	0.22	-0.40	-0.09
	Female	84	65.76	11.68	1.27	1.48	-0.38	0.14
Problem Definition and Formulation Subscale	Male	121	18.08	3.53	0.32	0.17	-0.32	-0.09
	Female	84	17.31	3.05	0.33	1.32	-0.28	0.14
Generation of Alternatives Subscale	Male	121	17.59	3.58	0.33	-0.21	-0.43	-0.12
	Female	84	16.60	3.33	0.36	0.52	-0.54	0.17
Decision Making Subscale	Male	121	16.60	3.27	0.30	0.16	-0.29	-0.06
	Female	84	16.08	3.32	0.36	0.62	-0.02	0.09
Solution Implementation and Verification Subscale	Male	121	16.36	3.91	0.36	0.12	-0.24	-0.07
	Female	84	15.77	3.51	0.38	0.28	-0.42	0.09
Impulsivity/ Carelessness Style Scale	Male	121	17.91	5.25	0.48	1.10	0.97	0.08
	Female	84	19.00	5.42	0.59	1.37	1.04	-0.12
Avoidance Style Scale	Male	121	12.74	4.20	0.38	0.73	0.88	0.00
	Female	84	12.74	3.99	0.43	-0.29	0.54	0.00
Social Problem Solving	Male	121	16.74	2.27	0.21	0.84	-0.82	-0.13
	Female	85	16.03	2.60	0.28	5.83	-1.53	0.16 (0.17*)

*Uncorrected

3. Descriptive statistics for the four age groups

3.1: Experience of Work and Life Circumstances Questionnaire

Subscale		Age (years)	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Level of stress		20-29	24	67.17	14.16	2.89	-1.28	0.08	0.34
		30-39	78	73.69	20.86	2.36	1.48	1.27	0.00
		40-49	59	75.92	20.41	2.66	3.25	1.50	-0.11
		50+	43	72.93	19.22	2.93	1.90	1.28	0.04
Causes outside the work situation		20-29	24	24.42	6.51	1.33	-0.54	0.81	0.13
		30-39	78	25.28	6.51	0.74	1.27	1.26	0.00
		40-49	59	25.19	5.84	0.76	1.74	1.26	0.02
		50+	43	25.44	7.15	1.09	1.14	1.02	-0.02
Causes within the work situation	**Organizational functioning**	20-29	24	21.67	5.52	1.13	-1.47	-0.36	-0.24
		30-39	78	20.92	5.62	0.64	-0.024	-0.40	-0.11
		40-49	59	19.24	5.56	0.72	-0.32	-0.36	0.19
		50+	43	20.42	5.27	0.80	0.13	-0.23	-0.02
	Task characteristics	20-29	24	49.88	7.39	1.51	-1.15	0.09	0.05
		30-39	78	49.99	7.23	0.82	-0.71	-0.13	0.03
		40-49	59	50.22	6.52	0.85	-0.21	-0.49	0.00
		50+	43	51.53	7.45	1.14	-0.81	-0.34	-0.18
	Physical working conditions	20-29	24	25.08	6.93	1.42	0.44	-0.96	-0.09
		30-39	78	24.56	5.42	0.61	2.86	-1.26	0.00
		40-49	59	23.69	6.23	0.81	-0.11	-0.48	0.14
		50+	43	26.00	4.67	0.71	-1.07	0.14	-0.26
	Career matters	20-29	24	24.67	4.78	0.98	0.08	0.06	-0.05
		30-39	78	24.86	6.93	0.79	0.37	-0.76	-0.08
		40-49	59	23.42	6.11	0.80	0.67	-0.64	0.15
		50+	43	25.09	5.79	0.88	-0.47	-0.33	-0.12
	Social matters	20-29	24	26.00	4.56	0.93	0.09	-0.56	-0.31
		30-39	78	24.82	4.43	0.50	0.13	-0.49	-0.06
		40-49	59	24.29	4.61	0.60	1.27	-0.62	0.06
		50+	43	24.21	4.31	0.66	0.73	-0.79	0.08
	Remuneration; fringe benefits and personnel policy	20-29	24	28.25	9.67	1.97	0.03	-0.32	0.02
		30-39	78	29.53	8.30	0.94	-0.34	-0.22	-0.13
		40-49	59	27.85	9.08	1.18	0.21	-0.21	0.07
		50+	43	27.81	8.55	1.30	-0.33	-0.17	0.07

3.2: Aggression in the Workplace-witnessed

Scale (Witnessed)	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect Size
Overall	20-29	24	73.92	21.45	4.38	0.78	0.83	0.08
	30-39	78	77.62	21.24	2.40	-0.99	0.32	-0.10
	40-49	59	75.09	18.58	2.44	2.18	1.02	0.02
	50+	43	72.53	22.09	3.37	-0.30	0.65	0.15
Expressions of Hostility	20-29	24	38.17	13.39	2.73	0.13	0.64	-0.08
	30-39	78	38.50	12.00	1.36	-1.11	0.32	-0.10 (-0.11*)
	40-49	58	36.72	10.42	1.37	2.48	1.01	0.05
	50+	43	34.74	11.11	1.69	-0.87	0.39	0.22
Obstructionism	20-29	24	24.50	6.47	1.32	-0.01	0.43	0.24
	30-39	78	27.22	8.37	0.95	-0.57	0.38	-0.10
	40-49	58	26.86	7.51	0.99	1.80	0.80	-0.05
	50+	43	25.51	9.02	1.38	1.13	0.83	0.11
Overt Aggression	20-29	24	11.25	2.79	0.57	3.41	1.77	0.19
	30-39	78	11.90	3.25	0.37	0.42	1.10	-0.01
	40-49	58	11.50	2.92	0.38	7.29	2.22	0.11
	50+	43	12.28	3.95	0.60	4.76	1.86	-0.12

*Uncorrected

3.3: Aggression in the Workplace-experienced

Scale (Experienced)	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect Size
Overall	20-29	24	56.37	10.03	2.05	-0.94	0.30	0.36 (0.37*)
	30-39	78	64.50	18.91	2.14	-0.22	0.84	-0.07
	40-49	59	64.59	18.71	2.44	4.40	1.80	-0.07
	50+	43	61.58	23.84	3.64	1.38	-0.19	0.08
Expressions of Hostility	20-29	24	28.12	7.31	1.49	-0.80	0.50	0.22
	30-39	78	30.90	10.42	1.18	-0.38	0.82	-0.06
	40-49	59	30.59	10.20	1.33	5.74	1.85	-0.03
	50+	43	29.44	11.84	1.81	0.42	-0.08	0.08
Obstructionism	20-29	24	18.50	3.56	0.73	-1.51	-0.02	0.52
	30-39	78	23.10	8.33	0.94	0.13	0.91	-0.08
	40-49	59	23.53	8.12	1.06	2.76	1.55	-0.13
	50+	42	21.95	8.39	1.29	0.20	0.03	0.07
Overt Aggression	20-29	24	9.75	1.11	0.23	2.04	1.57	0.34
	30-39	78	10.50	2.56	0.29	6.73	2.46	0.06
	40-49	59	10.47	1.98	0.26	2.49	1.65	0.07
	50+	40	11.50	4.16	0.66	8.60	2.85	-0.27 (-0.28*)

*Uncorrected

3.4: IPAT Anxiety Scale

Scale	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	20-29	24	4.25	2.56	0.52	2.32	1.07	-0.23
	30-39	78	3.34	2.26	0.26	-0.03	0.69	0.15
	40-49	59	3.93	2.42	0.32	-0.30	0.49	-0.10
	50+	43	3.58	2.67	0.41	-0.53	0.51	0.04
Factor L	20-29	24	2.83	1.60	0.33	-0.49	0.36	0.28
	30-39	78	3.47	1.94	0.22	-0.37	0.00	-0.06
	40-49	59	3.05	2.05	0.27	-0.22	0.40	0.16
	50+	43	3.79	1.77	0.27	-0.60	0.03	-0.23
Factor O	20-29	24	7.67	3.62	0.74	-0.72	0.17	0.14
	30-39	78	8.04	4.43	0.50	-0.49	0.33	0.05
	40-49	59	8.31	4.17	0.54	-0.07	0.52	-0.02
	50+	43	8.56	3.83	0.58	-1.09	0.40	-0.08
Factor -Q_3	20-29	24	5.08	2.32	0.47	0.11	0.19	-0.09
	30-39	78	4.94	3.22	0.37	0.28	0.62	-0.04
	40-49	59	4.25	2.81	0.37	-0.13	0.46	0.20
	50+	43	5.19	2.64	0.40	-0.53	0.57	-0.13
Factor Q_4	20-29	24	7.21	3.78	0.77	-0.57	-0.21	-0.17
	30-39	78	6.18	3.65	0.41	-0.50	0.33	0.10
	40-49	59	6.75	4.25	0.55	-0.82	0.39	-0.05
	50+	43	6.42	3.94	0.60	-0.32	0.56	0.04
Score A	20-29	24	14.08	5.46	1.11	-0.69	0.09	-0.03
	30-39	78	13.74	6.52	0.74	0.11	0.44	0.02
	40-49	59	13.49	6.63	0.86	-0.24	0.59	0.06
	50+	43	14.26	5.94	0.91	0.36	0.49	-0.06
Score B	20-29	24	12.96	6.63	1.35	-0.31	0.25	-0.02
	30-39	78	12.23	6.98	0.79	-0.59	0.33	0.08
	40-49	59	12.80	7.39	0.96	0.02	0.60	0.00
	50+	43	13.28	6.84	1.04	-0.59	0.55	-0.07
Total score	20-29	24	27.04	11.00	2.25	-0.53	0.03	-0.03
	30-39	78	25.97	12.29	1.39	-0.03	0.33	0.06
	40-49	59	26.29	12.89	1.68	0.15	0.64	0.03
	50+	43	27.53	11.55	1.76	-0.79	0.51	-0.07

3.5: Beck Depression Inventory

Scale	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Depression	20-29	24	6.75	5.70	1.16	0.51	1.10	0.03
	30-39	77	5.81	5.86	0.67	3.64	1.82	0.17
	40-49	59	7.17	7.15	0.93	3.94	1.96	-0.04
	50+	43	7.81	5.96	0.91	1.87	1.23	-0.14

3.6: Penn State Worry Questionnaire

Scale	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Worry	20-29	24	41.63	10.43	2.13	-0.88	0.19	-0.02
	30-39	77	41.94	11.55	1.32	-0.02	0.58	-0.05
	40-49	59	41.61	12.09	1.57	0.02	0.80	-0.02
	50+	41	39.56	9.65	1.51	0.32	0.54	0.16 (0.17*)

*Uncorrected

3.7: Social Problem-Solving Inventory-Revised for age 20-29

Scale	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	20-29	24	18.00	2.77	0.56	0.13	0.71	0.07
Negative Problem Orientation Scale	20-29	24	19.67	6.33	1.29	1.46	1.12	-0.19
Rational Problem Solving Scale	20-29	24	63.79	11.74	2.40	0.99	0.19	0.30
Problem Definition and Formulation Subscale	20-29	24	17.04	3.46	0.71	0.87	0.03	0.22
Generation of Alternatives Subscale	20-29	24	15.92	3.44	0.70	1.16	0.67	0.36
Decision Making Subscale	20-29	24	15.46	3.05	0.62	-1.07	0.02	0.28
Solution Implementation and Verification Subscale	20-29	24	15.38	3.21	0.66	0.26	0.04	0.20
Impulsivity/ Carelessness Style Scale	20-29	24	19.38	5.78	1.18	1.09	0.92	-0.19
Avoidance Style Scale	20-29	24	12.79	3.95	0.81	-0.83	0.41	-0.01
Social Problem Solving	20-29	24	16.07	1.97	0.40	-0.77	-0.18	0.15

3.8: Social Problem-Solving Inventory-Revised for age 30-39

Scale	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	30-39	77	18.31	3.29	0.37	0.09	-0.34	-0.02
Negative Problem Orientation Scale	30-39	78	18.46	6.60	0.75	0.68	0.72	0.00
Rational Problem Solving Scale	30-39	77	67.48	12.85	1.46	0.09	-0.39	0.00
Problem Definition and Formulation Subscale	30-39	77	17.75	3.40	0.39	0.09	-0.19	0.01
Generation of Alternatives Subscale	30-39	77	17.27	3.46	0.39	0.52	-0.60	-0.03
Decision Making Subscale	30-39	77	16.53	3.41	0.39	0.11	-0.21	-0.04
Solution Implementation and Verification Subscale	30-39	77	15.92	3.95	0.45	-0.28	-0.30	0.05
Impulsivity/ Carelessness Style Scale	30-39	77	18.17	5.21	0.59	4.26	1.66	0.04
Avoidance Style Scale	30-39	77	12.88	4.25	0.48	0.08	0.75	-0.03
Social Problem Solving	30-39	78	16.35	2.79	0.32	5.31	-1.69	0.04

3.9: Social Problem-Solving Inventory-Revised for age 40-49

Scale	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	40-49	59	18.90	3.11	0.41	-0.32	-0.23	-0.21
Negative Problem Orientation Scale	40-49	59	18.32	6.76	0.88	1.43	1.27	0.03
Rational Problem Solving Scale	40-49	59	70.97	10.46	1.36	-0.26	-0.15	-0.29
Problem Definition and Formulation Subscale	40-49	59	18.63	2.94	0.38	0.08	-0.11	-0.26
Generation of Alternatives Subscale	40-49	59	18.27	3.19	0.42	0.34	-0.83	-0.32
Decision Making Subscale	40-49	59	17.12	2.89	0.38	0.29	0.19	-0.23
Solution Implementation and Verification Subscale	40-49	59	16.95	3.43	0.45	0.32	-0.17	-0.23
Impulsivity/ Carelessness Style Scale	40-49	59	17.56	5.45	0.71	0.06	0.93	0.15
Avoidance Style Scale	40-49	59	12.46	4.44	0.58	1.24	1.11	0.07
Social Problem Solving	40-49	59	16.95	2.30	0.30	1.72	-1.07	-0.21

3.10: Social Problem-Solving Inventory-Revised for age 50+

Scale	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	50+	43	17.72	3.16	0.48	0.85	-0.71	0.16
Negative Problem Orientation Scale	50+	43	17.67	4.53	0.69	-0.14	0.41	0.13
Rational Problem Solving Scale	50+	43	65.98	12.03	1.83	1.44	0.03	0.12
Problem Definition and Formulation Subscale	50+	43	17.40	3.19	0.49	1.17	-0.02	0.11
Generation of Alternatives Subscale	50+	43	16.58	3.36	0.51	-0.03	-0.02	0.17
Decision Making Subscale	50+	43	15.95	3.26	0.50	0.35	-0.04	0.14
Solution Implementation and Verification Subscale	50+	43	16.05	3.73	0.57	0.61	-0.07	0.02
Impulsivity/ Carelessness Style Scale	50+	43	18.88	5.03	0.77	-0.80	0.26	-0.10
Avoidance Style Scale	50+	43	12.74	3.53	0.54	-0.02	0.25	0.00
Social Problem Solving	50+	43	16.36	1.83	0.28	-0.31	0.43	0.03

4. Descriptive data for the two marital status groups

4.1: Experience of Work and Life Circumstances Questionnaire

	Subscale	Marital status	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Level of stress		Married	154	72.99	19.84	1.60	2.70	1.43	0.04
		Non-married	52	76.04	20.86	2.90	0.79	1.05	-0.11
Causes outside the work situation		Married	154	24.60	6.23	0.50	1.93	1.30	0.11
		Non-married	52	27.35	7.24	1.00	0.21	0.93	-0.30
Causes within the work situation	**Organizational functioning**	Married	154	20.35	5.71	0.46	-0.07	-0.49	-0.01
		Non-married	52	20.19	5.41	0.75	-1.10	0.19	0.02
	Task characteristics	Married	154	50.23	7.36	0.59	-0.69	-0.24	0.00
		Non-married	52	50.29	6.66	0.92	-059	-0.24	-0.01
	Physical working conditions	Married	154	24.60	5.94	0.48	0.83	-0.80	-0.01
		Non-married	52	24.38	5.69	0.79	1.23	-0.86	0.03
	Career matters	Married	154	24.44	6.46	0.52	0.61	-0.71	-0.02
		Non-married	52	24.08	6.08	0.84	-0.46	-0.29	0.04
	Social matters	Married	154	24.73	4.78	0.39	1.17	-0.85	-0.04
		Non-married	52	24.08	4.12	0.57	-0.59	-0.03	0.11
	Remuneration; fringe benefits and personnel policy	Married	154	28.55	8.96	0.72	-0.15	-0.14	-0.01
		Non-married	52	28.10	8.12	1.13	-0.41	-0.54	0.04

4.2: Aggression in the Workplace Questionnaire-witnessed

Scale (Witnessed)	Marital Status	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	Married	153	76.20	21.13	1.71	-0.18	0.63	-0.03
	Non-married	52	73.75	19.44	2.70	-0.32	0.29	0.09
Expressions of Hostility	Married	153	37.39	11.68	0.94	-0.03	0.61	-0.01
	Non-married	52	36.92	11.33	1.57	-0.84	0.23	0.03
Obstructionism	Married	153	26.75	8.22	0.66	0.54	0.67	-0.04
	Non-married	52	25.52	7.55	1.05	-0.24	0.30	0.11
Overt Aggression	Married	153	12.06	3.61	0.29	3.17	1.65	-0.05
	Non-married	52	11.31	2.48	0.34	0.77	1.15	0.17

4.3: Aggression in the Workplace Questionnaire-experienced

Scale (Experienced)	Marital Status	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	Married	154	63.12	20.38	1.64	1.95	0.69	0.00
	Non-married	52	63.37	16.06	2.23	0.63	0.81	-0.01
Expressions of Hostility	Married	154	30.11	10.81	0.87	1.77	0.87	0.02
	Non-married	52	30.85	8.97	1.24	-0.25	0.50	-0.05
Obstructionism	Married	153	22.56	8.12	0.66	1.49	0.98	-0.01
	Non-married	52	22.29	7.64	1.06	0.46	1.00	0.03
Overt Aggression	Married	151	10.81	3.10	0.25	10.02	2.83	-0.05
	Non-married	52	10.23	1.42	0.20	0.44	1.10	0.17

4.4: IPAT Anxiety Scale

Scale	Marital Status	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	Married	154	3.44	2.22	0.18	-0.36	0.45	0.11
	Non-married	52	4.46	2.88	0.40	-0.39	0.53	-0.30
Factor L	Married	154	3.31	1.88	0.15	-0.30	0.13	0.03
	Non-married	52	3.54	2.03	0.28	-0.85	0.12	-0.09
Factor O	Married	154	7.86	4.12	0.33	-0.46	0.38	0.09
	Non-married	52	9.37	4.18	0.58	-0.33	0.49	-0.27
Factor -Q$_3$	Married	154	4.53	2.87	0.23	0.59	0.67	0.10
	Non-married	52	5.67	2.79	0.39	-0.51	0.16	-0.30
Factor Q$_4$	Married	154	6.29	3.74	0.30	-0.66	0.29	0.07
	Non-married	52	7.38	4.30	0.60	-0.91	0.32	-0.20 (-0.21*)
Score A	Married	154	13.40	6.06	0.49	-0.11	0.37	0.08
	Non-married	52	15.33	6.78	0.94	-0.36	0.47	-0.22 (-0.23*)
Score B	Married	154	12.02	6.57	0.53	-0.46	0.38	0.11
	Non-married	52	15.10	7.91	1.10	-0.74	0.29	-0.32
Total score	Married	154	25.42	11.52	0.93	-0.41	0.32	0.11
	Non-married	52	30.42	13.37	1.85	-0.30	0.41	-0.30

*Uncorrected

4.5: Beck Depression Inventory

Scale	Marital Status	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Depression	Married	154	6.44	6.18	0.50	4.63	1.92	0.08
	Non-married	51	8.43	7.51	1.05	0.74	1.24	-0.22

4.6: Penn State Worry Questionnaire

Scale	Marital Status	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Worry	Married	152	40.28	10.98	0.89	0.32	0.71	0.10
	Non-married	51	44.59	11.11	1.56	-0.52	0.47	-0.29

4.7: Social Problem-Solving Inventory-Revised

Scale	Marital Status	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	Married	153	18.51	3.32	0.27	0.80	-0.56	-0.08
	Non-married	52	17.40	3.03	0.42	-0.35	-0.18	0.26
Negative Problem Orientation Scale	Married	154	17.56	6.05	0.49	1.22	1.03	0.15
	Non-married	52	21.17	6.06	0.84	1.46	0.99	-0.43
Rational Problem Solving Scale	Married	153	68.46	12.90	1.04	0.83	-0.50	-0.08
	Non-married	52	64.48	10.33	1.43	-0.54	-0.01	0.25
Problem Definition and Formulation Subscale	Married	153	18.06	3.58	0.29	0.31	-0.34	-0.08
	Non-married	52	16.90	2.41	0.33	0.65	-0.73	0.27
Generation of Alternatives Subscale	Married	153	17.45	3.58	0.29	0.25	-0.49	-0.08
	Non-married	52	16.38	3.16	0.44	-0.79	-0.40	0.23
Decision Making Subscale	Married	153	16.64	3.33	0.27	0.59	-0.29	-0.08
	Non-married	52	15.63	3.09	0.43	-0.44	0.09	0.23
Solution Implementation and Verification Subscale	Married	153	16.31	3.81	0.31	0.40	-0.35	-0.05
	Non-married	52	15.56	3.56	0.49	-0.38	-0.07	0.15
Impulsivity/ Carelessness Style Scale	Married	153	17.73	5.11	0.41	1.04	0.97	0.12
	Non-married	52	20.21	5.59	0.78	1.40	1.09	-0.34
Avoidance Style Scale	Married	153	12.34	4.02	0.33	0.68	0.86	0.10
	Non-married	52	13.92	4.14	0.57	-0.07	0.53	-0.29
Social Problem Solving	Married	154	16.74	2.46	0.20	5.32	-1.53	-0.12
	Non-married	52	15.58	2.13	0.30	0.49	-0.54	0.36

5. Descriptive statistics for type of organization grouping

5.1: Experience of Work and Life Circumstances Questionnaire

Subscale		Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Level of stress		1	60	74.10	21.91	2.83	2.37	1.42	-0.02
		2	50	74.24	20.47	2.89	1.02	0.91	-0.02
		3	47	71.64	19.31	2.82	3.79	1.76	0.11
		4	49	74.90	18.51	2.64	2.16	1.29	-0.06
Causes outside the work situation		1	60	25.10	6.85	0.88	2.71	1.61	0.03
		2	50	25.68	7.28	1.03	0.56	1.04	-0.06
		3	47	23.38	4.86	0.71	2.67	1.23	0.30
		4	49	26.98	6.65	0.95	-0.02	0.65	-0.25
Causes within the work situation	**Organizational functioning**	1	60	21.58	5.26	0.68	0.20	-0.51	-0.23
		2	50	21.58	5.24	0.74	-1.20	-0.10	-0.23
		3	47	19.74	5.59	0.82	1.05	-0.70	0.10
		4	49	18.00	5.79	0.83	-0.93	0.07	0.41
	Task characteristics	1	60	49.60	7.68	0.99	-0.62	-0.23	0.09
		2	50	49.80	7.56	1.07	-1.06	-0.01	0.06
		3	47	52.00	6.84	1.00	0.04	-0.68	-0.25
		4	49	49.80	6.34	0.91	-0.41	-0.09	0.06
	Physical working conditions	1	60	24.65	5.75	0.74	0.07	-0.57	-0.02
		2	50	27.68	4.76	0.67	0.58	-0.90	-0.55
		3	47	24.98	5.00	0.73	3.55	-1.22	-0.08
		4	49	20.80	5.88	0.84	0.84	-0.91	0.63 (0.64*)
	Career matters	1	60	25.68	5.79	0.75	0.91	-0.77	-0.21 (-0.22*)
		2	50	25.86	5.75	0.81	-0.68	-0.17	-0.24
		3	47	23.36	6.40	0.93	1.00	-0.80	0.15
		4	49	22.10	6.89	0.98	-0.22	-0.46	0.35
	Social matters	1	60	24.90	5.20	0.67	2.31	-1.33	-0.07
		2	50	24.82	4.13	0.58	-0.44	-0.13	-0.06
		3	47	23.98	4.56	0.67	0.64	-0.46	0.13
		4	49	24.45	4.50	0.64	-0.60	-0.21	0.02
	Remuneration; fringe benefits and personnel policy	1	60	27.53	9.14	1.18	-0.51	0.03	0.10
		2	50	29.62	9.02	1.28	-0.17	-0.61	-0.13 (-0.14*)
		3	47	32.53	7.08	1.03	-0.59	0.20	-0.48
		4	49	24.39	7.52	1.07	0.71	-0.44	0.47

*Uncorrected

1 = Financial, 2 = Production/ Services, 3 = Research & Development, 4 = Academic/ Auxiliary Services

5.2: Aggression in the Workplace-witnessed

Scale (Witnessed)	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	1	60	72.90	16.79	2.17	-0.66	0.17	0.13
	2	49	82.45	22.62	3.23	-0.96	0.05	-0.33
	3	47	73.30	18.41	2.69	0.45	0.86	0.11
	4	49	74.16	23.92	3.42	0.29	0.86	0.07
Expressions of Hostility	1	60	36.35	10.06	1.30	-0.78	0.25	0.08
	2	49	41.35	12.66	1.81	-0.71	0.15	-0.35
	3	47	36.15	11.36	1.66	1.54	1.01	0.10
	4	49	35.41	11.73	1.68	-0.31	0.62	0.16
Obstructionism	1	60	25.48	6.87	0.89	-0.26	0.35	0.12
	2	49	28.04	7.85	1.12	-0.88	-0.21	-0.20
	3	47	25.89	7.04	1.03	1.28	0.88	0.07
	4	49	26.51	10.23	1.46	0.56	0.90	-0.01
Overt Aggression	1	60	11.07	2.50	0.32	0.76	1.23	0.25
	2	49	13.06	3.98	0.57	3.00	1.48	-0.34
	3	47	11.26	2.65	0.39	1.84	1.51	0.19
	4	49	12.24	3.91	0.56	2.44	1.60	-0.11

5.3: Aggression in the Workplace-experienced

Scale (Experienced)	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	1	60	64.50	14.98	1.93	1.76	-0.31	-0.07
	2	50	66.76	22.35	3.16	0.39	0.25	-0.18
	3	47	62.53	18.30	2.67	5.52	2.02	0.03
	4	49	63.51	21.62	3.09	1.44	0.60	-0.02
Expressions of Hostility	1	60	29.38	8.63	1.11	0.28	0.14	0.09
	2	50	32.70	11.81	1.67	-0.37	0.12	-0.22 (-0.23*)
	3	47	29.72	10.52	1.53	6.56	2.07	0.06
	4	49	29.51	10.50	1.50	1.24	0.80	0.08
Obstructionism	1	60	21.25	6.28	0.81	1.10	0.22	0.16
	2	50	22.78	8.64	1.22	0.01	0.55	-0.04
	3	47	22.74	7.69	1.12	2.93	1.65	-0.03
	4	48	23.50	9.40	1.36	0.59	1.03	-0.12
Overt Aggression	1	59	9.98	1.84	0.24	3.97	2.18	0.26
	2	49	11.51	4.12	0.59	7.53	2.71	-0.27 (-0.28*)
	3	47	10.06	1.51	0.22	2.13	1.63	0.23
	4	48	11.21	2.71	0.39	1.29	1.45	-0.20

*Uncorrected

5.4: IPAT Anxiety Scale

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	1	60	3.57	2.44	0.31	-0.58	0.51	0.05
	2	50	4.42	2.59	0.37	0.32	0.36	-0.29 (-0.30*)
	3	47	3.09	2.10	0.31	0.17	0.54	0.25
	4	49	3.69	2.46	0.35	0.23	0.91	0.00
Factor L	1	60	3.42	2.09	0.27	-0.39	0.21	-0.03
	2	50	3.38	1.78	0.25	-0.64	-0.18	-0.01
	3	47	3.23	1.84	0.27	-0.18	0.33	0.07
	4	49	3.39	1.98	0.28	-0.62	0.09	-0.02
Factor O	1	60	7.82	4.35	0.56	-0.36	0.76	0.10
	2	50	8.76	4.35	0.62	-0.41	-0.29	-0.12
	3	47	7.87	3.99	0.58	0.79	0.92	0.09
	4	49	8.59	3.97	0.57	-0.40	0.31	-0.08
Factor -Q$_3$	1	60	4.27	2.66	0.34	-0.45	0.26	0.19
	2	50	4.80	2.68	0.38	-0.19	0.45	0.01
	3	47	5.19	3.40	0.50	0.39	0.94	-0.12
	4	49	5.16	2.79	0.40	-0.33	-0.06	-0.12
Factor Q$_4$	1	60	6.37	3.85	0.50	-0.68	0.42	0.05
	2	50	7.46	4.26	0.60	-0.52	-0.02	-0.23
	3	47	5.79	3.54	0.52	-0.31	0.55	0.20
	4	49	6.63	3.86	0.55	-0.79	0.37	-0.02
Score A	1	60	13.25	6.30	0.81	0.01	0.76	0.10
	2	50	14.78	6.26	0.89	-0.23	-0.10	-0.14
	3	47	13.32	6.82	0.99	0.38	0.85	0.09
	4	49	14.31	5.81	0.83	0.37	0.12	-0.07
Score B	1	60	12.18	7.53	0.97	-0.84	0.48	0.09
	2	50	14.04	7.52	1.06	-0.12	0.00	-0.17
	3	47	11.87	6.16	0.90	0.26	0.73	0.13 (0.14*)
	4	49	13.16	6.70	0.96	-0.12	0.69	-0.05
Total score	1	60	25.43	12.27	1.58	-0.45	0.56	0.10
	2	50	28.82	13.01	1.84	0.10	-0.09	-0.17
	3	47	25.19	11.93	1.74	0.59	0.80	0.12
	4	49	27.47	11.37	1.62	-0.24	0.52	-0.07

*Uncorrected

5.5: Beck Depression Inventory

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Depression	1	60	6.88	7.10	0.92	4.20	2.07	0.01
	2	49	7.24	6.47	0.92	2.00	1.36	-0.05
	3	47	5.55	5.48	0.80	3.54	1.73	0.22
	4	49	8.02	6.91	0.99	2.60	1.51	-0.16

5.6: Penn State Worry Questionnaire

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Worry	1	60	41.98	12.47	1.61	0.20	0.95	-0.05
	2	47	41.21	11.04	1.61	-0.90	0.12	0.01
	3	47	38.94	9.47	1.38	-0.41	0.55	0.22
	4	49	43.08	10.92	1.56	0.27	0.47	-0.15

5.7: Social Problem-Solving Inventory-Revised for Financial organizations

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	1	60	19.03	3.51	0.45	1.53	-0.81	-0.24
Negative Problem Orientation Scale	1	60	16.92	5.01	0.65	1.50	1.23	0.26
Rational Problem Solving Scale	1	60	68.63	13.51	1.74	1.61	-1.04	-0.09
Problem Definition and Formulation Subscale	1	60	18.08	3.67	0.47	1.04	-0.87	-0.09
Generation of Alternatives Subscale	1	60	17.70	3.62	0.47	0.84	-0.64	-0.15
Decision Making Subscale	1	60	16.32	3.45	0.45	0.73	-0.73	0.02
Solution Implementation and Verification Subscale	1	60	16.53	3.99	0.51	1.05	-0.79	-0.11
Impulsivity/ Carelessness Style Scale	1	60	17.12	4.09	0.53	1.53	0.89	0.24
Avoidance Style Scale	1	60	11.33	3.18	0.41	0.46	0.85	0.36
Social Problem Solving	1	60	17.22	1.96	0.25	1.18	-0.79	-0.33

5.8: Social Problem-Solving Inventory-Revised for Production/ Services organizations

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	2	50	18.02	3.48	0.49	0.51	-0.63	0.06
Negative Problem Orientation Scale	2	50	19.06	7.79	1.10	0.77	1.11	-0.09
Rational Problem Solving Scale	2	50	67.26	12.59	1.78	0.22	0.20	0.02
Problem Definition and Formulation Subscale	2	50	17.54	3.68	0.52	0.22	0.18	0.07
Generation of Alternatives Subscale	2	50	16.86	3.33	0.47	-0.30	-0.21	0.09
Decision Making Subscale	2	50	16.30	3.07	0.43	0.09	0.31	0.03
Solution Implementation and Verification Subscale	2	50	16.56	3.98	0.56	-0.07	0.05	-0.12
Impulsivity/ Carelessness Style Scale	2	50	19.34	6.30	0.89	0.67	0.96	-0.18
Avoidance Style Scale	2	50	13.18	4.39	0.62	-0.29	0.65	-0.11
Social Problem Solving	2	50	16.24	2.54	0.36	0.30	-0.63	0.08

5.9: Social Problem-Solving Inventory-Revised for Research and Development organizations

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	3	46	18.39	2.66	0.39	0.25	-0.38	-0.05
Negative Problem Orientation Scale	3	47	17.32	5.45	0.80	1.12	0.56	0.19
Rational Problem Solving Scale	3	46	67.67	12.80	1.89	0.56	-0.55	-0.02
Problem Definition and Formulation Subscale	3	46	18.15	3.13	0.46	0.57	-0.36	-0.11
Generation of Alternatives Subscale	3	46	17.41	3.74	0.55	0.45	-0.71	-0.06
Decision Making Subscale	3	46	16.17	3.72	0.55	-0.09	-0.14	0.07
Solution Implementation and Verification Subscale	3	46	15.93	3.57	0.53	0.45	-0.56	0.05
Impulsivity/ Carelessness Style Scale	3	46	18.37	5.73	0.85	1.53	1.02	0.00
Avoidance Style Scale	3	46	12.50	3.73	0.55	1.51	0.76	0.06
Social Problem Solving	3	47	16.40	2.79	0.41	9.46	-2.49	0.02

5.10: Social Problem-Solving Inventory-Revised for Academic/Auxiliary Services

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	4	49	17.31	3.13	0.45	-0.13	0.19	0.28
Negative Problem Orientation Scale	4	49	20.90	5.86	0.84	0.39	0.29	-0.39
Rational Problem Solving Scale	4	49	65.98	10.47	1.50	-0.29	0.49	0.12
Problem Definition and Formulation Subscale	4	49	17.24	2.75	0.39	0.49	0.35	0.16
Generation of Alternatives Subscale	4	49	16.65	3.29	0.47	-0.66	-0.16	0.15
Decision Making Subscale	4	49	16.76	2.92	0.42	-0.14	0.46	-0.11
Solution Implementation and Verification Subscale	4	49	15.33	3.34	0.48	-0.70	0.16	0.21
Impulsivity/ Carelessness Style Scale	4	49	18.86	5.07	0.72	-0.25	0.55	-0.09
Avoidance Style Scale	4	49	14.24	4.62	0.66	-0.09	0.39	-0.36
Social Problem Solving	4	49	15.75	2.26	0.32	0.89	-0.15	0.29

6.   Descriptive statistics for the five qualification groupings

6.1: Experience of Work and Life Circumstances Questionnaire for Grade 12 or lower

	Subscale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
	Level of stress	1	54	77.85	21.77	2.96	0.27	0.92	-0.20
	Causes outside the work situation	1	54	26.72	8.26	1.12	0.52	1.12	-0.20
Causes within the work situation	Organizational functioning	1	54	21.28	5.40	0.73	-0.29	-0.36	-0.17
	Task characteristics	1	54	50.09	7.86	1.07	-0.59	-0.31	0.02
	Physical working conditions	1	54	25.52	5.65	0.77	0.53	-0.73	-0.17
	Career matters	1	54	25.06	6.00	0.82	0.21	-0.67	-0.11
	Social matters	1	54	24.39	5.26	0.72	1.98	-1.17	0.04
	Remuneration; fringe benefits and personnel policy	1	54	27.15	9.45	1.29	-0.66	-0.11	0.14

6.2: Experience of Work and Life Circumstances Questionnaire for all Diplomas

	Subscale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
	Level of stress	2	35	72.34	24.16	4.08	3.94	1.90	0.07
	Causes outside the work situation	2	35	24.11	5.38	0.91	3.80	1.75	0.18 (0.19*)
Causes within the work situation	**Organizational functioning**	2	35	21.71	5.55	0.94	-0.22	-0.19	-0.25
	Task characteristics	2	35	51.06	7.45	1.26	-0.76	-0.23	-0.11
	Physical working conditions	2	35	23.49	6.42	1.08	0.65	-0.85	0.18
	Career matters	2	35	25.11	6.46	1.09	0.50	-0.57	-0.12
	Social matters	2	35	26.06	3.73	0.63	1.15	-0.79	-0.33
	Remuneration; fringe benefits and personnel policy	2	35	30.20	9.06	1.53	0.41	-0.77	-0.20

*Uncorrected

6.3: Experience of Work and Life Circumstances Questionnaire for all Bachelors Degrees

	Subscale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
	Level of stress	3	24	68.92	15.66	3.20	-0.64	0.56	0.24 (0.25*)
	Causes outside the work situation	3	24	22.54	4.77	0.97	1.26	1.13	0.43
Causes within the work situation	**Organizational functioning**	3	24	20.13	4.48	0.91	-1.01	-0.10	0.03
	Task characteristics	3	24	49.38	6.09	1.24	-0.52	0.25	0.12
	Physical working conditions	3	24	25.25	5.33	1.09	-0.27	-0.41	-0.12
	Career matters	3	24	25.92	4.83	0.99	-0.16	0.29	-0.25
	Social matters	3	24	24.96	4.70	0.96	-0.49	-0.56	-0.09
	Remuneration; fringe benefits and personnel policy	3	24	30.58	7.91	1.62	-0.41	0.61	-0.25

*Uncorrected

6.4: Experience of Work and Life Circumstances Questionnaire for all Honors and equivalent Degrees

	Subscale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
	Level of stress	4	33	72.09	16.50	2.87	2.49	1.07	0.08 (0.09*)
	Causes outside the work situation	4	33	25.33	6.09	1.06	0.46	0.91	0.00
Causes within the work situation	**Organizational functioning**	4	33	21.64	4.70	0.82	-0.24	-0.62	-0.24
	Task characteristics	4	33	50.97	6.85	1.19	-0.13	-0.40	-0.10
	Physical working conditions	4	33	24.12	5.91	1.03	1.03	-0.70	0.07
	Career matters	4	33	25.03	6.28	1.09	-0.04	-0.63	-0.11
	Social matters	4	33	25.91	3.85	0.67	-0.80	0.01	-0.30
	Remuneration; fringe benefits and personnel policy	4	33	26.55	7.91	1.38	-1.08	-0.35	0.22

*Uncorrected

6.5: Experience of Work and Life Circumstances Questionnaire for all Masters and Doctoral Degrees

	Subscale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
	Level of stress	5	60	73.77	19.22	2.48	2.25	1.30	0.00
	Causes outside the work situation	5	60	25.78	6.15	0.79	0.07	0.66	-0.07
Causes within the work situation	Organizational functioning	5	60	17.97	6.13	0.79	-0.52	-0.12	0.41
	Task characteristics	5	60	49.85	7.09	0.91	-0.90	-0.26	0.05
	Physical working conditions	5	60	24.23	5.93	0.77	1.73	-1.02	0.05
	Career matters	5	60	22.25	6.84	0.88	0.28	-0.57	0.32
	Social matters	5	60	22.95	4.44	0.57	0.25	-0.11	0.35
	Remuneration; fringe benefits and personnel policy	5	60	28.73	8.49	1.10	0.63	-0.16	-0.03

6.6: Aggression in the Workplace Questionnaire-witnessed

Scale (Witnessed)	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	1	53	74.77	18.86	2.59	-0.31	0.50	0.04
	2	35	77.54	25.22	4.26	-0.27	0.66	-0.09
	3	24	74.88	18.75	3.83	-1.14	-0.05	0.03
	4	33	70.45	19.70	3.43	-0.58	0.48	0.25
	5	60	78.23	20.68	2.67	-0.09	0.67	-0.13
Expressions of Hostility	1	53	36.98	10.46	1.44	-0.74	0.36	0.03
	2	35	37.63	13.57	2.29	-0.25	0.66	-0.03
	3	24	37.04	10.03	2.05	-0.98	-0.19	0.02
	4	33	34.73	11.56	2.01	-0.48	0.47	0.22
	5	60	38.82	11.93	1.54	0.05	0.67	-0.13
Obstructionism	1	53	26.04	7.55	1.04	-0.87	0.32	0.05
	2	35	27.54	9.99	1.69	0.71	0.79	-0.13
	3	24	25.67	6.78	1.38	-0.70	0.14	0.10
	4	33	24.36	7.66	1.33	-0.73	0.29	0.26
	5	60	27.58	7.86	1.02	0.80	0.74	-0.14
Overt Aggression	1	53	11.75	3.79	0.52	6.23	2.27	0.03
	2	35	12.37	3.57	0.60	3.38	1.53	-0.15
	3	24	12.17	4.12	0.84	1.67	1.48	-0.09
	4	33	11.36	2.61	0.45	-0.77	0.78	0.16
	5	60	11.83	2.94	0.38	0.77	1.22	0.01

6.7: Aggression in the Workplace Questionnaire-experienced

Scale (Experienced)	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	1	54	62.11	19.40	2.64	1.99	0.61	0.06
	2	35	60.91	22.92	3.87	1.02	-0.10	0.11
	3	24	65.29	17.64	3.60	-1.25	0.28	-0.11
	4	33	59.73	14.49	2.52	-0.21	0.70	0.18
	5	60	66.53	20.00	2.58	2.83	1.61	-0.17
Expressions of Hostility	1	54	29.83	10.10	1.37	0.31	0.36	0.05
	2	35	28.97	11.45	1.94	0.52	0.24	0.13
	3	24	32.00	8.85	1.81	-0.73	0.03	-0.17
	4	33	28.18	8.65	1.51	1.19	1.08	0.21
	5	60	31.97	11.26	1.45	2.84	1.49	-0.16
Obstructionism	1	54	21.78	7.83	1.07	0.31	0.66	0.09
	2	34	22.65	9.49	1.63	1.03	0.82	-0.02
	3	24	21.96	7.95	1.62	-0.64	0.76	0.07
	4	33	21.27	6.42	1.12	0.35	0.76	0.16
	5	60	23.93	8.02	1.04	2.54	1.52	-0.18
Overt Aggression	1	53	10.70	3.70	0.51	13.36	3.52	-0.01
	2	33	10.55	2.08	0.36	1.62	1.48	0.04
	3	24	11.33	3.52	0.72	3.14	1.91	-0.23
	4	33	10.27	1.74	0.30	1.56	1.46	0.15
	5	60	10.63	2.28	0.29	4.02	1.99	0.01

6.8: IPAT Anxiety Scale for Grade 12 and lower

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	1	54	3.98	2.63	0.36	-0.72	0.45	-0.12
Factor L	1	54	3.69	2.11	0.29	-0.47	0.07	-0.17
Factor O	1	54	8.46	4.44	0.60	-0.46	0.59	-0.05
Factor -Q_3	1	54	4.57	2.67	0.36	-0.44	0.22	0.09
Factor Q_4	1	54	7.41	4.03	0.55	-0.68	0.17	-0.22
Score A	1	54	14.59	6.69	0.91	-0.36	0.47	-0.11
Score B	1	54	13.52	7.52	1.02	-0.25	0.39	-0.10
Total score	1	54	28.11	13.10	1.78	-0.22	0.49	-0.12

6.9: IPAT Anxiety Scale for all Diplomas

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	2	35	3.51	2.70	0.46	-0.79	0.31	0.07
Factor L	2	35	3.20	1.71	0.29	-0.86	0.01	0.08
Factor O	2	35	8.09	4.49	0.76	-1.00	-0.01	0.04
Factor -Q_3	2	35	4.03	2.68	0.45	0.37	0.61	0.28
Factor Q_4	2	35	6.74	4.21	0.71	-0.82	0.39	-0.05
Score A	2	35	13.43	5.91	1.00	-0.78	0.15	0.07
Score B	2	35	12.14	7.77	1.31	-0.76	0.51	0.09
Total score	2	35	25.57	12.71	2.15	-0.99	0.22	0.09

6.10: IPAT Anxiety Scale for all Bachelors Degrees

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	3	24	4.25	2.63	0.54	2.17	1.18	-0.23
Factor L	3	24	4.04	1.76	0.36	0.41	-0.07	-0.36
Factor O	3	24	8.13	4.33	0.88	0.91	0.76	0.03
Factor -Q_3	3	24	5.46	2.80	0.57	-0.86	0.37	-0.22
Factor Q_4	3	24	6.79	3.97	0.81	-0.27	0.47	-0.06
Score A	3	24	14.88	6.06	1.24	1.92	1.06	-0.16
Score B	3	24	13.79	7.50	1.53	-0.55	0.33	-0.14
Total score	3	24	28.67	12.40	2.53	0.77	0.91	-0.16

6.11: IPAT Anxiety Scale for all Honors and equivalent Degrees

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	4	33	3.52	2.40	0.42	-0.96	0.50	0.07
Factor L	4	33	2.82	1.91	0.33	0.33	0.56	0.28
Factor O	4	33	9.03	4.07	0.71	-0.99	0.36	-0.19
Factor -Q_3	4	33	5.00	3.09	0.54	-0.56	0.28	-0.06
Factor Q_4	4	33	6.24	3.98	0.69	-1.18	0.19	0.08
Score A	4	33	13.85	6.50	1.13	-0.16	0.44	0.01
Score B	4	33	12.76	6.78	1.18	-0.95	0.13	0.01
Total score	4	33	26.61	12.04	2.10	-0.58	0.20	0.01

6.12: IPAT Anxiety Scale for all Masters and Doctoral Degrees

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	5	60	3.42	2.02	0.26	0.99	0.75	0.11
Factor L	5	60	3.20	1.86	0.24	-0.72	0.04	0.08
Factor O	5	60	7.75	3.79	0.49	0.00	0.34	0.12
Factor -Q_3	5	60	5.15	3.07	0.40	0.98	0.80	-0.11
Factor Q_4	5	60	5.78	3.48	0.45	-0.24	0.41	0.20
Score A	5	60	13.15	6.19	0.80	-0.16	0.31	0.12
Score B	5	60	12.15	6.19	0.80	0.30	0.63	0.09
Total score	5	60	25.30	11.09	1.43	-0.06	0.28	0.12

6.13: Beck Depression Inventory

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Depression	1	54	8.50	8.07	1.10	1.75	1.62	-0.23
	2	34	5.59	5.67	0.97	3.86	1.75	0.21
	3	24	6.96	8.41	1.72	2.83	1.69	0.00
	4	33	6.82	4.65	0.81	0.76	1.03	0.02
	5	60	6.35	5.46	0.70	1.15	1.21	0.09

6.14: Penn State Worry Questionnaire

Scale	Type	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Worry	1	52	41.98	11.50	1.60	0.59	0.96	-0.06
	2	34	40.29	12.05	2.07	0.40	0.86	0.09
	3	24	43.75	9.96	2.03	-1.24	-0.04	-0.22
	4	33	42.94	11.27	1.96	-0.46	0.42	-0.14
	5	60	39.62	10.68	1.38	0.29	0.59	0.16

6.15: Social Problem-Solving Inventory-Revised for Grade 12 and lower

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	1	54	18.63	3.54	0.48	1.25	-0.86	-0.12
Negative Problem Orientation Scale	1	54	18.09	6.37	0.87	3.52	1.76	0.06
Rational Problem Solving Scale	1	54	67.83	12.52	1.70	1.69	-0.62	-0.03
Problem Definition and Formulation Subscale	1	54	17.80	3.48	0.47	1.14	-0.51	-0.01
Generation of Alternatives Subscale	1	54	17.33	3.39	0.46	0.57	-0.62	-0.04
Decision Making Subscale	1	54	16.22	3.40	0.46	0.84	-0.22	0.05
Solution Implementation and Verification Subscale	1	54	16.48	3.62	0.49	1.15	-0.35	-0.10
Impulsivity/ Carelessness Style Scale	1	54	19.06	6.17	0.84	1.03	1.06	-0.13
Avoidance Style Scale	1	54	12.48	4.29	0.58	0.18	0.99	0.06
Social Problem Solving	1	54	16.62	2.41	0.33	1.14	-1.28	-0.07

6.16: Social Problem-Solving Inventory-Revised for all Diplomas

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	2	35	18.43	3.13	0.53	0.65	-0.68	-0.06
Negative Problem Orientation Scale	2	35	17.26	6.03	1.02	-0.01	0.90	0.20
Rational Problem Solving Scale	2	35	68.49	14.11	2.38	0.50	-0.90	-0.08
Problem Definition and Formulation Subscale	2	35	18.20	3.94	0.67	0.34	-0.90	-0.12
Generation of Alternatives Subscale	2	35	17.57	3.69	0.62	0.46	-0.73	-0.11
Decision Making Subscale	2	35	16.60	3.47	0.59	0.48	-0.65	-0.06
Solution Implementation and Verification Subscale	2	35	16.11	4.16	0.70	-0.09	-0.56	0.00
Impulsivity/ Carelessness Style Scale	2	35	17.00	4.59	0.78	0.01	0.87	0.26
Avoidance Style Scale	2	35	11.74	3.53	0.60	-0.66	0.55	0.24
Social Problem Solving	2	35	17.01	1.95	0.33	-1.19	0.09	-0.24

6.17: Social Problem-Solving Inventory-Revised for all Bachelors Degrees

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	3	24	17.92	3.28	0.67	0.64	0.57	0.09
Negative Problem Orientation Scale	3	24	19.33	6.02	1.23	2.65	1.31	-0.14
Rational Problem Solving Scale	3	24	68.46	13.08	2.67	0.27	0.33	-0.08
Problem Definition and Formulation Subscale	3	24	18.08	3.28	0.67	1.01	0.06	-0.09
Generation of Alternatives Subscale	3	24	17.17	3.32	0.68	0.08	0.39	0.00
Decision Making Subscale	3	24	16.88	3.59	0.73	-0.53	0.08	-0.15
Solution Implementation and Verification Subscale	3	24	16.33	4.20	0.86	0.10	0.11	-0.06
Impulsivity/ Carelessness Style Scale	3	24	18.42	5.20	1.06	-0.42	0.47	-0.01
Avoidance Style Scale	3	24	12.50	3.43	0.70	-0.17	0.65	0.06
Social Problem Solving	3	24	16.45	2.31	0.47	0.07	0.19	0.00

6.18: Social Problem-Solving Inventory-Revised for Honors and equivalent Degrees

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	4	33	18.03	2.91	0.51	1.12	-0.22	0.06
Negative Problem Orientation Scale	4	33	19.33	6.16	1.07	-0.39	0.43	-0.14
Rational Problem Solving Scale	4	33	64.61	11.39	1.98	0.80	-0.39	0.23
Problem Definition and Formulation Subscale	4	33	16.82	2.92	0.51	-0.39	-0.05	0.29
Generation of Alternatives Subscale	4	33	16.03	3.48	0.61	0.36	-0.34	0.33
Decision Making Subscale	4	33	15.82	2.89	0.50	0.43	-0.25	0.18
Solution Implementation and Verification Subscale	4	33	15.94	4.17	0.73	-0.35	-0.10	0.04
Impulsivity/ Carelessness Style Scale	4	33	19.06	4.62	0.80	0.02	0.40	-0.13
Avoidance Style Scale	4	33	13.27	3.74	0.65	-0.24	0.13	-0.13
Social Problem Solving	4	33	16.12	2.17	0.38	0.42	-0.31	0.13

6.19: Social Problem-Solving Inventory-Revised for Masters and Doctoral Degrees

Scale	Group	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	5	59	17.98	3.38	0.44	-0.01	-0.39	0.08
Negative Problem Orientation Scale	5	60	18.72	6.44	0.83	0.54	0.49	-0.04
Rational Problem Solving Scale	5	59	67.66	11.64	1.51	0.08	-0.02	-0.02
Problem Definition and Formulation Subscale	5	59	17.88	3.12	0.41	0.63	0.31	-0.03
Generation of Alternatives Subscale	5	59	17.46	3.56	0.46	-0.26	-0.47	-0.08
Decision Making Subscale	5	59	16.53	3.22	0.42	0.26	-0.04	-0.04
Solution Implementation and Verification Subscale	5	59	15.80	3.26	0.42	0.23	-0.43	0.08
Impulsivity/ Carelessness Style Scale	5	59	18.10	5.34	0.69	2.40	1.27	0.05
Avoidance Style Scale	5	59	13.37	4.63	0.60	0.62	0.75	-0.15
Social Problem Solving	5	60	16.13	2.84	0.37	6.10	-1.81	0.12

7. Descriptive statistics of the three position levels

7.1: Experience of Work and Life Circumstances Questionnaire for senior management

	Subscale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Level of stress		1	102	73.71	20.10	1.99	2.68	1.40	0.00
Causes outside the work situation		1	102	25.20	6.15	0.61	1.94	1.26	0.02
Causes within the work situation	Organizational functioning	1	102	21.46	5.13	0.51	0.85	-0.75	-0.21
	Task characteristics	1	102	50.18	6.95	0.69	-0.58	-0.21	0.01
	Physical working conditions	1	102	25.41	5.34	0.53	0.87	-0.75	-0.15
	Career matters	1	102	26.06	5.45	0.54	1.87	-0.87	-0.28
	Social matters	1	102	24.81	4.38	0.43	1.46	-0.79	-0.05
	Remuneration; fringe benefits and personnel policy	1	102	30.04	7.90	0.78	-0.66	-0.11	-0.19

7.2: Experience of Work and Life Circumstances Questionnaire for middle management

	Subscale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Level of stress		2	61	73.95	18.26	2.34	1.38	1.07	-0.01
Causes outside the work situation		2	61	24.01	6.77	0.87	1.37	1.22	0.19
Causes within the work situation	Organizational functioning	2	61	19.00	5.85	0.75	-0.72	0.14	0.23
	Task characteristics	2	61	50.05	6.81	0.87	-0.78	0.06	0.03
	Physical working conditions	2	61	22.84	5.86	0.75	1.33	-0.84	0.29
	Career matters	2	61	22.13	7.22	0.92	-0.45	-0.07	0.34
	Social matters	2	61	23.95	4.44	0.57	-0.31	-0.04	0.13
	Remuneration; fringe benefits and personnel policy	2	61	28.07	8.97	1.15	0.41	-0.28	0.04

7.3: Experience of Work and Life Circumstances Questionnaire for specialist staff

	Subscale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Level of stress		3	42	72.24	21.21	3.27	2.32	1.44	0.07
Causes outside the work situation		3	42	25.57	6.63	1.02	-0.46	0.82	-0.04
Causes within the work situation	Organizational functioning	3	42	19.74	5.72	0.88	-0.38	-0.07	0.10
	Task characteristics	3	42	51.12	7.85	1.21	-0.82	-0.43	-0.12
	Physical working conditions	3	42	25.31	6.18	0.95	0.57	-0.85	-0.13
	Career matters	3	42	23.81	5.49	0.85	0.48	-0.60	0.09
	Social matters	3	42	25.24	4.79	0.74	0.40	-0.81	-0.15
	Remuneration; fringe benefits and personnel policy	3	42	25.36	9.49	1.46	-0.29	0.01	0.35

7.4: Aggression in the Workplace Questionnaire-witnessed

Scale (Witnessed)	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	1	101	77.18	20.57	2.05	0.05	0.67	-0.08
	2	61	75.39	20.64	2.65	0.09	0.67	0.01
	3	42	71.79	21.24	3.28	-1.06	0.35	0.18
Expressions of Hostility	1	101	37.64	11.47	1.14	0.20	0.69	-0.03
	2	61	37.18	37.18	1.48	0.08	0.57	0.00
	3	42	36.29	12.12	1.87	-1.33	0.22	0.08
Obstructionism	1	101	27.71	8.17	0.81	0.77	0.67	-0.16
	2	61	26.21	7.70	0.99	0.38	0.61	0.03
	3	42	23.81	7.82	1.21	-0.62	0.47	0.33
Overt Aggression	1	101	11.82	3.05	0.30	2.65	1.42	0.02
	2	61	12.00	4.03	0.52	4.50	2.09	-0.04
	3	42	11.69	3.09	0.48	-0.16	0.97	0.05

1 = Senior management, 2 = middle management, 3 = specialist staff

7.5: Aggression in the Workplace Questionnaire-experienced

Scale (Experienced)	Age	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Overall	1	102	64.31	19.92	1.97	2.60	0.65	-0.06
	2	61	63.67	17.83	2.28	0.84	1.12	-0.03
	3	42	59.33	20.04	3.09	1.88	0.61	0.20
Expressions of Hostility	1	102	30.73	10.65	1.05	2.81	1.00	-0.04
	2	61	30.26	9.43	1.21	-0.11	0.78	0.00
	3	42	28.98	10.98	1.69	0.29	0.48	0.13
Obstructionism	1	101	23.46	8.06	0.80	1.67	0.98	-0.12
	2	61	22.97	7.98	1.02	0.79	1.15	-0.06
	3	42	19.55	7.34	1.13	1.00	0.85	0.37
Overt Aggression	1	100	10.57	2.46	0.25	5.36	2.17	0.03
	2	61	10.44	2.85	0.36	19.44	3.95	0.08
	3	41	11.07	3.28	0.51	14.02	3.34	-0.14

1 = Senior management, 2 = middle management, 3 = specialist staff

7.6: IPAT Anxiety Scale for senior management

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	1	102	3.53	2.58	0.26	0.27	0.69	0.06
Factor L	1	102	3.23	1.92	0.19	-0.39	-0.00	0.07
Factor O	1	102	7.72	4.16	0.41	-0.29	0.51	0.12
Factor -Q_3	1	102	4.78	2.94	0.29	0.04	0.54	0.01
Factor Q_4	1	102	6.23	3.97	0.39	-0.55	0.53	0.08
Score A	1	102	13.35	6.42	0.64	-0.15	0.51	0.09
Score B	1	102	12.23	7.07	0.70	-0.12	0.55	0.08
Total score	1	102	25.58	12.48	1.24	-0.05	0.55	0.09

7.7: IPAT Anxiety Scale for middle management

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	2	61	3.93	2.45	0.31	-0.26	0.61	-0.10
Factor L	2	61	3.62	1.85	0.24	-0.78	0.12	-0.14
Factor O	2	61	8.98	4.15	0.53	-0.44	0.21	-0.18
Factor -Q_3	2	61	4.95	3.07	0.39	0.14	0.56	-0.04
Factor Q_4	2	61	6.90	3.76	0.48	-0.57	0.20	-0.09
Score A	2	61	14.77	6.49	0.83	-0.03	0.37	-0.14
Score B	2	61	13.62	7.14	0.91	-0.40	0.46	-0.12
Total score	2	61	28.39	12.28	1.57	-0.12	0.30	-0.14

7.8: IPAT Anxiety Scale for specialist staff

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Factor -C	3	42	3.67	2.03	0.31	-0.86	0.42	0.01
Factor L	3	42	3.02	1.98	0.31	0.24	0.60	0.18
Factor O	3	42	8.19	3.87	0.60	-0.48	0.30	0.01
Factor -Q_3	3	42	4.71	2.57	0.40	0.44	0.30	0.04
Factor Q_4	3	42	6.74	3.90	0.60	-0.54	0.14	-0.05
Score A	3	42	13.69	5.54	0.85	0.36	0.35	0.03
Score B	3	42	12.64	6.59	1.02	-1.12	0.04	0.02
Total score	3	42	26.33	10.77	1.66	-0.55	0.18	0.03

7.9: Beck Depression Inventory

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Depression	1	101	6.32	6.20	0.62	5.87	2.24	0.09
	2	61	7.39	7.05	0.90	2.67	1.58	-0.07
	3	42	7.40	6.43	0.99	0.39	1.00	-0.07

1 = Senior management, 2 = middle management, 3 = specialist staff

7.10: Penn State Worry Questionnaire

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Worry	1	101	40.23	10.64	1.06	0.07	0.73	0.10
	2	60	41.62	11.93	1.54	0.24	0.69	-0.02
	3	41	43.73	11.15	1.74	-0.17	0.34	-0.21

1 = Senior management, 2 = middle management, 3 = specialist staff

7.11: Social Problem-Solving Inventory-Revised for senior management

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	1	102	18.28	3.39	0.34	0.34	-0.57	-0.02
Negative Problem Orientation Scale	1	102	17.68	5.93	0.59	1.10	1.12	0.13
Rational Problem Solving Scale	1	102	67.58	12.99	1.29	0.48	-0.54	-0.01
Problem Definition and Formulation Subscale	1	102	17.77	3.63	0.36	0.06	-0.34	0.00
Generation of Alternatives Subscale	1	102	17.11	3.52	0.35	0.08	-0.70	0.02
Decision Making Subscale	1	102	16.41	3.27	0.32	0.33	-0.33	-0.01
Solution Implementation and Verification Subscale	1	102	16.29	4.07	0.40	0.03	-0.42	-0.05
Impulsivity/ Carelessness Style Scale	1	102	17.71	4.81	0.48	2.25	1.08	0.13
Avoidance Style Scale	1	102	12.50	4.11	0.41	0.23	0.82	0.06
Social Problem Solving	1	102	16.72	2.20	0.22	0.93	-0.63	-0.12

7.12: Social Problem-Solving Inventory-Revised for middle management

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	2	61	18.10	3.22	0.41	-0.75	-0.14	0.04
Negative Problem Orientation Scale	2	61	19.36	6.64	0.85	0.99	0.99	-0.14
Rational Problem Solving Scale	2	61	68.10	11.80	1.51	-0.39	0.24	-0.05
Problem Definition and Formulation Subscale	2	61	18.13	2.95	0.38	0.28	0.12	-0.11
Generation of Alternatives Subscale	2	61	17.48	3.51	0.45	-0.38	-0.07	-0.09
Decision Making Subscale	2	61	16.61	3.29	0.42	0.01	0.11	-0.07
Solution Implementation and Verification Subscale	2	61	15.89	3.29	0.42	0.14	0.24	0.06
Impulsivity/ Carelessness Style Scale	2	61	18.41	5.69	0.73	1.17	1.03	-0.01
Avoidance Style Scale	2	61	13.15	4.43	0.57	0.72	0.82	-0.10
Social Problem Solving	2	61	16.36	2.48	0.32	0.59	-0.78	0.03

7.13: Social Problem-Solving Inventory-Revised for specialist staff

Scale	Level	N	Mean	Standard deviation	Standard error	Kurtosis	Skewness	Effect size
Positive Problem Orientation Scale	3	41	18.56	2.63	0.41	0.29	0.87	-0.10
Negative Problem Orientation Scale	3	42	18.93	6.23	0.96	1.90	0.50	-0.07
Rational Problem Solving Scale	3	41	67.20	10.17	1.59	-0.30	0.40	0.02
Problem Definition and Formulation Subscale	3	41	17.46	2.78	0.43	0.47	0.50	0.09
Generation of Alternatives Subscale	3	41	17.17	3.15	0.49	-0.29	0.20	0.00
Decision Making Subscale	3	41	16.27	3.03	0.47	-0.52	0.35	0.04
Solution Implementation and Verification Subscale	3	41	16.29	3.26	0.51	-0.42	0.06	-0.05
Impulsivity/ Carelessness Style Scale	3	41	19.71	5.78	0.90	0.10	0.77	-0.25
Avoidance Style Scale	3	41	12.76	3.64	0.57	-0.71	0.27	0.00
Social Problem Solving	3	42	16.05	2.73	0.42	10.10	-2.39	0.16

APPENDIX B

Key

The following key is required to interpret the abbreviations used in the following tables:

Experience of Work and Life Circumstances Questionnaire		Code	Aggression in the Workplace Questionnaire	Code
Level of stress		LOS	Experienced	E
Causes outside the work situation		OWS	Witnessed	W
Causes inside the work situation	Organizational functioning	IWSOF	Overall	TOT
	Task characteristics	IWSTC	Expressions of Hostility	EH
	Physical working conditions	IWSPW	Obstructionism	OB
	Career matters	IWSCM	Overt Aggression	OV
	Social matters	IWSSM		
	Remuneration; fringe benefits and personnel policy	IWSRF		

1. Pearson correlation coefficients for the total sample

1.1 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.38553	0.24520	-0.36578	-0.31936	-0.16221	-0.25772	-0.27839	-0.13993
	<. 0001	0.0004	<. 0001	<. 0001	0.0201	0.0002	<. 0001	0.0454
	205	205	205	205	205	205	205	205
WEH	0.36628	0.22330	-0.36867	-0.29346	-0.11071	-0.25959	-0.27860	-0.12551
	<. 0001	0.0013	<. 0001	<. 0001	0.1140	0.0002	<. 0001	0.0730
	205	205	205	205	205	205	205	205
WOB	0.33408	0.22554	-0.31087	-0.28461	-0.18672	-0.21209	-0.25520	-0.13237
	<. 0001	0.0011	<. 0001	<. 0001	0.0073	0.0023	0.0002	0.0585
	205	205	205	205	205	205	205	205
WOV	0.31112	0.19983	-0.23714	-0.27307	-0.16957	-0.18423	-0.14287	-0.11189
	<. 0001	0.0041	0.0006	<. 0001	0.0151	0.0082	0.0410	0.1102
	205	205	205	205	205	205	205	205

1.2 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.30642	0.16843	-0.35579	-0.23950	-0.15898	-0.25727	-0.29598	-0.10945
	<. 0001	0.0155	<. 0001	0.0005	0.0225	0.0002	<. 0001	0.1174
	206	206	206	206	206	206	206	206
EEH	0.30651	0.14964	-0.35123	-0.22612	-0.09055	-0.24614	-0.31924	-0.08834
	<. 0001	0.0318	<. 0001	0.0011	0.1955	0.0004	<. 0001	0.2067
	205	206	206	206	206	206	206	206
EOB	0.32784	0.21883	-0.33201	-0.22848	-0.24597	-0.25095	-0.26363	-0.13237
	<. 0001	0.0016	<. 0001	0.0010	0.0004	0.0003	0.0001	0.0585
	205	205	205	205	205	205	205	205
EOV	0.25628	0.16948	-0.23323	-0.21756	-0.07222	-0.19537	-0.22060	-0.19386
	0.0002	0.0156	0.0008	0.0018	0.3059	0.0052	0.0016	0.0056
	203	203	203	203	203	203	203	203

1.3   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.37565	0.36957	-0.07739	-0.17009	-0.01840	-0.13709	-0.24956	-0.01915
	<. 0001	<. 0001	0.2689	0.0145	0.7929	0.0494	0.0003	0.7847
	206	206	206	206	206	206	206	206
Factor Q$_4$	0.54411	0.43109	-0.28295	-0.30884	-0.21244	-0.30258	-0.34668	-0.23167
	<. 0001	<. 0001	<. 0001	<. 0001	0.0022	<. 0001	<. 0001	0.0008
	206	206	206	206	206	206	206	206
Factor -C	0.38295	0.36291	-0.20449	-0.17459	-0.00827	-0.19643	-0.26935	-0.16052
	<. 0001	<. 0001	0.0032	0.0121	0.9060	0.0047	<. 0001	0.0212
	206	206	206	206	206	206	206	206
Factor L	0.35837	0.33039	-0.18993	-0.20055	-0.06140	-0.17396	-0.27584	-0.13533
	<. 0001	<. 0001	0.0062	0.0038	0.3806	0.0124	<. 0001	0.0524
	206	206	206	206	206	206	206	206
Factor O	0.55133	0.47437	-0.20812	-0.26632	-0.14143	-0.27432	-0.31220	-0.16548
	<. 0001	<. 0001	0.0027	0.0001	0.0426	<. 0001	<. 0001	0.0175
	206	206	206	206	206	206	206	206
Score A	0.51103	0.45210	-0.22366	-0.22433	-0.12430	-0.24955	-0.32048	-0.17748
	<. 0001	<. 0001	0.0012	0.0012	0.0751	0.0003	<. 0001	0.0107
	206	206	206	206	206	206	206	206
Score B	0.55655	0.48379	-0.23488	-0.31371	-0.11210	-0.27923	-0.36192	-0.16842
	<. 0001	<. 0001	0.0007	<. 0001	0.1087	<. 0001	<. 0001	0.0155
	206	206	206	206	206	206	206	206
Total Anxiety Score	0.58592	0.51339	-0.25140	-0.29734	-0.12906	-0.29043	-0.37490	-0.18911
	<. 0001	<. 0001	0.0003	<. 0001	0.0645	<. 0001	<. 0001	0.0065
	206	206	206	206	206	206	206	206

1.4   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.65584	0.63373	-0.34997	-0.28043	-0.14964	-0.39160	-0.47036	-0.29632
	<. 0001	<. 0001	<. 0001	<. 0001	0.0322	<. 0001	<. 0001	<. 0001
	205	205	205	205	205	205	205	205

1.5   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.49929	0.40727	-0.11571	-0.25682	-0.13263	-0.14805	-0.22629	-0.12145
	<. 0001	<. 0001	0.1002	0.0002	0.0592	0.0350	0.0012	0.0843
	203	203	203	203	203	203	203	203

1.6   Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.21034	-0.32030	0.03079	0.20072	0.13450	0.16341	0.22296	-0.01292
	0.0025	<. 0001	0.6612	0.0039	0.0545	0.0192	0.0013	0.8542
	205	205	205	205	205	205	205	205
Negative Problem Orientation	0.48506	0.50298	-0.19496	-0.20362	-0.20175	-0.25767	-0.22897	-0.13143
	<. 0001	<. 0001	0.0050	0.0033	0.0036	0.0002	0.0009	0.0597
	206	206	206	206	206	206	206	206
Rational Problem Solving	-0.10324	-0.25641	0.02433	0.08571	0.07614	0.10568	0.14709	0.00806
	0.1407	0.0002	0.7291	0.2217	0.2779	0.1315	0.0353	0.9087
	205	205	205	205	205	205	205	205
Problem Definition and Formulation	-0.11374	-0.27487	0.04624	0.08710	0.05607	0.09394	0.18311	0.02929
	0.1044	<. 0001	0.5103	0.2143	0.4246	0.1803	0.0086	0.6768
	205	205	205	205	205	205	205	205
Generation of Alternatives	-0.09011	-0.23423	-0.01310	0.07275	0.06227	0.08267	0.10414	-0.01630
	0.1988	0.0007	0.8521	0.2999	0.3751	0.2386	0.1373	0.8166
	205	205	205	205	205	205	205	205
Decision Making	-0.06673	-0.18775	0.00475	0.09108	0.02800	0.08339	0.13446	0.01932
	0.3418	0.0070	0.9461	0.1940	0.6903	0.2345	0.0477	0.7833
	205	205	205	205	205	205	205	205
Solution Implementation Verification	-0.09686	-0.21833	0.04713	0.05761	0.11876	0.11493	0.10379	-0.00127
	0.1671	0.0017	0.5022	0.4119	0.0899	0.1008	0.1386	0.9856
	205	205	205	205	205	205	205	205
Impulsivity/ Carelessness Style	0.23787	0.23318	-0.06333	-0.00702	0.01075	-0.09908	-0.12000	-0.00536
	0.0006	0.0008	0.3670	0.9204	0.8784	0.1575	0.0865	0.9392
	205	205	205	205	205	205	205	205
Avoidance Style	0.27708	0.36541	-0.12709	-0.18568	-0.12030	-0.19330	-0.17378	-0.09219
	<. 0001	<. 0001	0.0694	0.0077	0.0858	0.0055	0.0127	0.1886
	205	205	205	205	205	205	205	205
Social Problem Solving	-0.33265	-0.41345	0.11744	0.22775	0.14087	0.23523	0.24897	0.08607
	<. 0001	<. 0001	0.0976	0.0010	0.0434	0.0007	0.0003	0.2187
	206	206	206	206	206	206	206	206

2.   Pearson correlation coefficients for gender

2.1   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for Males

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.29456	0.22668	-0.27876	-0.21121	-0.18350	-0.14438	-0.16105	-0.09971
	0.0011	0.0128	0.0020	0.0206	0.0448	0.1156	0.0789	0.2786
	120	120	120	120	120	120	120	120
WEH	0.28183	0.21202	-0.29609	-0.18758	-0.14541	-0.18062	-0.15210	-0.09292
	0.0018	0.0201	0.0010	0.0402	0.1130	0.0484	0.0972	0.3128
	120	120	120	120	120	120	120	120
WOB	0.25239	0.21664	-0.22673	-0.19364	-0.20322	-0.08877	-0.17147	-0.11179
	0.0054	0.0175	0.0128	0.0341	0.0260	0.3350	0.0611	0.2241
	120	120	120	120	120	120	120	120
WOV	0.19967	0.12184	-0.12758	-0.15967	-0.11841	-0.04499	-0.04618	-0.02067
	0.0288	0.1849	0.1649	0.0815	0.1977	0.6256	0.6165	0.8227
	120	120	120	120	120	120	120	120

2.2   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for females

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.50433	0.27251	-0.46959	-0.44599	-0.16642	-0.38675	-0.38573	-0.19646
	<. 0001	0.0116	<. 0001	<. 0001	0.1280	0.0003	0.0003	0.0715
	85	85	85	85	85	85	85	85
WEH	0.47706	0.23896	-0.45374	-0.41765	-0.08664	-0.34753	-0.40253	-0.16844
	<. 0001	0.0276	<. 0001	<. 0001	0.4304	0.0011	0.0001	0.1233
	85	85	85	85	85	85	85	85
WOB	0.44087	0.24646	-0.41441	-0.39192	-0.20724	-0.35777	-0.32300	-0.17056
	<. 0001	0.0230	<. 0001	0.0002	0.0570	0.0008	0.0026	0.1186
	85	85	85	85	85	85	85	85
WOV	0.52487	0.34163	-0.43496	-0.47656	-0.29902	-0.42388	-0.27832	-0.28459
	<. 0001	0.0014	<. 0001	<. 0001	0.0054	<. 0001	0.0099	0.0083
	85	85	85	85	85	85	85	85

2.3   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for males

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.17135	0.10293	-0.29889	-0.12643	-0.16752	-0.17304	-0.22397	-0.07180
	0.0602	0.2612	0.0009	0.1670	0.0663	0.0577	0.0135	0.4339
	121	121	121	121	121	121	121	121
EEH	0.18157	0.10030	-0.29871	-0.11591	-0.10532	-0.18074	-0.25407	-0.04397
	0.0462	0.2323	0.0009	0.2055	0.2503	0.0473	0.0049	0.6320
	121	121	121	121	121	121	121	121
EOB	0.23728	0.17399	-0.30193	-0.14417	-0.28620	-0.17498	-0.22888	-0.10909
	0.0091	0.0574	0.0008	0.1162	0.0015	0.0559	0.0119	0.2356
	120	120	120	120	120	120	120	120
EOV	0.15918	0.12373	-0.15129	-0.15726	-0.04494	-0.12834	-0.13570	-0.11821
	0.0838	0.1800	0.1005	0.0876	0.6275	0.1642	0.1412	0.2004
	119	119	119	119	119	119	119	119

2.4   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for females

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.51580	0.26419	-0.43956	-0.40051	-0.18105	-0.37951	-0.37431	-0.17378
	<. 0001	0.0146	<. 0001	0.0001	0.0973	0.0003	0.0004	0.1117
	85	85	85	85	85	85	85	85
EEH	0.49270	0.20477	-0.42282	-0.37776	-0.08800	-0.33357	-0.39341	-0.15373
	<. 0001	0.0601	<. 0001	0.0004	0.4232	0.0018	0.0002	0.1601
	85	85	85	85	85	85	85	85
EOB	0.45746	0.29409	-0.37849	-0.33732	-0.25167	-0.36313	-0.27959	-0.11468
	<. 0001	0.0063	0.0004	0.0016	0.0202	0.0006	0.0096	0.2960
	85	85	85	85	85	85	85	85
EOV	0.44571	0.26111	-0.38884	-0.33369	-0.15032	-0.32473	-0.35677	-0.34623
	<. 0001	0.0164	0.0003	0.0019	0.1723	0.0026	0.0009	0.0013
	84	84	84	84	84	84	84	85

2.5   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for males

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.43149	0.35112	-0.04229	-0.13852	0.07720	-0.14477	-0.29857	0.08043
	<. 0001	<. 0001	0.6451	0.1297	0.4000	0.1131	0.0009	0.3805
	121	121	121	121	121	121	121	121
Factor Q_4	0.58534	0.44784	-0.27875	-0.32045	-0.22216	-0.25642	-0.41406	-0.19463
	<. 0001	<. 0001	0.0020	0.0003	0.0143	0.0045	<. 0001	0.0324
	121	121	121	121	121	121	121	121
Factor -C	0.34853	0.39628	-0.19985	-0.15769	-0.02732	-0.16333	-0.28733	-0.20459
	<. 0001	<. 0001	0.0280	0.0841	0.7661	0.0735	0.0014	0.0244
	121	121	121	121	121	121	121	121
Factor L	0.38852	0.33976	-0.13698	-0.21772	-0.07047	-0.14107	-0.33900	-0.13499
	<. 0001	0.0001	0.1341	0.0164	0.4424	0.1227	0.0001	0.1399
	121	121	121	121	121	121	121	121
Factor O	0.59932	0.46935	-0.20639	-0.23229	-0.10894	-0.23781	-0.34945	-0.10725
	<. 0001	<. 0001	0.0231	0.0104	0.2343	0.0086	<. 0001	0.2416
	121	121	121	121	121	121	121	121
Score A	0.52796	0.45254	-0.21785	-0.19092	-0.09808	-0.24461	-0.40104	-0.13902
	<. 0001	<. 0001	0.0164	0.0359	0.2845	0.0069	<. 0001	0.1283
	121	121	121	121	121	121	121	121
Score B	0.61899	0.50070	-0.20297	-0.32082	-0.09286	-0.21847	-0.39597	-0.11620
	<. 0001	<. 0001	0.0256	0.0003	0.3111	0.0161	<. 0001	0.2044
	121	121	121	121	121	121	121	121
Total Anxiety Score	0.62137	0.51616	-0.22753	-0.27808	-0.10325	-0.25028	-0.43114	-0.13786
	<. 0001	<. 0001	0.0121	0.0020	0.2598	0.0056	<. 0001	0.1316
	121	121	121	121	121	121	121	121

2.6   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for females

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.29086	0.40475	-0.13795	-0.23704	-0.14221	-0.12397	-0.21954	-0.16967
	0.0069	0.0001	0.2080	0.0289	0.1942	0.2583	0.0435	0.1206
	85	85	85	85	85	85	85	85
Factor Q$_4$	0.50974	0.41200	-0.29752	-0.31374	-0.16746	-0.35658	-0.31552	-0.27299
	<. 0001	<. 0001	0.0057	0.0035	0.1255	0.0008	0.0033	0.0115
	85	85	85	85	85	85	85	85
Factor -C	0.45546	0.32236	-0.21761	-0.21493	-0.09509	-0.23049	-0.29344	-0.09433
	<. 0001	0.0026	0.0454	0.0482	0.3867	0.0338	0.0064	0.3905
	85	85	85	85	85	85	85	85
Factor L	0.31701	0.31924	-0.26606	-0.18123	-0.03599	-0.21491	-0.21650	-0.13214
	0.0031	0.0029	0.0138	0.0969	0.7436	0.0482	0.0466	0.2280
	85	85	85	85	85	85	85	85
Factor O	0.50983	0.48272	-0.21811	-0.33366	-0.14738	-0.31518	-0.31749	-0.23201
	<. 0001	<. 0001	0.0449	0.0018	0.1783	0.0033	0.0031	0.0326
	85	85	85	85	85	85	85	85
Score A	0.49679	0.45671	-0.23745	-0.28795	-0.14073	-0.25604	-0.24976	-0.22879
	<. 0001	<. 0001	0.0287	0.0075	0.1989	0.0180	0.0212	0.0352
	85	85	85	85	85	85	85	85
Score B	0.51047	0.46996	-0.28786	-0.33514	-0.08906	-0.34759	-0.38812	-0.22368
	<. 0001	<. 0001	0.0076	0.0017	0.4176	0.0011	0.0002	0.0396
	85	85	85	85	85	85	85	85
Total Anxiety Score	0.56203	0.51710	-0.29543	-0.34975	-0.12528	-0.34128	-0.36288	-0.25187
	<. 0001	<. 0001	0.0061	0.0010	0.2533	0.0014	0.0006	0.0201
	85	85	85	85	85	85	85	85

2.7   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for males

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.65189	0.60883	-0.34574	-0.22969	-0.19700	-0.37632	-0.48928	-0.23768
	<. 0001	<. 0001	0.0001	0.0116	0.0310	<. 0001	<. 0001	0.0089
	120	120	120	120	120	120	120	120

2.8   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for females

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.67358	0.66061	-0.35764	-0.35204	-0.08065	-0.40715	-0.47031	-0.36461
	<. 0001	<. 0001	0.0008	0.0010	0.4631	0.0001	<. 0001	0.0006
	85	85	85	85	85	85	85	85

2.9   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for males

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.59629	0.43088	-0.03753	-0.23829	-0.05841	-0.04624	-0.17726	-0.01860
	<. 0001	<. 0001	0.6866	0.0094	0.5298	0.6190	0.0548	0.8415
	118	118	118	118	118	118	118	118

2.10   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for females

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.42987	0.38853	-0.21725	-0.31793	-0.16924	-0.24842	-0.34238	-0.22494
	<. 0001	0.0002	0.0458	0.0030	0.1215	0.0219	0.0013	0.0385
	85	85	85	85	85	85	85	85

2.11 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for males

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.21602	-0.23330	0.00810	0.05751	0.04684	0.14483	0.21599	-0.09496
	0.0173	0.0100	0.9298	0.5310	0.6100	0.1130	0.0173	0.3002
	121	121	121	121	121	121	121	121
Negative Problem Orientation	0.60676	0.54914	-0.25787	-0.23519	-0.23074	-0.31014	-0.23185	-0.21329
	<. 0001	<. 0001	0.0043	0.0094	0.0109	0.0005	0.0105	0.0188
	121	121	121	121	121	121	121	121
Rational Problem Solving	-0.11639	-0.20768	0.01711	0.00785	0.00294	0.11338	0.19048	-0.00765
	0.2036	0.0223	0.8522	0.9319	0.9745	0.2156	0.0364	0.9336
	121	121	121	121	121	121	121	121
Problem Definition and Formulation	-0.13876	-0.26878	0.03533	0.06059	-0.01025	0.09969	0.24649	0.01514
	0.1291	0.0029	0.7004	0.5092	0.9111	0.2766	0.0064	0.8691
	121	121	121	121	121	121	121	121
Generation of Alternatives	-0.10783	-0.18586	-0.01708	-0.01468	-0.01301	0.08273	0.15270	-0.03528
	0.2391	0.0412	0.8525	0.8730	0.8874	0.3670	0.0945	0.7009
	121	121	121	121	121	121	121	121
Decision Making	-0.04297	-0.10356	0.02148	0.05429	-0.03899	0.12836	0.17723	0.03558
	0.6398	0.2583	0.8151	0.5542	0.6711	0.1606	0.0518	0.6985
	121	121	121	121	121	121	121	121
Solution Implementation Verification	-0.12093	-0.18023	0.02177	-0.06084	0.06328	0.09794	0.11291	-0.03609
	0.1864	0.0479	0.8127	0.5074	0.4905	0.2852	0.2176	0.6943
	121	121	121	121	121	121	121	121
Impulsivity/ Carelessness Style	0.27489	0.28304	-0.11602	-0.02759	0.01588	-0.17381	-0.15482	-0.08841
	0.0023	0.0017	0.2051	0.7639	0.8627	0.0566	0.0900	0.3349
	121	121	121	121	121	121	121	121
Avoidance Style	0.36189	0.42752	-0.22135	-0.18273	-0.13727	-0.26303	-0.17938	-0.19086
	<. 0001	<. 0001	0.0147	0.0448	0.1333	0.0036	0.0490	0.0360
	121	121	121	121	121	121	121	121
Social Problem Solving	-0.41520	-0.44835	0.16225	0.13639	0.10560	0.26665	0.26092	0.09692
	<. 0001	<. 0001	0.0754	0.1358	0.2490	0.0031	0.0038	0.2903
	121	121	121	121	121	121	121	121

2.12 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for females

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.20997	-0.42371	0.06259	0.41321	0.23359	0.18360	0.25491	0.09053
	0.0552	<. 0001	0.5717	<. 0001	0.0325	0.0946	0.0193	0.4128
	84	84	84	84	84	84	84	84
Negative Problem Orientation	0.34383	0.45420	-0.12334	-0.18527	-0.12406	-0.19213	-0.28059	-0.01376
	0.0013	<. 0001	0.2607	0.0896	0.2580	0.0781	0.0093	0.9006
	85	85	85	85	85	85	85	85
Rational Problem Solving	-0.09460	-0.32165	0.03836	0.22637	0.15180	0.09103	0.12875	0.02155
	0.3920	0.0028	0.7290	0.0384	0.1681	0.4102	0.2431	0.8457
	84	84	84	84	84	84	84	84
Problem Definition and Formulation	-0.08399	-0.28571	0.06758	0.14977	0.12526	0.08177	0.13824	0.04199
	0.4475	0.0084	0.5413	0.1739	0.2562	0.4597	0.2098	0.7045
	84	84	84	84	84	84	84	84
Generation of Alternatives	-0.07730	-0.29614	-0.00436	0.22971	0.13095	0.07655	0.08537	-0.00134
	0.4846	0.0062	0.9686	0.0356	0.2351	0.4889	0.4400	0.9903
	84	84	84	84	84	84	84	84
Decision Making	-0.11005	-0.28696	-0.01594	0.15418	0.09528	0.02416	0.11602	-0.00873
	0.3190	0.0081	0.8856	0.1614	0.3886	0.8273	0.2933	0.9372
	84	84	84	84	84	84	84	84
Solution Implementation Verification	-0.06469	-0.27075	0.08821	0.26013	0.18244	0.13665	0.11798	0.04480
	0.5588	0.0127	0.4249	0.0169	0.0967	0.2152	0.2851	0.6858
	84	84	84	84	84	84	84	84
Impulsivity/ Carelessness Style	0.19652	0.16935	0.00304	0.00904	0.03402	-0.00387	-0.10911	0.11247
	0.0732	0.1235	0.9781	0.9350	0.7587	0.9721	0.3232	0.3084
	84	84	84	84	84	84	84	84
Avoidance Style	0.14186	0.28939	0.00743	-0.19087	-0.09917	-0.10365	-0.17157	0.04888
	0.1980	0.0076	0.9465	0.0820	0.3694	0.3481	0.1186	0.6588
	84	84	84	84	84	84	84	84
Social Problem Solving	-0.24818	-0.37522	0.07014	0.35981	0.14765	0.19667	0.27951	0.06241
	0.0220	0.0004	0.5236	0.0007	0.1775	0.0712	0.0096	0.5705
	85	85	85	85	85	85	85	85

3 Pearson correlation coefficients for the four age groups

3.1 Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed for age group 20-29

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.38498	0.15075	-0.65523	-0.51311	-0.19702	-0.47370	-0.34288	-0.42155
	0.0632	0.4820	0.0005	0.0103	0.3561	0.0194	0.1010	0.0402
	24	24	24	24	24	24	24	24
WEH	0.34781	0.13487	-0.70118	-0.49208	-0.10410	-0.51603	-0.39167	-0.46713
	0.0958	0.5298	0.0001	0.0146	0.6283	0.0098	0.0584	0.0214
	24	24	24	24	24	24	24	24
WOB	0.37168	0.14568	-0.54298	-0.44556	-0.30250	-0.30666	-0.28314	-0.26685
	0.0737	0.4970	0.0061	0.0291	0.1508	0.1450	0.1800	0.2075
	24	24	24	24	24	24	24	24
WOV	0.42867	0.17389	-0.41264	-0.54994	-0.31399	-0.45392	-0.09928	-0.37993
	0.0366	0.4164	0.0451	0.0054	0.1351	0.0259	0.6444	0.0671
	24	24	24	24	24	24	24	24

3.2 Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed with age group 30-39

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.53057	0.42941	-0.34982	-0.36151	-0.02880	-0.16971	-0.40652	-0.11534
	<. 0001	<. 0001	0.0017	0.0011	0.8024	0.1374	0.0002	0.3146
	78	78	78	78	78	78	78	78
WEH	0.50042	0.36653	-0.32144	-0.31745	0.01478	-0.13474	-0.40657	-0.04814
	<. 0001	0.0010	0.0041	0.0046	0.8978	0.2395	0.0002	0.6755
	78	78	78	78	78	78	78	78
WOB	0.43013	0.38636	-0.30458	-0.32287	-0.06177	-0.16601	-0.34714	-0.12802
	<. 0001	0.0005	0.0067	0.0039	0.5911	0.1463	0.0018	0.2640
	78	78	78	78	78	78	78	78
WOV	0.51203	0.45816	-0.31490	-0.35905	-0.08383	-0.18417	-0.26139	-0.24661
	<. 0001	<. 0001	0.0050	0.0012	0.4656	0.1065	0.0208	0.0295
	78	78	78	78	78	78	78	78

3.3 Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed with age group 40-49

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.14495	0.05674	-0.40905	-0.24540	-0.35577	-0.39211	-0.12096	-0.16866
	0.2777	0.6722	0.0014	0.0634	0.0061	0.0023	0.3658	0.2057
	58	58	58	58	58	58	58	58
WEH	0.15134	0.07697	-0.38307	-0.22877	-0.25957	-0.40866	-0.14269	-0.15711
	0.2568	0.5658	0.0030	0.0841	0.0491	0.0014	0.2853	0.2389
	58	58	58	58	58	58	58	58
WOB	0.11471	0.05780	-0.40785	-0.24642	-0.43099	-0.35384	-0.14545	-0.22410
	0.2784	0.6665	0.0015	0.0622	0.0007	0.0064	0.2760	0.0908
	58	58	58	58	58	58	58	58
WOV	0.00997	-0.06240	-0.18683	-0.11132	-0.22907	-0.12653	-0.11388	-0.06411
	0.9408	0.6417	0.1602	0.4054	0.0837	0.3435	0.3947	0.6326
	58	58	58	58	58	58	58	58

3.4 Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed with age group 50+

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.42517	0.18382	-0.19480	-0.17851	-0.01893	-0.17063	-0.20665	0.01264
	0.0045	0.2380	0.2107	0.2521	0.9041	0.2740	0.1837	0.9359
	43	43	43	43	43	43	43	43
WEH	0.41916	0.16482	-0.25504	-0.10849	0.00000	-0.18650	-0.14402	0.01478
	0.0051	0.2909	0.0988	0.4886	1.0000	0.2311	0.3569	0.9250
	43	43	43	43	43	43	43	43
WOB	0.41946	0.23145	-0.16049	-0.24284	-0.02656	-0.15353	-0.29471	-0.02158
	0.0051	0.1354	0.3039	0.1166	0.8658	0.3256	0.0551	0.8908
	43	43	43	43	43	43	43	43
WOV	0.24091	0.03595	-0.00574	-0.13850	-0.04513	-0.07911	-0.07751	0.07834
	0.0065	0.8190	0.9708	0.3758	0.7738	0.6141	0.6213	0.6176
	43	43	43	43	43	43	43	43

3.5   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced for age group 20-29

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.57229	0.25921	-0.66778	-0.48101	-0.13358	-0.42885	-0.64634	-0.29887
	0.0035	0.2213	0.0004	0.0173	0.5338	0.0365	0.0006	0.1560
	24	24	24	24	24	24	24	24
EEH	0.48031	0.15884	-0.65283	-0.45236	-0.01909	-0.43814	-0.62635	-0.29255
	0.0175	0.4585	0.0005	0.0265	0.9295	0.0322	0.0011	0.1654
	24	24	24	24	24	24	24	24
EOB	0.49628	0.26817	-0.43974	-0.32465	-0.32732	-0.18639	-0.40418	-0.15641
	0.0136	0.2052	0.0315	0.1217	0.1184	0.3832	0.0501	0.4655
	24	24	24	24	24	24	24	24
EOV	0.49628	0.43518	-0.32537	-0.32656	-0.03098	-0.39228	-0.41982	-0.27253
	0.0136	0.0336	0.1208	0.1194	0.8857	0.0580	0.0411	0.1976
	24	24	24	24	24	24	24	24

3.6   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced for age group 30-39

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.52229	0.40431	-0.37742	-0.27194	-0.04830	-0.23271	-0.41554	-0.08390
	<. 0001	0.0002	0.0007	0.0160	0.6745	0.0403	0.0002	0.4652
	78	78	78	78	78	78	78	78
EEH	0.47165	0.30597	-0.34752	-0.22343	0.02381	-0.17650	-0.42365	-0.03658
	<. 0001	0.0064	0.0018	0.0493	0.8361	0.1222	0.0001	0.7505
	78	78	78	78	78	78	78	78
EOB	0.47980	0.43837	-0.35507	-0.25808	-0.14142	-0.26094	-0.35371	-0.06047
	<. 0001	<. 0001	0.0014	0.0225	0.2168	0.0210	0.0015	0.5989
	78	78	78	78	78	78	78	78
EOV	0.37588	0.31385	-0.21720	-0.25891	0.00655	-0.15096	-0.19334	-0.27376
	0.0007	0.0051	0.0561	0.0221	0.9546	0.1871	0.0899	0.0153
	78	78	78	78	78	78	78	78

3.7   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced for age group 40-49

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.21439	0.15216	-0.42811	-0.26692	-0.36015	-0.38239	-0.26832	-0.16212
	0.1030	0.2499	0.0007	0.0410	0.0051	0.0028	0.0399	0.2199
	59	59	59	59	59	59	59	59
EEH	0.22503	0.16245	-0.36661	-0.24408	-0.25035	-0.36349	-0.31512	-0.10086
	0.0866	0.2190	0.0043	0.0625	0.0558	0.0047	0.0151	0.4472
	59	59	59	59	59	59	59	59
EOB	0.19878	0.14907	-0.45091	-0.25222	-0.45394	-0.37740	-0.19600	-0.23487
	0.1312	0.2598	0.0003	0.0540	0.0003	0.0032	0.1368	0.0734
	59	59	59	59	59	59	59	59
EOV	0.05100	-0.01078	-0.30706	-0.23026	-0.25135	-0.19253	-0.10789	-0.04874
	0.7013	0.9354	0.0180	0.0794	0.0548	0.1440	0.4160	0.7139
	59	59	59	59	59	59	59	59

3.8   Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced for age group 50+

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	-0.04101	-0.17900	-0.12906	-0.08822	0.03849	-0.07797	-0.01001	-0.02550
	0.7940	0.2508	0.4095	0.5737	0.8064	0.6192	0.9492	0.8710
	43	43	43	43	43	43	43	43
EEH	-0.00405	-0.16452	-0.18246	-0.07449	0.06370	-0.10713	0.02891	-0.04736
	0.9795	0.2918	0.2416	0.6350	0.6849	0.4941	0.8540	0.7630
	43	43	43	43	43	43	43	43
EOB	0.12895	-0.04128	-0.07977	-0.17377	-0.07222	-0.06786	-0.15057	-0.00173
	0.4157	0.7952	0.6156	0.2711	0.6495	0.6694	0.3412	0.9913
	42	42	42	42	42	42	42	42
EOV	0.20895	0.01966	-0.12870	-0.15849	0.06461	-0.19897	-0.18820	-0.18282
	0.1957	0.9042	0.4287	0.3287	0.6921	0.2184	0.2449	0.2588
	40	40	40	40	40	40	40	40

3.9   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for age group 20-29

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.60154	0.50730	-0.21151	-0.33172	-0.36526	-0.20910	-0.42747	-0.06489
	0.0019	0.0114	0.3211	0.1133	0.0792	0.3268	0.0372	0.7632
	24	24	24	24	24	24	24	24
Factor Q$_4$	0.48549	0.29182	-0.25508	-0.03800	-0.33612	-0.17908	-0.41421	0.02827
	0.0162	0.1665	0.2290	0.8601	0.1083	0.4024	0.0442	0.8957
	24	24	24	24	24	24	24	24
Factor -C	0.11641	0.04571	-0.11696	-0.13635	0.19733	0.07824	-0.30200	0.27321
	0.5880	0.8320	0.5862	0.5252	0.3554	0.7163	0.1515	0.1965
	24	24	24	24	24	24	24	24
Factor L	0.29180	0.30230	-0.25164	-0.20342	0.09890	0.06042	-0.16626	0.24065
	0.1665	0.1511	0.2355	0.3404	0.6457	0.7791	0.4375	0.2573
	24	24	24	24	24	24	24	24
Factor O	0.50323	0.15199	-0.07323	-0.03415	-0.26909	0.02094	-0.36361	0.14403
	0.0122	0.4783	0.7338	0.8741	0.2036	0.9226	0.0807	0.5019
	24	24	24	24	24	24	24	24
Score A	0.46531	0.16539	-0.12304	-0.18839	-0.32745	-0.01888	-0.38074	0.16255
	0.0219	0.4399	0.5668	0.3780	0.1183	0.9302	0.0664	0.4479
	24	24	24	24	24	24	24	24
Score B	0.49415	0.38138	-0.26404	-0.10311	-0.09639	-0.10337	-0.42724	0.10185
	0.0141	0.0659	0.2125	0.6316	0.6541	0.6307	0.0373	0.6358
	24	24	24	24	24	24	24	24
Total Anxiety Score	0.52863	0.31186	-0.22015	-0.15561	-0.22057	-0.07165	-0.44636	0.14203
	0.0079	0.1379	0.3013	0.4678	0.3003	0.7394	0.0288	0.5079
	24	24	24	24	24	24	24	24

3.10   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for age group 30-39

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.36690	0.26138	-0.29459	-0.27898	-0.02021	-0.28969	-0.28988	-0.00503
	0.0010	0.0208	0.0088	0.0134	0.8606	0.0101	0.0100	0.9651
	78	78	78	78	78	78	78	78
Factor Q$_4$	0.54697	0.44838	-0.38973	-0.34675	-0.10177	-0.43014	-0.36746	-0.18101
	<. 0001	<. 0001	0.0004	0.0019	0.3753	<. 0001	0.0009	0.1128
	78	78	78	78	78	78	78	78
Factor -C	0.38583	0.29686	-0.22767	-0.08151	0.19169	-0.19070	-0.23096	0.01439
	0.0005	0.0083	0.0450	0.4780	0.0927	0.0944	0.0419	0.9005
	78	78	78	78	78	78	78	78
Factor L	0.29393	0.21465	-0.29436	-0.21717	-0.15195	-0.28769	-0.24093	-0.25123
	0.0090	0.0591	0.0089	0.0561	0.1842	0.0106	0.0336	0.0265
	78	78	78	78	78	78	78	78
Factor O	0.49399	0.47035	-0.39190	-0.34855	-0.13731	-0.43621	-0.40330	-0.18698
	<. 0001	<. 0001	0.0004	0.0018	0.2306	<. 0001	0.0003	0.1012
	78	78	78	78	78	78	78	78
Score A	0.49615	0.40052	-0.46312	-0.24847	-0.00983	-0.42833	-0.42245	-0.15580
	<. 0001	0.0003	<. 0001	0.0283	0.9320	<. 0001	0.0001	0.1732
	78	78	78	78	78	78	78	78
Score B	0.51216	0.43534	-0.31150	-0.38601	-0.12061	-0.37715	-0.32913	-0.13521
	<. 0001	<. 0001	0.0055	0.0005	0.2929	0.0007	0.0033	0.2379
	78	78	78	78	78	78	78	78
Total Anxiety Score	0.55410	0.45974	-0.42260	-0.35105	-0.07372	-0.44143	-0.41104	-0.15945
	<. 0001	<. 0001	0.0001	0.0016	0.5212	<. 0001	0.0002	0.1632
	78	78	78	78	78	78	78	78

3.11   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for age group 40-49

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.39512	0.50794	0.13503	0.05422	0.16689	0.11299	-0.16781	-0.06529
	0.0020	<. 0001	0.3079	0.6834	0.2065	0.3942	0.2039	0.6232
	59	59	59	59	59	59	59	59
Factor Q_4	0.58829	0.49910	-0.04272	-0.32931	-0.12366	-0.00375	-0.18726	-0.18405
	<. 0001	<. 0001	0.7480	0.0109	0.3507	0.9775	0.1555	0.1629
	59	59	59	59	59	59	59	59
Factor -C	0.42983	0.55949	-0.08981	-0.08753	0.05467	-0.09715	-0.25305	-0.20613
	0.0007	<. 0001	0.4987	0.5098	0.6809	0.4642	0.0532	0.1173
	59	59	59	59	59	59	59	59
Factor L	0.48477	0.52643	0.02007	-0.11152	0.14544	0.03534	-0.29810	-0.08371
	<. 0001	<. 0001	0.8801	0.4004	0.2717	0.7904	0.0218	0.5285
	59	59	59	59	59	59	59	59
Factor O	0.57154	0.52304	0.03176	-0.10323	0.04610	0.05232	-0.03867	-0.04563
	<. 0001	<. 0001	0.8112	0.4365	0.7288	0.6939	0.7712	0.7315
	59	59	59	59	59	59	59	59
Score A	0.57966	0.59514	0.07589	-0.15133	-0.00466	0.05437	-0.10169	-0.14517
	<. 0001	<. 0001	0.5678	0.2526	0.9721	0.6825	0.4434	0.2726
	59	59	59	59	59	59	59	59
Score B	0.56641	0.57089	-0.04706	-0.15066	0.08101	-0.00035	-0.26766	-0.11684
	<. 0001	<. 0001	0.7234	0.2547	0.5419	0.9979	0.0404	0.3781
	59	59	59	59	59	59	59	59
Total Anxiety Score	0.62294	0.63347	0.01203	-0.16423	0.04407	0.02776	-0.20582	-0.14166
	<. 0001	<. 0001	0.9280	0.2139	0.7403	0.8347	0.1178	0.2845
	59	59	59	59	59	59	59	59

3.12   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for age group 50+

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.41340	0.44712	0.10735	-0.17587	-0.19319	-0.16156	-0.27547	0.04378
	0.0059	0.0026	0.4932	0.2593	0.2145	0.3007	0.0738	0.7804
	43	43	43	43	43	43	43	43
Factor Q_4	0.51623	0.37335	-0.40559	-0.29799	-0.38547	-0.47514	-0.46893	-0.47170
	0.0004	0.0137	0.0070	0.0523	0.0107	0.0013	0.0015	0.0014
	43	43	43	43	43	43	43	43
Factor -C	0.44226	0.39945	-0.29495	-0.36953	-0.38885	-0.36467	-0.30185	-0.54799
	0.0030	0.0080	0.0548	0.0147	0.0100	0.0162	0.0492	0.0001
	43	43	43	43	43	43	43	43
Factor L	0.26743	0.25242	-0.24628	-0.28241	-0.36646	-0.33766	-0.24722	-0.18231
	0.0830	0.1025	0.1114	0.0665	0.0156	0.0268	0.1100	0.2420
	43	43	43	43	43	43	43	43
Factor O	0.58452	0.47905	-0.08266	-0.34089	-0.24350	-0.36279	-0.32568	-0.40083
	<. 0001	0.0012	0.5982	0.0253	0.1156	0.0168	0.0331	0.0077
	43	43	43	43	43	43	43	43
Score A	0.45054	0.47951	-0.19317	-0.23565	-0.39333	-0.34478	-0.36670	-0.41323
	0.0024	0.0011	0.2146	0.1282	0.0091	0.0236	0.0156	0.0059
	43	43	43	43	43	43	43	43
Score B	0.63577	0.46150	-0.25005	-0.44372	-0.33860	-0.47022	-0.42281	-0.38241
	<. 0001	0.0018	0.1058	0.0029	0.0264	0.0015	0.0047	0.0114
	43	43	43	43	43	43	43	43
Total Anxiety Score	0.60808	0.51980	-0.24737	-0.38388	-0.40272	-0.45568	-0.43889	-0.43889
	<. 0001	0.0004	0.1098	0.0110	0.0074	0.0021	0.0032	0.0032
	43	43	43	43	43	43	43	43

3.13   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for age group 20-29

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.64933	0.81337	-0.52518	-0.31800	-0.25480	-0.26987	-0.50724	-0.37590
	0.0006	<. 0001	0.0084	0.1299	0.2295	0.2022	0.0114	0.0703
	24	24	24	24	24	24	24	24

3.14 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for age group 30-39

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.67439	0.64683	-0.45061	-0.35708	-0.06552	-0.47998	-0.50195	-0.23062
	<. 0001	<. 0001	<. 0001	0.0014	0.5713	<. 0001	<. 0001	0.0436
	77	77	77	77	77	77	77	77

3.15 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for age group 40-49

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.62697	0.54794	-0.05355	-0.00229	-0.02094	-0.16235	-0.23155	-0.08383
	<. 0001	<. 0001	0.6871	0.9862	0.8749	0.2192	0.0776	0.5279
	59	59	59	59	59	59	59	59

3.16 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for age group 50+

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.75350	0.75696	-0.40024	-0.45700	-0.31730	-0.53310	-0.66621	-0.62291
	<. 0001	<. 0001	0.0078	0.0021	0.0381	0.0002	<. 0001	<. 0001
	43	43	43	43	43	43	43	43

3.17 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for age group 20-29

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.61453	0.54549	-0.43318	-0.12872	-0.51039	-0.09156	-0.35651	-0.36949
	0.0014	0.0058	0.0345	0.5489	0.0108	0.6705	0.0873	0.0756
	24	24	24	24	24	24	24	24

3.18 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for age group 30-39

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.49765	0.39360	-0.27423	-0.45051	-0.15212	-0.33594	-0.37107	-0.15558
	<. 0001	0.0004	0.0158	<. 0001	0.1866	0.0028	0.0009	0.1766
	77	77	77	77	77	77	77	77

3.19 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for age group 40-49

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.44728	0.39841	0.19615	0.01729	0.15639	0.15024	-0.06873	0.06621
	0.0004	0.0018	0.1365	0.8966	0.2369	0.2560	0.6050	0.6183
	59	59	59	59	59	59	59	59

3.20 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for age group 50+

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.62569	0.45843	-0.10634	-0.31837	-0.36563	-0.20492	-0.14359	-0.24965
	<. 0001	0.0026	0.5081	0.0425	0.0187	0.1987	0.3704	0.1155
	41	41	41	41	41	41	41	41

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.31629 0.1321 24	-0.30676 0.1448 24	-0.01708 0.9369 24	0.15322 0.4747 24	0.25841 0.2228 24	0.13813 0.5198 24	0.47578 0.0188 24	-0.13810 0.5199 24
Negative Problem Orientation	0.36395 0.0804 24	0.59683 0.0021 24	-0.24341 0.2517 24	-0.12463 0.5617 24	-0.16776 0.4333 24	-0.22232 0.2964 24	-0.30439 0.1481 24	-0.22581 0.2887 24
Rational Problem Solving	-0.14983 0.4847 24	-0.15415 0.4720 24	-0.13186 0.5391 24	-0.13365 0.5335 24	0.42257 0.0397 24	-0.11284 0.5996 24	0.06091 0.7774 24	-0.26818 0.2051 24
Problem Definition and Formulation	-0.09160 0.6703 24	-0.24430 0.2499 24	-0.09261 0.6669 24	-0.14280 0.5056 24	0.28457 0.1777 24	-0.08858 06806 24	0.05241 0.8078 24	-0.29409 0.1630 24
Generation of Alternatives	-0.13097 0.5419 24	-0.15776 0.4616 24	-0.26262 0.2151 24	-0.19392 0.3639 24	0.29943 0.1552 24	-0.12085 0.5738 24	0.01942 0.9282 24	-0.38108 0.0662 24
Decision Making	-0.14175 0.5088 24	-0.13272 0.5364 24	-0.02151 0.9205 24	-0.12473 0.5614 24	0.48124 0.0173 24	-0.05468 0.7997 24	-0.00313 0.9884 24	-0.06299 0.7700 24
Solution Implementation Verification	-0.17430 0.4153 24	-0.00572 0.9788 24	-0.08084 0.7073 24	-0.00893 0.9670 24	0.46087 0.0234 24	-0.13586 0.5268 24	0.14836 0.4890 24	-0.19610 0.3584 24
Impulsivity/ Carelessness Style	-0.11983 0.5770 24	-0.02516 0.9071 24	0.21125 0.3217 24	0.42097 0.0405 24	-0.19184 0.3692 24	0.16850 0.4313 24	0.31532 0.1334 24	0.14450 0.5005 24
Avoidance Style	0.10492 0.6256 24	0.24573 0.2471 24	-0.14503 0.4989 24	0.05428 0.8011 24	-0.05815 0.7873 24	-0.19524 0.3606 24	-0.14505 0.4989 24	-0.32440 0.1220 24
Social Problem Solving	-0.24662 0.2453 24	-0.38680 0.0619 24	0.01707 0.9369 24	-0.09067 0.6735 24	0.32385 0.1226 24	0.08682 0.6867 24	0.19619 0.3582 24	0.00914 0.9662 24

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.15190 0.1872 77	-0.25934 0.0227 77	0.10070 0.3835 77	0.31039 0.0060 77	0.17929 0.1187 77	0.26870 0.0181 77	0.11651 0.3129 77	-0.07791 0.5006 77
Negative Problem Orientation	0.47028 <. 0001 78	0.38584 0.0005 78	-0.25851 0.0223 78	-0.28319 0.0120 78	-0.11449 0.3182 78	-0.35371 0.0015 78	-0.31497 0.0050 78	0.01944 0.8658 78
Rational Problem Solving	-0.00383 0.9736 77	-0.12447 0.2808 77	0.07964 0.4911 77	0.12781 0.2680 77	0.05081 0.6608 77	0.14103 0.2212 77	-0.02751 0.8123 77	-0.08650 0.4545 77
Problem Definition and Formulation	-0.00459 0.9684 77	-0.14557 0.2065 77	0.09854 0.3939 77	0.16892 0.1419 77	0.06329 0.5845 77	0.14235 0.2168 77	0.00831 0.9428 77	-0.01283 0.9118 77
Generation of Alternatives	-0.01654 0.8865 77	-0.08022 0.4880 77	0.01887 0.8706 77	0.14598 0.2052 77	0.05211 0.6526 77	0.11788 0.3073 77	-0.07987 0.4899 77	-0.09921 0.3906 77
Decision Making	0.01011 0.9305 77	-0.08570 0.4587 77	0.02058 0.8590 77	0.10501 0.3634 77	-0.00494 0.9660 77	0.08924 0.4402 77	-0.02758 0.8118 77	-0.15568 0.1764 77
Solution Implementation Verification	-0.00272 0.9812 77	-0.13529 0.2407 77	0.13987 0.2250 77	0.05183 0.6544 77	0.06934 0.5490 77	0.15587 0.1758 77	-0.00283 0.9805 77	-0.04912 0.6714 77
Impulsivity/ Carelessness Style	0.32177 0.0043 77	0.20047 0.0804 77	-0.13581 0.2389 77	-0.12472 0.2798 77	0.09006 0.4360 77	-0.14393 0.2117 77	-0.15035 0.1918 77	0.13840 0.2300 77
Avoidance Style	0.36536 0.0011 77	0.34670 0.0020 77	-0.17448 0.1291 77	-0.29995 0.0080 77	-0.06241 0.5897 77	-0.29700 0.0087 77	-0.22848 0.0456 77	0.01985 0.8640 77
Social Problem Solving	-0.30201 0.0072 78	-0.27991 0.0131 78	0.19109 0.0938 78	0.37524 0.0007 78	0.09789 0.3939 78	0.33646 0.0026 78	0.23428 0.0390 78	0.01326 0.9083 78

3.23 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for age group 40-49

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.26511 0.0424 59	-0.41449 0.0011 59	-0.12026 0.3643 59	0.09036 0.4961 59	0.00994 0.9404 59	-0.08932 0.5011 59	0.09459 0.4761 59	0.00738 0.9558 59
Negative Problem Orientation	0.58464 <. 0001 59	0.70095 <. 0001 59	-0.09111 0.4925 59	-0.13149 0.3209 59	-0.17334 0.1892 59	-0.11608 0.3813 59	-0.12134 0.3599 59	-0.23859 0.0688 59
Rational Problem Solving	-0.23268 0.0762 59	-0.41223 0.0012 59	-0.06929 0.6021 59	0.06332 0.6338 59	-0.10739 0.4182 59	-0.04079 0.7590 59	0.24037 0.0667 59	0.16542 0.2105 59
Problem Definition and Formulation	-0.27100 0.0379 59	-0.44936 0.0004 59	-0.05685 0.6689 59	0.02598 0.8451 59	-0.11859 0.3710 59	-0.04776 0.7194 59	0.28438 0.0290 59	0.11949 0.3674 59
Generation of Alternatives	-0.17633 0.1816 59	-0.41101 0.0012 59	-0.06792 0.6092 59	0.03605 0.7863 59	-0.03832 0.7733 59	-0.07062 0.5951 59	0.14113 0.2863 59	0.11287 0.3947 59
Decision Making	-0.21498 0.1020 59	-0.30475 0.0189 59	-0.02004 0.8802 59	0.16972 0.1988 59	-0.18005 0.1724 59	0.03911 0.7687 59	0.30270 0.0198 59	0.22491 0.0868 59
Solution Implementation Verification	-0.13269 0.3164 59	-0.23385 0.0747 59	-0.08268 0.5336 59	-0.00566 0.9660 59	-0.03873 0.7709 59	-0.05085 0.7021 59	0.10349 0.4354 59	0.10787 0.4161 59
Impulsivity/ Carelessness Style	0.27553 0.0347 59	0.39259 0.0021 59	-0.10182 0.4429 59	-0.05059 0.7036 59	0.09404 0.4787 59	-0.17142 0.1942 59	-0.18553 0.1595 59	-0.24469 0.0618 59
Avoidance Style	0.27174 0.0373 59	0.52488 <. 0001 59	-0.17281 0.1906 59	-0.15472 0.2420 59	-0.24981 0.0564 59	-0.20994 0.1105 59	-0.11592 0.3819 59	-0.20179 0.1254 59
Social Problem Solving	-0.43223 0.0006 59	-0.64437 <. 0001 59	0.05333 0.6883 59	0.13246 0.3173 59	0.07463 0.5743 59	0.10020 0.4502 59	0.19174 0.1457 59	0.22214 0.0908 59

3.24 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for age group 50+

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.06194 0.6932 43	-0.18103 0.2453 43	-0.08733 0.5776 43	-0.00261 0.9867 43	-0.05490 0.7266 43	0.10559 0.5004 43	0.21074 0.1749 43	-0.03019 0.8476 43
Negative Problem Orientation	0.44432 0.0028 43	0.46267 0.0018 43	-0.13677 0.3818 43	-0.06519 0.6779 43	-0.40367 0.0073 43	-0.17648 0.2576 43	-0.10846 0.4888 43	-0.14900 0.3403 43
Rational Problem Solving	-0.01000 0.9493 43	-0.23290 0.1329 43	-0.00661 0.9664 43	-0.04421 0.7783 43	-0.03560 0.8207 43	0.14729 0.3459 43	0.20343 0.1907 43	0.01848 0.9064 43
Problem Definition and Formulation	-0.00963 0.9511 43	-0.19443 0.2115 43	0.02532 0.8719 43	-0.05412 0.7303 43	-0.09260 0.5548 43	0.08548 0.5857 43	0.25146 0.1038 43	0.07426 0.6360 43
Generation of Alternatives	-0.03143 0.8414 43	-0.22586 0.1453 43	-0.04512 0.7739 43	-0.03077 0.8447 43	-0.07281 0.6427 43	0.18302 0.2401 43	0.25915 0.0933 43	0.04859 0.7570 43
Decision Making	0.12124 0.4386 43	-0.10739 0.4931 43	-0.11125 0.4776 43	-0.07347 0.6396 43	-0.09545 0.5426 43	0.02420 0.8776 43	0.11593 0.4591 43	-0.00972 0.9507 43
Solution Implementation Verification	-0.10163 0.5167 43	-0.28737 0.0617 43	0.01354 0.9313 43	-0.00434 0.9779 43	0.11349 0.4687 43	0.21583 0.1645 43	0.10599 0.4987 43	-0.03930 0.8024 43
Impulsivity/ Carelessness Style	0.17760 0.2545 43	0.19388 0.2128 43	0.01805 0.9085 43	0.09753 0.5338 43	-0.02329 0.8821 43	0.05181 0.7414 43	-0.13813 0.3770 43	0.09131 0.5604 43
Avoidance Style	0.22558 0.1458 43	0.34757 0.0224 43	0.05965 0.7040 43	-0.15294 0.3275 43	-0.02453 0.8759 43	0.07099 0.6510 43	-0.21207 0.1722 43	0.02913 0.8529 43
Social Problem Solving	-0.24638 0.1112 43	-0.40237 0.0075 43	-0.02486 0.8743 43	0.01461 0.9259 43	0.07595 0.6284 43	0.09525 0.5435 43	0.26818 0.0821 43	-0.00981 0.9502 43

4. Pearson correlation coefficients for marital status

4.1 Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-witnessed for married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.31252	0.18385	-0.33768	-0.27494	-0.21530	-0.22117	-0.23866	-0.12759
	<. 0001	0.0229	<. 0001	0.0006	0.0075	0.0060	0.0030	0.1160
	153	153	153	153	153	153	153	153
WEH	0.29937	0.16962	-0.33450	-0.25536	-0.16561	-0.22033	-0.23416	-0.12289
	0.0002	0.0361	<. 0001	0.0014	0.0408	0.0062	0.0036	0.1302
	153	153	153	153	153	153	153	153
WOB	0.25154	0.15796	-0.28589	-0.23107	-0.23307	-0.17004	-0.21574	-0.10799
	0.0017	0.0512	0.0003	0.0041	0.0037	0.0356	0.0074	0.1839
	153	153	153	153	153	153	153	153
WOV	0.28702	0.16716	-0.24245	-0.25621	-0.19315	-0.19389	-0.14748	-0.10296
	0.0003	0.0389	0.0025	0.0014	0.0168	0.0163	0.0689	0.2053
	153	153	153	153	153	153	153	153

4.2 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for non-married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.63262	0.47373	-0.46781	-0.47920	0.01366	-0.39142	-0.44832	-0.19069
	<. 0001	0.0004	0.0005	0.0003	0.9234	0.0041	0.0009	0.1757
	52	52	52	52	52	52	52	52
WEH	0.57096	0.39342	-0.48140	-0.42234	0.06502	-0.39070	-0.44682	-0.13670
	<. 0001	0.0039	0.0003	0.0018	0.6470	0.0042	0.0009	0.3339
	52	52	52	52	52	52	52	52
WOB	0.61515	0.48124	-0.40418	-0.47813	-0.03535	-0.36712	-0.42947	-0.22843
	<. 0001	0.0003	0.0030	0.0003	0.8035	0.0074	0.0015	0.1034
	52	52	52	52	52	52	52	52
WOV	0.47787	0.45115	-0.23730	-0.37126	-0.08235	-0.16568	-0.16545	-0.17488
	0.0003	0.0008	0.0903	0.0067	0.5617	0.2405	0.2411	0.2150
	52	52	52	52	52	52	52	52

4.3 Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced for married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.20115	0.06923	-0.33790	-0.18978	-0.22198	-0.22234	-0.24226	-0.08420
	0.0124	0.3936	<. 0001	0.0184	0.0057	0.0056	0.0025	0.2992
	154	154	154	154	154	154	154	154
EEH	0.21477	0.06161	-0.33151	-0.18488	-0.15586	-0.21473	-0.26655	-0.07062
	0.0075	0.4478	<. 0001	0.0217	0.0536	0.0075	0.0008	0.3841
	154	154	154	154	154	154	154	154
EOB	0.21259	0.11862	-0.32755	-0.17066	-0.32107	-0.21929	-0.22005	-0.07492
	0.0083	0.1442	<. 0001	0.0349	<. 0001	0.0065	0.0063	0.3574
	153	153	153	153	153	153	153	153
EOV	0.26801	0.17258	-0.23213	-0.21397	-0.08852	-0.19122	-0.21644	-0.18096
	0.0009	0.0341	0.0041	0.0083	0.2798	0.0187	0.0076	0.0262
	151	151	151	151	151	151	151	151

4.4 Experience of Work and Life Circumstances Questionnaire with the Aggression in the Workplace Questionnaire-experienced for non-married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.69908	0.51132	-0.43234	-0.45054	0.08972	-0.40157	-0.53542	-0.21581
	<. 0001	0.0001	0.0014	0.0008	0.5270	0.0032	<. 0001	0.1244
	52	52	52	52	52	52	52	52
EEH	0.62318	0.41720	-0.42809	-0.39259	0.15769	-0.36561	-0.53445	-0.15612
	<. 0001	0.0021	0.0015	0.0040	0.2642	0.0077	<. 0001	0.2690
	52	52	52	52	52	52	52	52
EOB	0.67551	0.51588	-0.34811	-0.43126	0.00191	-0.35999	-0.43145	-0.20459
	<. 0001	<. 0001	0.0114	0.0014	0.9893	0.0088	0.0014	0.1457
	52	52	52	52	52	52	52	52
EOV	0.33473	0.37115	-0.31185	-0.29464	0.00821	-0.29463	-0.35726	-0.35309
	0.0153	0.0068	0.0244	0.0244	0.9540	0.0340	0.0093	0.0102
	52	52	52	52	52	52	52	52

4.5   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.34275	0.32554	-0.07767	-0.19023	-0.01724	-0.14447	-0.28778	-0.02295
	<. 0001	<. 0001	0.3384	0.0181	0.8320	0.0738	0.0003	0.7775
	154	154	154	154	154	154	154	154
Factor Q$_4$	0.54749	0.41371	-0.31938	-0.33946	-0.28386	-0.32593	-0.34010	-0.21893
	<. 0001	<. 0001	<. 0001	<. 0001	0.0004	<. 0001	<. 0001	0.0064
	154	154	154	154	154	154	154	154
Factor -C	0.33822	0.36092	-0.17815	-0.20058	-0.07036	-0.19295	-0.24169	-0.21253
	<. 0001	<. 0001	0.0271	0.0126	0.3859	0.0165	0.0025	0.0081
	154	154	154	154	154	154	154	154
Factor L	0.29766	0.30120	-0.15892	-0.20314	-0.10340	-0.15072	-0.25908	-0.14321
	0.0002	0.0001	0.0490	0.0115	0.2019	0.0621	0.0012	0.0764
	154	154	154	154	154	154	154	154
Factor O	0.52653	0.45502	-0.22811	-0.29970	-0.18733	-0.29690	-0.29517	-0.16117
	<. 0001	<. 0001	0.0044	0.0002	0.0200	0.0002	0.0002	0.0458
	154	154	154	154	154	154	154	154
Score A	0.47973	0.42710	-0.21926	-0.24800	-0.18841	-0.26169	-0.30208	-0.16553
	<. 0001	<. 0001	0.0063	0.0019	0.0193	0.0010	0.0001	0.0402
	154	154	154	154	154	154	154	154
Score B	0.54826	0.47702	-0.26209	-0.36132	-0.16604	-0.30161	-0.38146	-0.17570
	<. 0001	<. 0001	0.0010	<. 0001	0.0396	0.0001	<. 0001	0.0293
	154	154	154	154	154	154	154	154
Total Anxiety Score	0.56519	0.49686	-0.26488	-0.33659	-0.19387	-0.30976	-0.37655	-0.18734
	<. 0001	<. 0001	0.0009	<. 0001	0.0160	<. 0001	<. 0001	0.0200
	154	154	154	154	154	154	154	154

4.6   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for non-married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.45319	0.32554	-0.07767	-0.19023	-0.01724	-0.14447	-0.28778	-0.02295
	0.0007	<. 0001	0.3384	0.0181	0.8320	0.0738	0.0003	0.7775
	52	52	52	52	52	52	52	52
Factor Q$_4$	0.52738	0.43066	-0.18891	-0.23806	-0.01901	-0.23984	-0.36002	-0.26945
	<. 0001	0.0014	0.1798	0.0892	0.8936	0.0868	0.0088	0.0534
	52	52	52	52	52	52	52	52
Factor -C	0.47146	0.30274	-0.28043	-0.12969	0.20932	-0.20822	-0.33650	-0.03043
	0.0004	0.0291	0.0440	0.3595	0.1364	0.1385	0.0147	0.8304
	52	52	52	52	52	52	52	52
Factor L	0.51080	0.38820	-0.28073	-0.19689	-0.06314	-0.23980	-0.32527	-0.10881
	0.0001	0.0045	0.0438	0.1618	0.6565	0.0868	0.0186	0.4426
	52	52	52	52	52	52	52	52
Factor O	0.61217	0.47266	-0.14889	-0.17552	0.00304	-0.20247	-0.35061	-0.17417
	<. 0001	0.0004	0.2922	0.2133	0.9829	0.1500	0.0108	0.2169
	52	52	52	52	52	52	52	52
Score A	0.58034	0.46701	-0.23989	-0.16795	0.05824	-0.21385	-0.36628	-0.21028
	<. 0001	0.0005	0.0867	0.2340	0.6817	0.1279	0.0076	0.1346
	52	52	52	52	52	52	52	52
Score B	0.57569	0.44058	-0.17558	-0.21698	0.02968	-0.22811	-0.30305	-0.14900
	<. 0001	0.0011	0.2131	0.1223	0.8346	0.1039	0.0290	0.2918
	52	52	52	52	52	52	52	52
Total Anxiety Score	0.63505	0.49760	-0.22558	-0.21360	0.04710	-0.24346	-0.36512	-0.19483
	<. 0001	0.0002	0.1079	0.1284	0.7402	0.0820	0.0078	0.1663
	52	52	52	52	52	52	52	52

4.7   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.61213	0.63792	-0.36061	-0.28902	-0.19223	-0.38359	-0.48538	-0.32183
	<. 0001	<. 0001	<. 0001	0.0003	0.0169	<. 0001	<. 0001	<. 0001
	154	154	154	154	154	154	154	154

4.8   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for non-married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.75745	0.59957	-0.33217	-0.27372	-0.03687	-0.41967	-0.43450	-0.22971
	<. 0001	<. 0001	0.0172	0.0519	0.7973	0.0022	0.0014	0.1049
	51	51	51	51	51	51	51	51

4.9   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.42523	0.37079	-0.08132	-0.25338	-0.09656	-0.09770	-0.19730	-0.08308
	<. 0001	<. 0001	0.3192	0.0016	0.2366	0.2311	0.0148	0.3089
	152	152	152	152	152	152	152	152

4.10   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for non-married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.69491	0.43737	-0.21757	-0.28384	-0.24317	-0.29276	-0.29442	-0.23130
	<. 0001	0.0013	0.1251	0.0435	0.0855	0.0371	0.0360	0.1024
	51	51	51	51	51	51	51	51

4.11   Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised for married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.17553	-0.28812	0.07050	0.21812	0.14034	0.21763	0.26631	-0.00518
	0.0300	0.0003	0.3865	0.0068	0.0836	0.0069	0.0009	0.9494
	153	153	153	153	153	153	153	153
Negative Problem Orientation	0.46439	0.47564	-0.26213	-0.24632	-0.26391	-0.29773	-0.24352	-0.18735
	<. 0001	<. 0001	0.0010	0.0021	0.0009	0.0002	0.0023	0.0200
	154	154	154	154	154	154	154	154
Rational Problem Solving	-0.11031	-0.27772	0.06426	0.12010	0.07788	0.15791	0.23794	0.02235
	0.1746	0.0005	0.4300	0.1392	0.3387	0.0512	0.0031	0.7839
	153	153	153	153	153	153	153	153
Problem Definition and Formulation	-0.11183	-0.28652	0.07603	0.12170	0.04984	0.13465	0.24236	0.03668
	0.1688	0.0003	0.3503	0.1340	0.5407	0.0970	0.0025	0.6526
	153	153	153	153	153	153	153	153
Generation of Alternatives	-0.11146	-0.24041	0.04720	0.12258	0.06071	0.16728	0.20288	0.00083
	0.1702	0.0028	0.5623	0.1312	0.4560	0.0388	0.0119	0.9918
	153	153	153	153	153	153	153	153
Decision Making	-0.07955	-0.22270	0.02651	0.12115	0.02503	0.11097	0.23881	0.04318
	0.3283	0.0057	0.7449	0.1358	0.7588	0.1721	0.0030	0.5961
	153	153	153	153	153	153	153	153
Solution Implementation Verification	-0.09430	-0.25092	0.07867	0.07143	0.13793	0.15411	0.17893	0.00278
	0.2463	0.0018	0.3337	0.3803	0.0891	0.0572	0.0269	0.9728
	153	153	153	153	153	153	153	153
Impulsivity/ Carelessness Style	0.23738	0.25860	-0.13244	-0.05677	0.01135	-0.13684	-0.21308	-0.05963
	0.0031	0.0012	0.1027	0.4858	0.8893	0.0917	0.0082	0.4640
	153	153	153	153	153	153	153	153
Avoidance Style	0.20818	0.29302	-0.19355	-0.20526	-0.14779	-0.22390	-0.16530	-0.11815
	0.0098	0.0002	0.0165	0.0109	0.0683	0.0054	0.0412	0.1458
	153	153	153	153	153	153	153	153
Social Problem Solving	-0.29806	-0.38432	0.18412	0.27978	0.16458	0.29347	0.30946	0.13064
	0.0002	<. 0001	0.0223	0.0004	0.0414	0.0002	<. 0001	0.1063
	154	154	154	154	154	154	154	154

4.12   Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Inventory-Revised for non-married

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.29089	-0.34716	-0.11374	0.14751	0.11029	-0.03472	0.02727	-0.05894
	0.0364	0.0117	0.4220	0.2967	0.4363	0.8070	0.8478	0.6781
	52	52	52	52	52	52	52	52
Negative Problem Orientation	0.54454	0.49699	0.00375	-0.09647	-0.01791	-0.13991	-0.14494	0.05902
	<. 0001	0.0002	0.9789	0.4963	0.8997	0.3225	0.3053	0.6777
	52	52	52	52	52	52	52	52
Rational Problem Solving	-0.04359	-0.11979	-0.14074	-0.05076	0.06256	-0.11365	-0.28388	-0.06854
	0.7590	0.3976	0.3197	0.7208	0.6595	0.4224	0.0414	0.6292
	52	52	52	52	52	52	52	52
Problem Definition and Formulation	-0.08531	-0.16327	-0.09935	-0.07268	0.07713	-0.11054	-0.16090	-0.02654
	0.5476	0.2475	0.4835	0.6086	0.5868	0.4353	0.2545	0.8518
	52	52	52	52	52	52	52	52
Generation of Alternatives	0.01138	-0.14930	-0.23767	-0.10977	0.06042	-0.23458	-0.32003	-0.09703
	0.9362	0.2908	0.0898	0.4386	0.6705	0.0942	0.0207	0.4938
	52	52	52	52	52	52	52	52
Decision Making	0.00570	-0.01881	-0.07678	-0.01193	0.02939	-0.02355	-0.26876	-0.07987
	0.9680	0.8947	0.5885	0.9331	0.8361	0.8684	0.0540	0.5735
	52	52	52	52	52	52	52	52
Solution Implementation Verification	-0.08384	-0.08844	-0.06384	0.00963	0.05029	-0.02652	-0.19817	-0.02565
	0.5545	0.5330	0.6530	0.9460	0.7233	0.8519	0.1590	0.8568
	52	52	52	52	52	52	52	52
Impulsivity/ Carelessness Style	0.20959	0.07570	0.14070	0.14199	0.02330	0.02317	0.21521	0.17822
	0.1359	0.5938	0.3198	0.3153	0.8698	0.8705	0.1255	0.2062
	52	52	52	52	52	52	52	52
Avoidance Style	0.44178	0.47834	0.07771	-0.13481	-0.03285	-0.09241	-0.16943	0.00255
	0.0010	0.0003	0.5840	0.3407	0.8172	0.5147	0.2298	0.9857
	52	52	52	52	52	52	52	52
Social Problem Solving	-0.42607	-0.42205	-0.12612	0.05730	0.05467	0.02195	-0.02928	-0.09769
	0.0016	0.0018	0.3730	0.6866	0.7003	0.8772	0.8368	0.4908
	52	52	52	52	52	52	52	52

5.   Pearson correlation coefficients for type of organization grouping

5.1   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for financial organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.24961	0.12283	-0.41533	-0.40643	-0.32719	-0.28701	-0.24935	-0.34245
	0.0544	0.3498	0.0010	0.0013	0.0107	0.0262	0.0547	0.0074
	60	60	60	60	60	60	60	60
WEH	0.25415	0.09589	-0.44794	-0.32369	-0.24377	-0.32308	-0.17668	-0.32989
	0.0500	0.4661	0.0003	0.0116	0.0605	0.0118	0.1769	0.0101
	60	60	60	60	60	60	60	60
WOB	0.12316	0.06129	-0.22462	-0.32914	-0.26534	-0.10404	-0.22665	-0.21369
	0.3485	0.6418	0.0844	0.0102	0.0405	0.4289	0.0816	0.1011
	60	60	60	60	60	60	60	60
WOV	0.31592	0.27112	-0.37061	-0.52394	-0.48847	-0.34232	-0.34175	-0.38619
	0.0139	0.0361	0.0036	<. 0001	<. 0001	0.0074	0.0075	0.0023
	60	60	60	60	60	60	60	60

5.2   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for production/ services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.40613	0.26568	-0.38052	-0.29413	-0.06234	-0.23696	-0.27916	0.04197
	0.0038	0.0650	0.0070	0.0402	0.6704	0.1011	0.0521	0.7746
	49	49	49	49	49	49	49	49
WEH	0.35336	0.23545	-0.37728	-0.28140	-0.06842	-0.24279	-0.29470	0.07597
	0.0128	0.1034	0.0075	0.0501	0.6404	0.0928	0.0398	0.6039
	49	49	49	49	49	49	49	49
WOB	0.43873	0.33187	-0.40738	-0.27884	-0.06264	-0.25403	-0.30335	-0.00682
	0.0016	0.0198	0.0037	0.0524	0.6689	0.0782	0.0341	0.9629
	49	49	49	49	49	49	49	49
WOV	0.31894	0.10662	-0.15920	-0.22665	-0.01316	-0.07355	-0.05099	0.01030
	0.0255	0.4659	0.2746	0.1173	0.9285	0.6155	0.7279	0.9440
	49	49	49	49	49	49	49	49

5.3   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for research and development organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.24785	0.26973	-0.25530	-0.29323	-0.45680	-0.18177	-0.28336	-0.08332
	0.0930	0.0667	0.0833	0.0455	0.0012	0.2214	0.0536	0.5776
	47	47	47	47	47	47	47	47
WEH	0.31677	0.33985	-0.34668	-0.34738	-0.52109	-0.28432	-0.32972	-0.13108
	0.0301	0.0194	0.0170	0.0167	0.0002	0.0528	0.0236	0.3798
	47	47	47	47	47	47	47	47
WOB	0.05103	0.07171	-0.06032	-0.15129	-0.31884	-0.01678	-0.15306	-0.00189
	0.7334	0.6319	0.6871	0.3100	0.0289	0.9109	0.3044	0.9899
	47	47	47	47	47	47	47	47
WOV	0.22872	0.22684	-0.12753	-0.14641	-0.09316	-0.08883	-0.14884	-0.01204
	0.1220	0.1252	0.3930	0.3261	0.5334	0.5527	0.3180	0.9360
	47	47	47	47	47	47	47	47

5.4   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for academic/auxiliary services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.65208	0.32440	-0.54715	-0.32257	-0.17182	-0.42555	-0.37171	-0.27756
	<. 0001	0.0230	<. 0001	0.0238	0.2378	0.0023	0.0085	0.0535
	49	49	49	49	49	49	49	49
WEH	0.60803	0.29740	-0.53134	-0.25396	-0.02596	-0.37962	-0.41503	-0.28191
	<. 0001	0.0380	<. 0001	0.0783	0.8595	0.0071	0.0030	0.0497
	49	49	49	49	49	49	49	49
WOB	0.67507	0.34919	-0.53709	-0.37745	-0.26790	-0.44841	-0.35417	-0.30255
	<. 0001	0.0139	<. 0001	0.0075	0.0627	0.0012	0.0125	0.0346
	49	49	49	49	49	49	49	49
WOV	0.39850	0.17863	-0.34769	-0.22379	-0.27225	-0.29109	-0.10209	-0.06065
	0.0046	0.2194	0.0144	0.1222	0.0584	0.0424	0.4852	0.6789
	49	49	49	49	49	49	49	49

5.5   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for financial organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.36428	0.27750	-0.34346	-0.35748	-0.29555	-0.27662	-0.29291	-0.30050
	0.0042	0.0318	0.0072	0.0050	0.0219	0.0324	0.0231	0.0197
	60	60	60	60	60	60	60	60
EEH	0.37025	0.23670	-0.40873	-0.34305	-0.19404	-0.31729	-0.28446	-0.28744
	0.0036	0.0686	0.0012	0.0073	0.1374	0.0135	0.0276	0.0260
	60	60	60	60	60	60	60	60
EOB	0.21126	0.18777	-0.15067	-0.25113	-0.30563	-0.10231	-0.18105	-0.21259
	0.1052	0.1508	0.2505	0.0529	0.0176	0.4366	0.1662	0.1029
	60	60	60	60	60	60	60	59
EOV	0.42219	0.47085	-0.36028	-0.55741	-0.40364	-0.44489	-0.45186	-0.42229
	0.0009	0.0002	0.0051	<. 0001	0.0015	0.0004	0.0003	0.0009
	59	59	59	59	59	59	59	59

5.6   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for production/ services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.35387	0.15354	-0.21183	-0.10269	0.13075	-0.11651	-0.27912	0.13544
	0.0117	0.2871	0.1397	0.4779	0.3655	0.4204	0.0496	0.3483
	50	50	50	50	50	50	50	50
EEH	0.30054	0.09237	-0.21914	-0.07837	0.09015	-0.11602	-0.27228	0.15534
	0.0339	0.5235	0.1263	0.5885	0.5336	0.4224	0.0558	0.2814
	50	50	50	50	50	50	50	50
EOB	0.44511	0.28995	-0.20777	-0.12565	0.11694	-0.11485	-0.30953	0.16804
	0.0012	0.0411	0.1477	0.3846	0.4186	0.4271	0.0287	0.2434
	50	50	50	50	50	50	50	50
EOV	0.16837	0.00985	-0.12599	-0.00047	0.23623	-0.06779	-0.13985	-0.09327
	0.2475	0.9465	0.3884	0.9975	0.1022	0.6435	0.3379	0.5238
	49	49	49	49	49	49	49	49

5.7   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for research and development organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.23769	0.30066	-0.44318	-0.30095	-0.57816	-0.36540	-0.47334	-0.19980
	0.1077	0.0400	0.0018	0.0398	<. 0001	0.0116	0.0008	0.1781
	47	47	47	47	47	47	47	47
EEH	0.28294	0.34004	-0.48373	-0.31131	-0.57688	-0.41726	-0.50616	-0.19799
	0.0540	0.0194	0.0006	0.0332	<. 0001	0.0035	0.0003	0.1822
	47	47	47	47	47	47	47	47
EOB	0.13603	0.20051	-0.33889	-0.23005	-0.49198	-0.24321	-0.36978	-0.16613
	0.3619	0.1766	0.0198	0.1198	0.0004	0.0995	0.0105	0.2644
	47	47	47	47	47	47	47	47
EOV	0.21708	0.25434	-0.27613	-0.30756	-0.48394	-0.28353	-0.32818	-0.19658
	0.1427	0.0845	0.0603	0.0355	0.0001	0.0534	0.0243	0.1854
	47	47	47	47	47	47	47	47

5.8   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for academic/ auxiliary services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.28335	0.01137	-0.50437	-0.26877	-0.14998	-0.33683	-0.21605	-0.21536
	0.0485	0.9382	0.0002	0.0619	0.3037	0.0180	0.1360	0.1373
	49	49	49	49	49	49	49	49
EEH	0.28835	0.01059	-0.44958	-0.21360	0.02804	-0.26736	-0.28539	-0.17718
	0.0445	0.9425	0.0012	0.1406	0.8483	0.0633	0.0468	0.2233
	49	49	49	49	49	49	49	49
EOB	0.55879	0.19214	-0.55212	-0.37151	-0.35438	-0.44097	-0.23789	-0.27322
	<. 0001	0.1908	<. 0001	0.0093	0.0135	0.0017	0.1035	0.0602
	48	48	48	48	48	48	48	48
EOV	0.39625	0.08063	-0.34542	-0.25559	-0.08067	-0.22358	-0.20817	-0.14514
	0.0053	0.5859	0.0162	0.0795	0.5857	0.1266	0.1557	0.3250
	48	48	48	48	48	48	48	48

5.9   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for financial organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.42979	0.49778	0.03106	-0.26604	0.08820	-0.12984	-0.30202	-0.05471
	0.0006	<. 0001	0.8137	0.0399	0.5028	0.3228	0.0190	0.6780
	60	60	60	60	60	60	60	60
Factor Q_4	0.66447	0.62523	-0.30406	-0.37432	-0.23898	-0.40298	-0.37058	-0.23175
	<. 0001	<. 0001	0.0182	0.0032	0.0659	0.0014	0.0036	0.0748
	60	60	60	60	60	60	60	60
Factor -C	0.48243	0.47851	-0.22430	-0.18873	0.03495	-0.28023	-0.29108	-0.09893
	<. 0001	0.0001	0.0849	0.1487	0.7909	0.0301	0.0240	0.4520
	60	60	60	60	60	60	60	60
Factor L	0.51430	0.52968	-0.30200	-0.31023	-0.09508	-0.27124	-0.39490	-0.23673
	<. 0001	<. 0001	0.0190	0.0158	0.4699	0.0361	0.0018	0.0686
	60	60	60	60	60	60	60	60
Factor O	0.65420	0.62436	-0.30729	-0.35055	-0.09333	-0.43757	-0.27942	-0.17797
	<. 0001	<. 0001	0.0169	0.0060	0.4782	0.0005	0.0306	0.1737
	60	60	60	60	60	60	60	60
Score A	0.65058	0.67196	-0.29764	-0.32605	-0.12755	-0.37369	-0.38203	-0.23638
	<. 0001	<. 0001	0.0209	0.0110	0.3314	0.0033	0.0026	0.0690
	60	60	60	60	60	60	60	60
Score B	0.62458	0.59633	-0.22954	-0.36256	-0.05335	-0.35835	-0.34192	-0.14062
	<. 0001	<. 0001	0.0777	0.0044	0.6856	0.0049	0.0075	0.2839
	60	60	60	60	60	60	60	60
Total Anxiety Score	0.71733	0.71099	-0.29371	-0.38989	-0.09826	-0.41179	-0.40599	-0.20770
	<. 0001	<. 0001	0.0227	0.0021	0.4551	0.0011	0.0013	0.1113
	60	60	60	60	60	60	60	60

5.10 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for production/ services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.55329	0.49975	-0.44660	-0.28395	-0.17639	-0.43753	-0.51414	-0.14497
	<. 0001	0.0002	0.0011	0.0457	0.2204	0.0015	0.0001	0.3151
	50	50	50	50	50	50	50	50
Factor Q_4	0.57570	0.37311	-0.42443	-0.24273	-0.33476	-0.36700	-0.61204	-0.26223
	<. 0001	0.0076	0.0021	0.0894	0.0175	0.0088	<. 0001	0.0658
	50	50	50	50	50	50	50	50
Factor -C	0.39717	0.32900	-0.30139	-0.14996	-0.27232	-0.24695	-0.41104	-0.10227
	0.0043	0.0197	0.0334	0.2986	0.0557	0.0838	0.0030	0.4798
	50	50	50	50	50	50	50	50
Factor L	0.49622	0.47651	-0.32784	-0.21372	-0.18748	-0.32116	-0.42850	-0.12783
	0.0002	0.0005	0.0201	0.1361	0.1923	0.0230	0.0019	0.3763
	50	50	50	50	50	50	50	50
Factor O	0.62915	0.42178	-0.39197	-0.21531	-0.28062	-0.34126	-0.66874	-0.16182
	<. 0001	0.0023	0.0049	0.1332	0.0484	0.0153	<. 0001	0.2616
	50	50	50	50	50	50	50	50
Score A	0.60080	0.37078	-0.40908	-0.19957	-0.32431	-0.34765	-0.55865	-0.15424
	<. 0001	0.0080	0.0032	0.1647	0.0216	0.0134	<. 0001	0.2849
	50	50	50	50	50	50	50	50
Score B	0.64165	0.55112	-0.46737	-0.29947	-0.28312	-0.43307	-0.69503	-0.23101
	<. 0001	<. 0001	0.0006	0.0346	0.0463	0.0017	<. 0001	0.1065
	50	50	50	50	50	50	50	50
Total Anxiety Score	0.66022	0.49714	-0.46716	-0.26922	-0.31982	-0.41776	-0.67079	-0.20782
	<. 0001	0.0002	0.0006	0.0587	0.0236	0.0025	<. 0001	0.1476
	50	50	50	50	50	50	50	50

5.11 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for research and development organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.38625	0.25683	-0.07843	-0.07658	-0.13949	0.00274	-0.22370	0.07598
	0.0073	0.0814	0.6003	0.6089	0.3497	0.9854	0.1306	0.6117
	47	47	47	47	47	47	47	47
Factor Q_4	0.46002	0.31773	-0.26270	-0.25569	-0.21380	-0.23883	-0.40101	-0.16266
	0.0011	0.0295	0.0744	0.0828	0.1490	0.1059	0.0052	0.2746
	47	47	47	47	47	47	47	47
Factor -C	0.28967	0.20714	-0.32508	-0.09672	0.02292	-0.15397	-0.33505	-0.16078
	0.0483	0.1624	0.0258	0.5178	0.8785	0.3015	0.0213	0.2803
	47	47	47	47	47	47	47	47
Factor L	0.17686	0.05459	-0.01681	-0.04332	0.11674	0.02526	-0.08504	-0.09772
	0.2343	0.7155	0.9107	0.7725	0.4345	0.8661	0.5698	0.5134
	47	47	47	47	47	47	47	47
Factor O	0.37801	0.29643	-0.11848	-0.20018	-0.06342	-0.11053	-0.30379	-0.13392
	0.0088	0.0430	0.4277	0.1773	0.6719	0.4595	0.0379	0.3695
	47	47	47	47	47	47	47	47
Score A	0.42672	0.28352	-0.25379	-0.19449	-0.06806	-0.19587	-0.35211	-0.17211
	0.0028	0.0535	0.0852	0.1902	0.6494	0.1870	0.0152	0.2474
	47	47	47	47	47	47	47	47
Score B	0.40222	0.28989	-0.10635	-0.14971	0.03098	-0.03573	-0.30110	-0.03182
	0.0051	0.0481	0.4768	0.3152	0.8362	0.8116	0.0397	0.8318
	47	47	47	47	47	47	47	47
Total Anxiety Score	0.45139	0.31160	-0.19988	-0.18838	-0.02289	-0.13034	-0.35657	-0.11475
	0.0014	0.0330	0.1780	0.2048	0.8786	0.3825	0.0139	0.4425
	47	47	47	47	47	47	47	47

309

5.12 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for academic/ auxiliary services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.14579	0.25906	0.23834	-0.09686	-0.10197	0.03379	0.04206	0.03461
	0.3175	0.0723	0.0991	0.5079	0.4857	0.8177	0.7742	0.8134
	49	49	49	49	49	49	49	49
Factor Q$_4$	0.41938	0.31402	-0.24369	-0.31931	-0.26635	-0.31350	-0.05868	-0.25732
	0.0027	0.0280	0.0915	0.0253	0.0643	0.0283	0.6888	0.0743
	49	49	49	49	49	49	49	49
Factor -C	0.30915	0.32040	-0.11853	-0.11777	0.06909	-0.23077	-0.12271	-0.31111
	0.0307	0.0248	0.4173	0.1731	0.6371	0.1106	0.4009	0.0296
	49	49	49	49	49	49	49	49
Factor L	0.14687	0.11622	-0.13108	-0.15807	-0.07552	-0.15611	-0.15562	-0.01733
	0.3139	0.4265	0.3693	0.2780	0.6060	0.2841	0.2856	0.9059
	49	49	49	49	49	49	49	49
Factor O	0.46775	0.45673	0.00272	-0.25805	-0.21061	-0.21028	-0.03028	-0.17241
	0.0007	0.0010	0.9852	0.0734	0.1463	0.1470	0.8363	0.2362
	49	49	49	49	49	49	49	49
Score A	0.28899	0.40865	0.05452	-0.12041	-0.08233	-0.11961	0.02091	-0.13439
	0.0440	0.0036	0.7099	0.4099	0.5739	0.4130	0.8866	0.3572
	49	49	49	49	49	49	49	49
Score B	0.48551	0.35696	-0.16861	-0.39181	-0.24610	-0.31792	-0.14322	-0.23855
	0.0004	0.0118	0.2468	0.0054	0.0883	0.0260	0.3262	0.0988
	49	49	49	49	49	49	49	49
Total Anxiety Score	0.43401	0.41937	-0.07156	-0.29259	-0.18720	-0.24861	-0.07377	-0.20936
	0.0018	0.0027	0.6251	0.0413	0.1977	0.0850	0.6144	0.1488
	49	49	49	49	49	49	49	49

5.13 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for financial organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.73800	0.69956	-0.39363	-0.25433	-0.28258	-0.56123	-0.46887	-0.31623
	<. 0001	<. 0001	0.0019	0.0499	0.0287	<. 0001	0.0002	0.0138
	60	60	60	60	60	60	60	60

5.14 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for production/ services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.70127	0.69116	-0.46068	-0.24242	-0.01965	-0.37622	-0.57997	-0.21008
	<. 0001	<. 0001	0.0009	0.0933	0.8934	0.0077	<. 0001	0.1474
	49	49	49	49	49	49	49	49

5.15 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for research and development organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.49753	0.46220	-0.33525	-0.15387	0.01712	-0.31077	-0.44163	-0.13509
	0.0004	0.0011	0.0212	0.3018	0.9091	0.0335	0.0019	0.3653
	47	47	47	47	47	47	47	47

5.16 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for academic/auxiliary services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.61913	0.56085	-0.24685	-0.42821	-0.15940	-0.33298	-0.45462	-0.38701
	<. 0001	<. 0001	0.0873	0.0021	0.2740	0.0194	0.0010	0.0060
	49	49	49	49	49	49	49	49

5.17 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for financial organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.45199	0.37964	-0.13461	-0.17603	-0.02963	-0.15297	-0.18699	-0.07423
	0.0003	0.0028	0.3052	0.1785	0.8222	0.2433	0.1526	0.5730
	60	60	60	60	60	60	60	60

5.18 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for production/ services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.58716	0.43427	-0.31497	-0.30982	-0.28417	-0.24179	-0.58126	-0.08091
	<. 0001	0.0023	0.0311	0.0341	0.0529	0.1015	<. 0001	0.5887
	47	47	47	47	47	47	47	47

5.19 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for research and development organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.48525	0.26553	-0.04137	-0.21765	0.05786	0.05668	-0.13395	0.06801
	0.0005	0.0712	0.7825	0.1417	0.6993	0.7051	0.3694	0.6497
	47	47	47	47	47	47	47	47

5.20 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for academic/ auxiliary organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.48797	0.45860	0.02572	-0.31603	-0.21824	-0.24610	-0.09903	-0.22093
	0.0004	0.0009	0.8608	0.0270	0.1319	0.0883	0.4984	0.1271
	49	49	49	49	49	49	49	49

5.21 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for financial organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.31452	-0.51781	0.05585	0.47577	0.20148	0.23270	0.38884	0.00895
	0.0144	<. 0001	0.6717	0.0001	0.1227	0.0736	0.0021	0.9459
	60	60	60	60	60	60	60	60
Negative Problem Orientation	0.69326	0.59632	-0.23725	-0.29179	-0.28826	-0.35414	-0.30632	-0.23546
	<. 0001	<. 0001	0.0680	0.0237	0.0255	0.0055	0.0173	0.0701
	60	60	60	60	60	60	60	60
Rational Problem Solving	-0.27626	-0.47462	0.21186	0.39835	0.23119	0.35368	0.44489	0.10479
	0.0326	0.0001	0.1042	0.0016	0.0755	0.0056	0.0004	0.4256
	60	60	60	60	60	60	60	60
Problem Definition and Formulation	-0.25642	-0.48166	0.20891	0.42659	0.21592	0.35889	0.45636	0.09765
	0.0480	<. 0001	0.1092	0.0007	0.0975	0.0049	0.0002	0.4579
	60	60	60	60	60	60	60	60
Generation of Alternatives	-0.29636	-0.47124	0.15863	0.36003	0.21702	0.30666	0.39803	0.04174
	0.0215	0.0001	0.2260	0.0047	0.0958	0.0172	0.0016	0.7515
	60	60	60	60	60	60	60	60
Decision Making	-0.30565	-0.45933	0.25460	0.40658	0.21495	0.40229	0.47895	0.13257
	0.0176	0.0002	0.0496	0.0013	0.0991	0.0014	0.0001	0.3126
	60	60	60	60	60	60	60	60
Solution Implementation Verification	-0.16620	-0.33908	0.16107	0.27804	0.20140	0.24122	0.31117	0.11254
	0.2044	0.0080	0.2189	0.0315	0.1228	0.0634	0.0155	0.3920
	60	60	60	60	60	60	60	60
Impulsivity/ Carelessness Style	0.39606	0.36506	-0.21194	-0.09786	-0.10064	-0.42332	-0.19409	-0.08194
	0.0017	0.0041	0.1040	0.4569	0.4442	0.0008	0.1373	0.5337
	60	60	60	60	60	60	60	60
Avoidance Style	0.26933	0.37694	-0.05136	-0.16544	-0.17172	-0.15647	-0.10575	-0.20813
	0.0374	0.0030	0.6967	0.2065	0.1896	0.2325	0.4213	0.1105
	60	60	60	60	60	60	60	60
Social Problem Solving	-0.52959	-0.66429	0.20960	0.44057	0.28603	0.41994	0.43547	0.16467
	<. 0001	<. 0001	0.1080	0.0004	0.0267	0.0008	0.0005	0.2087
	60	60	60	60	60	60	60	60

5.22 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for production/ services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.32080 0.0231 50	-0.30625 0.0305 50	0.13577 0.3471 50	0.02804 0.8467 50	0.03487 0.8100 50	0.14478 0.3158 50	0.44564 0.0012 50	-0.12567 0.3845 50
Negative Problem Orientation	0.52491 <. 0001 50	0.51664 0.0001 50	-0.29442 0.0379 50	-0.30113 0.0336 50	-0.16024 0.2663 50	-0.31549 0.0256 50	-0.45766 0.0008 50	-0.00460 0.9747 50
Rational Problem Solving	-0.17587 0.2218 50	-0.25099 0.0787 50	0.15061 0.2965 50	-0.10859 0.4529 50	0.07982 0.5816 50	0.14011 0.3318 50	0.24401 0.0877 50	-0.04583 0.7520 50
Problem Definition and Formulation	-0.21105 0.1412 50	-0.30479 0.0314 50	0.14850 0.3034 50	-0.11477 0.4274 50	-0.01673 0.9082 50	0.18292 0.2035 50	0.30987 0.0285 50	-0.03853 0.7905 50
Generation of Alternatives	-0.14908 0.3015 50	-0.15529 0.2815 50	0.06099 0.6739 50	-0.09526 0.5105 50	0.07450 0.6071 50	0.08006 0.5805 50	0.20915 0.1449 50	-0.09769 0.4997 50
Decision Making	-0.08295 0.5669 50	-0.23377 0.1023 50	0.20584 0.1515 50	-0.02460 0.8654 50	0.15611 0.2790 50	0.17803 0.3158 50	0.17970 0.2118 50	0.07708 0.5947 50
Solution Implementation Verification	-0.17226 0.2316 50	-0.20146 0.1606 50	0.12898 0.3720 50	-0.13859 0.3371 50	0.08510 0.5568 50	0.06948 0.6316 50	0.17141 0.2339 50	-0.08714 0.5474 50
Impulsivity/ Carelessness Style	0.28419 0.0455 50	0.14739 0.3070 50	-0.10252 0.4787 50	0.08751 0.5457 50	0.02956 0.8385 50	-0.08199 0.5714 50	-0.11129 0.4416 50	0.12681 0.3802 50
Avoidance Style	0.34815 0.0132 50	0.30053 0.0340 50	-0.14923 0.3010 50	-0.15127 0.2943 50	0.08388 0.5625 50	-0.16867 0.2416 50	-0.36839 0.0085 50	0.06973 0.6304 50
Social Problem Solving	-0.44881 0.0011 50	-0.41233 0.0029 50	0.22514 0.1159 50	0.08814 0.5427 50	0.04472 0.7578 50	0.23253 0.1042 50	0.44093 0.0014 50	-0.09604 0.5070 50

5.23 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for research and development organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.10786 0.4755 46	0.01248 0.9344 46	-0.25201 0.0911 46	-0.01645 0.9136 46	-0.15289 0.3104 46	-0.04756 0.7536 46	0.03313 0.8270 46	-0.13494 0.3713 46
Negative Problem Orientation	0.45233 0.0014 47	0.28145 0.0553 47	-0.04858 0.7457 47	-0.04723 0.7526 47	0.06725 0.6533 47	-0.02080 0.8896 47	-0.19198 0.1961 47	0.10478 0.4834 47
Rational Problem Solving	0.00850 0.9553 46	0.04082 0.7877 46	-0.24463 0.1013 46	-0.12309 0.4151 46	-0.26079 0.0800 46	-0.23533 0.1154 46	-0.20705 0.1674 46	-0.30698 0.0380 46
Problem Definition and Formulation	-0.00673 0.9646 46	0.01647 0.9135 46	-0.22617 0.1307 46	-0.11538 0.4451 46	-0.26310 0.0773 46	-0.31605 0.0324 46	-0.19051 0.2047 46	-0.27894 0.0605 46
Generation of Alternatives	0.03215 0.8320 46	0.08221 0.5870 46	-0.27064 0.0689 46	-0.14575 0.3338 46	-0.25852 0.0828 46	-0.22857 0.1266 46	-0.22897 0.1259 46	-0.28310 0.0566 46
Decision Making	0.01961 0.8971 46	0.08151 0.5902 46	-0.22517 0.1324 46	-0.11671 0.4399 46	-0.28801 0.0523 46	-0.19883 0.1853 46	-0.17748 0.2380 46	-0.23137 0.1218 46
Solution Implementation Verification	-0.01770 0.9071 46	-0.03909 0.7965 46	-0.16026 0.2874 46	-0.06570 0.6644 46	-0.13305 0.3781 46	-0.11958 0.4286 46	-0.15020 0.3191 46	-0.31779 0.0314 46
Impulsivity/ Carelessness Style	0.17523 0.2441 46	0.11653 0.4406 46	0.04941 0.7443 46	0.02638 0.8618 46	0.16649 0.2688 46	0.08017 0.5964 46	-0.04286 0.7773 46	0.15259 0.3114 46
Avoidance Style	0.27370 0.0657 46	0.28928 0.0512 46	-0.02794 0.8538 46	-0.31800 0.0313 46	0.00650 0.9658 46	-0.07144 0.6371 46	-0.22337 0.1356 46	0.02433 0.8725 46
Social Problem Solving	-0.23123 0.1179 47	-0.13303 0.3727 47	-0.07430 0.6196 47	0.28075 0.0559 47	-0.08909 0.5515 47	0.03936 0.7928 47	0.12987 0.3843 47	0.07005 0.6399 47

5.24 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for academic/ auxiliary services organizations

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	0.00810	-0.20373	-0.05059	0.17743	0.23560	0.16101	-0.11040	0.04619
	0.9559	0.1603	0.7299	0.2226	0.1032	0.2691	0.4501	0.7527
	49	49	49	49	49	49	49	49
Negative Problem Orientation	0.27902	0.49150	-0.03132	-0.08691	-0.26072	-0.24205	0.04912	-0.19813
	0.0522	0.0003	0.8308	0.5527	0.0704	0.0938	0.7375	0.1723
	49	49	49	49	49	49	49	49
Rational Problem Solving	0.19107	-0.15583	-0.16194	0.02065	0.11641	0.05990	-0.09654	0.16419
	0.1885	0.2850	0.2663	0.8880	0.4257	0.6827	0.5093	0.2596
	49	49	49	49	49	49	49	49
Problem Definition and Formulation	0.21131	-0.06006	-0.10339	-0.07473	0.11271	0.00526	-0.06455	0.16457
	0.1450	0.6818	0.4796	0.6098	0.4407	0.9714	0.6595	0.2585
	49	49	49	49	49	49	49	49
Generation of Alternatives	0.18289	-0.21170	-0.10836	0.03650	0.10944	0.09367	-0.09192	0.15384
	0.2084	0.1442	0.4586	0.8034	0.4541	0.5221	0.5299	0.2912
	49	49	49	49	49	49	49	49
Decision Making	0.23708	-0.05389	-0.19358	-0.02301	0.09295	-0.01532	-0.08335	0.13730
	0.1010	0.7131	0.1826	0.8753	0.5253	0.9168	0.5691	0.3468
	49	49	49	49	49	49	49	49
Solution Implementation Verification	0.03765	-0.18356	-0.14666	0.11051	0.08312	0.10465	-0.08616	0.10775
	0.7973	0.2068	0.3146	0.4497	0.5702	0.4742	0.5561	0.4612
	49	49	49	49	49	49	49	49
Impulsivity/ Carelessness Style	0.09176	0.32041	0.04543	-0.08970	-0.07441	-0.00017	-0.13942	-0.28541
	0.5306	0.0248	0.7566	0.5399	0.6114	0.9991	0.3394	0.0468
	49	49	49	49	49	49	49	49
Avoidance Style	0.25414	0.44440	-0.08576	-0.18756	-0.21234	-0.22051	-0.04547	-0.14143
	0.0780	0.0014	0.5579	0.1969	0.1430	0.1279	0.7564	0.3324
	49	49	49	49	49	49	49	49
Social Problem Solving	-0.12066	-0.42383	-0.02802	0.15384	0.24065	0.18694	-0.01919	0.20759
	0.4089	0.0024	0.8485	0.2913	0.0958	0.1984	0.8959	0.1523
	49	49	49	49	49	49	49	49

6. Pearson correlation coefficients for the five qualification groupings

6.1 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for Grade 12 and lower

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.36606	0.27364	-0.26973	-0.25755	-0.00091	-0.09818	-0.15371	-0.08563
	0.0070	0.0474	0.0508	0.0626	0.9948	0.4843	0.2718	0.5421
	53	53	53	53	53	53	53	53
WEH	0.32370	0.21528	-0.34062	-0.18778	-0.00274	-0.15508	-0.06638	-0.09944
	0.0181	0.1216	0.0126	0.1782	0.9844	0.2675	0.6368	0.4787
	53	53	53	53	53	53	53	53
WOB	0.30134	0.28006	-0.14663	-0.24215	0.00001	0.00121	-0.20573	-0.06362
	0.0283	0.0422	0.2948	0.0806	01.000	0.9931	0.1394	0.6508
	53	53	53	53	53	53	53	53
WOV	0.32804	0.20962	-0.11018	-0.28109	0.00301	-0.06308	-0.17183	-0.02491
	0.0165	0.1319	0.4322	0.0415	0.9830	0.6536	0.2186	0.8595
	53	53	53	53	53	53	53	53

6.2 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for all diplomas

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.35939	0.32227	-0.34945	-0.13226	-0.06708	-0.10182	-0.26829	0.08819
	0.0340	0.0590	0.0396	0.4488	0.7018	0.5605	0.1192	0.6144
	35	35	35	35	35	35	35	35
WEH	0.29148	0.26470	-0.24923	-0.06494	0.05954	-0.03137	-0.26255	0.14774
	0.0893	0.1244	0.1488	0.7109	0.7340	0.8580	0.1276	0.3970
	35	35	35	35	35	35	35	35
WOB	0.42995	0.40776	-0.43746	-0.21374	-0.18858	-0.16954	-0.32638	-0.01780
	0.0099	0.0150	0.0086	0.2176	0.2780	0.3302	0.0557	0.9192
	35	35	35	35	35	35	35	35
WOV	0.22745	0.12920	-0.29676	-0.08918	-0.17223	-0.12545	0.01603	0.11118
	0.1888	0.4595	0.0834	0.6104	0.3225	0.4727	0.9272	0.5249
	35	35	35	35	35	35	35	35

6.3 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for all Bachelors degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.30221	-0.34228	-0.30506	-0.16289	-0.34315	-0.32399	-0.24067	-0.15016
	0.1512	0.1016	0.1472	0.1169	0.1007	0.1225	0.2573	0.4837
	24	24	24	24	24	24	24	24
WEH	0.27823	-0.27301	-0.30239	-0.14403	-0.30417	-0.31072	-0.30227	-0.12690
	0.1880	0.1968	0.1509	0.5019	0.1484	0.1395	0.1511	0.5546
	24	24	24	24	24	24	24	24
WOB	0.29165	-0.41604	-0.20634	-0.13368	-0.31255	-0.22408	-0.14631	-0.10968
	0.1667	0.0432	0.3334	0.5335	0.1370	0.2925	0.4951	0.6099
	24	24	24	24	24	24	24	24
WOV	0.21760	-0.20796	-0.31208	-0.17042	-0.30627	-0.34868	-0.11838	-0.19361
	0.3070	0.3295	0.1376	0.4259	0.1455	0.0949	0.5817	0.3647
	24	24	24	24	24	24	24	24

6.4 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for Honours and equivalent degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.58692	0.19131	-0.37888	-0.53343	-0.03458	-0.47066	-0.37670	-0.22654
	0.0003	0.2862	0.0297	0.0014	0.8485	0.0057	0.0307	0.2049
	33	33	33	33	33	33	33	33
WEH	0.54632	0.11856	-0.28907	-0.47096	0.07001	-0.35636	-0.29808	-0.10863
	0.0010	0.5111	0.1028	0.0057	0.6986	0.0418	0.0920	0.5474
	33	33	33	33	33	33	33	33
WOB	0.50963	0.14337	-0.44599	-0.49836	-0.09001	-0.52507	-0.40641	-0.28932
	0.0025	0.4261	0.0093	0.0032	0.6184	0.0017	0.0189	0.1025
	33	33	33	33	33	33	33	33
WOV	0.51348	0.49812	-0.26956	-0.47670	-0.30711	-0.43210	-0.32949	-0.37936
	0.0022	0.0032	0.1293	0.0050	0.0821	0.0120	0.0611	0.0295
	33	33	33	33	33	33	33	33

6.5 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for Masters and Doctoral degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.39325	0.41480	-0.44725	-0.45810	-0.36332	-0.33412	-0.36981	-0.37850
	0.0019	0.0010	0.0003	0.0002	0.0043	0.0091	0.0036	0.0029
	60	60	60	60	60	60	60	60
WEH	0.43420	0.43008	-0.49114	-0.48987	-0.34922	-0.38665	-0.45043	-0.39544
	0.0005	0.0006	<. 0001	<. 0001	0.0062	0.0023	0.0003	0.0018
	60	60	60	60	60	60	60	60
WOB	0.23517	0.30807	-0.30394	-0.32299	-0.33990	-0.21021	-0.22374	-0.28435
	0.0705	0.0166	0.0182	0.0118	0.0079	0.1069	0.0857	0.0277
	60	60	60	60	60	60	60	60
WOV	0.37589	0.34916	-0.34088	-0.37132	-0.23000	-0.21961	-0.17574	-0.29787
	0.0031	0.0063	0.0077	0.0035	0.0771	0.0918	0.1792	0.0208
	60	60	60	60	60	60	60	60

6.6 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for Grade 12 and lower

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.37767	0.27039	-0.19880	-0.22029	0.00084	-0.17964	-0.24061	-0.07009
	0.0049	0.0480	0.1496	0.1095	0.9952	0.1937	0.0797	0.6145
	54	54	54	54	54	54	54	54
EEH	0.33764	0.20549	-0.25256	-0.16573	0.01972	-0.19531	-0.17665	-0.07465
	0.0125	0.1361	0.0654	0.2311	0.8875	0.1570	0.2013	0.5916
	54	54	54	54	54	54	54	54
EOB	0.39910	0.33487	-0.09543	-0.22414	-0.05021	-0.10092	-0.24704	-0.01969
	0.0028	0.0133	0.4925	0.1032	0.7184	0.4678	0.0717	0.8876
	54	54	54	54	54	54	54	54
EOV	0.24457	0.18532	-0.18641	-0.17006	0.10171	-0.19749	-0.29565	-0.13578
	0.0776	0.1840	0.1814	0.2235	0.4686	0.1564	0.0316	0.3323
	53	53	53	53	53	53	53	53

6.7 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for all diplomas

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.01530	-0.12077	-0.28576	0.11715	-0.06229	0.06502	-0.01613	0.17656
	0.9305	0.4895	0.0961	0.5027	0.7222	0.7106	0.9267	0.3103
	35	35	35	35	35	35	35	35
EEH	-0.00113	-0.09199	-0.19150	0.13854	0.08380	0.10813	-0.10679	0.21202
	0.9948	0.5992	0.2705	0.4274	0.6322	0.5364	0.5415	0.2214
	35	35	35	35	35	35	35	35
EOB	0.29705	0.19446	-0.48040	0.00419	-0.26680	-0.08345	-0.14986	0.06236
	0.0880	0.2704	0.0040	0.9812	0.1272	0.6389	0.3976	0.7261
	34	34	34	34	34	34	34	34
EOV	0.11648	0.09286	-0.16918	-0.07912	-0.02900	0.09932	-0.07041	0.00911
	0.5186	0.6072	0.3466	0.6616	0.8727	0.5824	0.6970	0.9599
	33	33	33	33	33	33	33	35

6.8 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for all Bachelors degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.35984	-0.31490	-0.18223	0.02847	-0.16345	-0.16719	-0.07739	-0.01591
	0.0841	0.1339	0.3941	0.8949	0.4454	0.4349	0.7193	0.9412
	24	24	24	24	24	24	24	24
EEH	0.45030	-0.24198	-0.25918	0.04276	-0.10503	-0.19856	-0.14313	-0.10622
	0.0272	0.2546	0.2213	0.8428	0.6252	0.3523	0.5046	0.6213
	24	24	24	24	24	24	24	24
EOB	0.17274	-0.33954	-0.00718	-0.02546	-0.20265	-0.00576	-0.03607	0.14411
	0.4196	0.1045	0.9735	0.9060	0.3423	0.9787	0.8671	0.5017
	24	24	24	24	24	24	24	24
EOV	0.28111	-0.20259	-0.24549	-0.02229	-0.09719	-0.32565	0.05336	-0.13833
	0.1833	0.3424	0.2476	0.9177	0.6514	0.1205	0.8044	0.5192
	24	24	24	24	24	24	24	24

6.9 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for Honours and equivalent degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.64959	0.26967	-0.39326	-0.63986	0.02339	-0.45891	-0.48201	-0.31396
	<. 0001	0.1291	0.0236	<. 0001	0.8972	0.0072	0.0045	0.0752
	33	33	33	33	33	33	33	33
EEH	0.55736	0.16374	-0.29359	-0.58051	0.16942	-0.31071	-0.42416	-0.14156
	0.0008	0.3625	0.0973	0.0004	0.3459	0.0784	0.0139	0.4320
	33	33	33	33	33	33	33	33
EOB	0.59911	0.29916	-0.41233	-0.53257	-0.13518	-0.49655	-0.41481	-0.38688
	0.0002	0.0908	0.0171	0.0014	0.4532	0.0033	0.0164	0.0261
	33	33	33	33	33	33	33	33
EOV	0.42770	0.32812	-0.29396	-0.47707	-0.14945	-0.44502	-0.37453	-0.48402
	0.0130	0.0623	0.0968	0.0050	0.4065	0.0095	0.0318	0.0043
	33	33	33	33	33	33	33	33

6.10 Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for Masters and Doctoral degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.37872	0.34354	-0.49884	-0.41721	-0.45034	-0.43547	-0.47796	-0.34682
	0.0028	0.0072	<. 0001	0.0009	0.0003	0.0005	0.0001	0.0066
	60	60	60	60	60	60	60	60
EEH	0.41426	0.33869	-0.49345	-0.41246	-0.40933	-0.43654	-0.53869	-0.30658
	0.0010	0.0081	<. 0001	0.0011	0.0012	0.0005	<. 0001	0.0172
	60	60	60	60	60	60	60	60
EOB	0.26199	0.27854	-0.44884	-0.35450	-0.45223	-0.39597	-0.34964	-0.32046
	0.0432	0.0312	0.0003	0.0055	0.0003	0.0017	0.0062	0.0126
	60	60	60	60	60	60	60	60
EOV	0.35313	0.35956	-0.35817	-0.37414	-0.33638	-0.26969	-0.30071	-0.39937
	0.0056	0.0048	0.0050	0.0032	0.0086	0.0372	0.0196	0.0016
	60	60	60	60	60	60	60	60

6.11   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for Grade 12 and lower

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.41206 0.0020 54	0.52549 <. 0001 54	-0.01915 0.8907 54	-0.18529 0.1798 54	0.10501 0.4498 54	-0.18470 0.1812 54	-0.36843 0.0061 54	-0.04011 0.7734 54
Factor Q$_4$	0.68237 <. 0001 54	0.58911 <. 0001 54	-0.36666 0.0064 54	-0.41096 0.0020 54	-0.12968 0.3500 54	-0.41328 0.0019 54	-0.54926 <. 0001 54	-0.14941 0.2809 54
Factor -C	0.59239 <. 0001 54	0.51635 <. 0001 54	-0.28137 0.0393 54	-0.23990 0.0806 54	0.07677 0.5811 54	-0.36554 0.0066 54	-0.44380 0.0008 54	-0.06059 0.6634 54
Factor L	0.53773 <. 0001 54	0.58538 <. 0001 54	-0.40845 0.0022 54	-0.32958 0.0149 54	-0.13168 0.3425 54	-0.41011 0.0021 54	-0.45480 0.0006 54	-0.29779 0.0287 54
Factor O	0.71122 <. 0001 54	0.67810 <. 0001 54	-0.47364 0.0003 54	-0.41849 0.0016 54	-0.09476 0.4955 54	-0.52887 <. 0001 54	-0.48153 0.0002 54	-0.16997 0.2192 54
Score A	0.69329 <. 0001 54	0.65831 <. 0001 54	-0.36406 0.0068 54	-0.35724 0.0080 54	-0.09952 0.4740 54	-0.43292 0.0011 54	-0.53761 <. 0001 54	-0.17530 0.2048 54
Score B	0.67247 <. 0001 54	0.66112 <. 0001 54	-0.37169 0.0057 54	-0.39126 0.0034 54	-0.00956 0.9453 54	-0.45664 0.0005 54	-0.51344 <. 0001 54	-0.14324 0.3015 54
Total Anxiety Score	0.74031 <. 0001 54	0.71592 <. 0001 54	-0.39940 0.0028 54	-0.40715 0.0022 54	-0.05636 0.6856 54	-0.48335 0.0002 54	-0.56947 <. 0001 54	-0.17181 0.2141 54

6.12   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for all diplomas

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.60313 0.0001 35	0.66527 <. 0001 35	-0.12765 0.4649 35	-0.37799 0.0252 35	-0.15276 0.3810 35	-0.27491 0.1100 35	-0.42370 0.0112 35	-0.19130 0.2710 35
Factor Q$_4$	0.53792 0.0009 35	0.48531 0.0031 35	-0.36290 0.0321 35	-0.23670 0.1710 35	-0.35005 0.0393 35	-0.20971 0.2266 35	-0.21656 0.1533 35	-0.36867 0.0293 35
Factor -C	0.21329 0.2186 35	0.33515 0.0491 35	0.02964 0.8658 35	-0.03798 0.8285 35	-0.07072 0.6864 35	0.08573 0.6244 35	-0.18981 0.2748 35	-0.23713 0.1702 35
Factor L	0.34758 0.0408 35	0.49856 0.0023 35	-0.23820 0.1682 35	-0.30072 0.0792 35	-0.17777 0.3069 35	-0.17233 0.3222 35	-0.50924 0.0018 35	-0.29850 0.0815 35
Factor O	0.56350 0.0004 35	0.61189 <. 0001 35	-0.27625 0.1082 35	-0.25170 0.1447 35	-0.32210 0.0592 35	-0.13728 0.4316 35	-0.35038 0.0391 35	-0.31145 0.0686 35
Score A	0.52859 0.0011 35	0.54355 0.0007 35	-0.26571 0.1229 35	-0.20018 0.2489 35	-0.30325 0.0766 35	-0.14297 0.4126 35	-0.34164 0.0446 35	-0.33269 0.0509 35
Score B	0.57422 0.0003 35	0.65947 <. 0001 35	-0.24039 0.1642 35	-0.33155 0.0517 35	-0.26166 0.1289 35	-0.18732 0.2812 35	-0.40085 0.0170 35	-0.34108 0.0449 35
Total Anxiety Score	0.59650 0.0002 35	0.65553 <. 0001 35	-0.27038 0.1162 35	-0.29558 0.0847 35	-0.30082 0.0791 35	-0.18089 0.2984 35	-0.40369 0.0162 35	-0.36302 0.0321 35

6.13 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for all Bachelor degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.23513	0.59284	-0.22359	-0.28863	-0.13913	-0.21281	-0.27274	-0.24246
	0.2687	0.0023	0.2936	0.1714	0.5167	0.3181	0.1973	0.2537
	24	24	24	24	24	24	24	24
Factor Q_4	0.52454	0.39888	-0.44420	-0.09018	-0.26247	-0.43238	-0.50373	-0.18573
	0.0085	0.0535	0.0297	0.6752	0.2153	0.0348	0.0121	0.3849
	24	24	24	24	24	24	24	24
Factor -C	0.51130	0.49535	-0.43208	0.004476	0.02950	-0.33113	-0.35120	-0.32969
	0.0107	0.0138	0.0350	0.9824	0.8912	0.1140	0.0924	0.1157
	24	24	24	24	24	24	24	24
Factor L	0.28146	0.28243	-0.32704	0.05942	-0.21925	-0.16881	-0.22079	-0.15512
	0.1827	0.1812	0.1188	0.7827	0.3033	0.4304	0.2998	0.4692
	24	24	24	24	24	24	24	24
Factor O	0.61157	0.44079	-0.24334	-0.12556	-0.07299	-0.08067	-0.38422	-0.10001
	0.0015	0.0311	0.2519	0.5588	0.7347	0.7079	0.0638	0.6420
	24	24	24	24	24	24	24	24
Score A	0.49784	0.43687	-0.44510	-0.02105	-0.23167	-0.32591	-0.37081	-0.36567
	0.0133	0.0328	0.0293	0.9222	0.2760	0.1201	0.0744	0.0789
	24	24	24	24	24	24	24	24
Score B	0.56056	0.57288	-0.32690	-0.19518	-0.08666	-0.24670	-0.46481	-0.10263
	0.0044	0.0034	0.1190	0.3607	0.6872	0.2452	0.0221	0.6332
	24	24	24	24	24	24	24	24
Total Anxiety Score	0.58230	0.55996	-0.41521	-0.12833	-0.16562	-0.30846	-0.46232	-0.24075
	0.0028	0.0044	0.0436	0.5501	0.4393	0.1425	0.0229	0.2571
	24	24	24	24	24	24	24	24

6.14 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for Honours and equivalent degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q_3	0.25851	0.08966	0.17431	0.04866	-0.08721	0.19318	0.13643	0.10088
	0.1463	0.6197	0.3319	0.7880	0.6294	0.2814	0.4490	0.5764
	33	33	33	33	33	33	33	33
Factor Q_4	0.51927	0.30841	-0.35088	-0.35448	-0.34236	-0.35637	-0.26933	-0.35613
	0.0020	0.0808	0.0453	0.0430	0.0511	0.0418	0.1296	0.0419
	33	33	33	33	33	33	33	33
Factor -C	0.37535	0.11413	-0.26852	-0.43800	0.12548	-0.22306	-0.38024	-0.01855
	0.0314	0.5271	0.1308	0.0108	0.4865	0.2121	0.0290	0.9184
	33	33	33	33	33	33	33	33
Factor L	0.46931	0.05641	-0.03197	-0.13164	0.14588	-0.01776	-0.11268	0.05841
	0.0059	0.7552	0.8598	0.4652	0.4179	0.9219	0.5324	0.7468
	33	33	33	33	33	33	33	33
Factor O	0.52411	0.35445	-0.14508	-0.19623	-0.01186	-0.28288	-0.27121	-0.17923
	0.0017	0.0430	0.4205	0.2737	0.9478	0.1107	0.1268	0.3183
	33	33	33	33	33	33	33	33
Score A	0.38245	0.22169	-0.07455	-0.15863	0.00456	-0.06651	-0.11290	-0.05544
	0.0280	0.2150	0.6801	0.3779	0.9799	0.7131	0.5316	0.7593
	33	33	33	33	33	33	33	33
Score B	0.63559	0.27834	-0.24619	-0.34371	-0.16687	-0.31103	-0.31667	-0.20763
	<. 0001	0.1168	0.1673	0.0502	0.3533	0.0781	0.0726	0.2463
	33	33	33	33	33	33	33	33
Total Anxiety Score	0.56447	0.27646	-0.17891	-0.27924	-0.09153	-0.21110	-0.23932	-0.14688
	0.0006	0.1194	0.3192	0.1156	0.6124	0.2383	0.1798	0.4147
	33	33	33	33	33	33	33	33

6.15   Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for Masters and Doctoral degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.37520	0.25350	-0.09153	-0.11022	0.02036	-0.16633	-0.22030	0.10484
	0.0031	0.0507	0.4867	0.4018	0.8773	0.2040	0.0908	0.4253
	60	60	60	60	60	60	60	60
Factor Q$_4$	0.43381	0.34008	-0.25368	-0.32749	-0.15994	-0.33927	-0.27661	-0.18255
	0.0005	0.0078	0.0505	0.0106	0.2222	0.0080	0.0324	0.1627
	60	60	60	60	60	60	60	60
Factor -C	0.25976	0.34566	-0.27290	-0.10810	-0.14131	-0.27288	-0.05998	-0.25549
	0.0450	0.0068	0.0349	0.4110	0.2815	0.0349	0.6490	0.0488
	60	60	60	60	60	60	60	60
Factor L	0.16842	0.15361	-0.05005	-0.09684	-0.06585	-0.12946	-0.08706	-0.00624
	0.1983	0.2413	0.7041	0.4617	0.6171	0.3242	0.5083	0.9623
	60	60	60	60	60	60	60	60
Factor O	0.38570	0.25276	-0.05659	-0.22174	-0.17687	-0.27430	-0.19805	-0.04058
	0.0023	0.0514	0.6676	0.0886	0.1764	0.0339	0.1293	0.7582
	60	60	60	60	60	60	60	60
Score A	0.40632	0.34104	-0.17408	-0.19799	-0.12371	-0.30991	-0.22635	-0.08854
	0.0013	0.0077	0.1834	0.1294	0.3463	0.0160	0.0820	0.5011
	60	60	60	60	60	60	60	60
Score B	0.39542	0.28971	-0.15277	-0.24108	-0.13029	-0.25931	-0.20559	-0.07216
	0.0018	0.0247	0.2439	0.0635	0.3211	0.0454	0.1151	0.5838
	60	60	60	60	60	60	60	60
Total Anxiety Score	0.44747	0.35205	-0.18243	-0.24504	-0.14176	-0.31770	-0.24108	-0.08969
	0.0003	0.0058	0.1630	0.0592	0.2799	0.0134	0.0635	0.4956
	60	60	60	60	60	60	60	60

6.16   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for Grade 12 or lower

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.77312	0.67298	-0.46190	-0.21842	-0.09467	-0.57101	-0.56965	-0.18496
	<. 0001	<. 0001	0.0004	0.1126	0.4959	<. 0001	<. 0001	0.1806
	54	54	54	54	54	54	54	54

6.17   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for all Diplomas

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.75734	0.77295	-0.29150	-0.23036	-0.24266	-0.22090	-0.45884	-0.36081
	<. 0001	<. 0001	0.0944	0.1900	0.1667	0.2093	0.0063	0.0360
	34	34	34	34	34	34	34	34

6.18   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for all Bachelors degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.43929	0.52913	-0.45152	-0.25000	-0.18291	-0.33425	-0.46270	-0.47331
	0.0317	0.0078	0.0268	0.2387	0.3923	0.1104	0.0228	0.0195
	24	24	24	24	24	24	24	24

6.19   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for Honours and equivalent degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.60602	0.68953	-0.34255	-0.48986	-0.46691	-0.49156	-0.39208	-0.50031
	0.0002	<. 0001	0.0510	0.0038	0.0062	0.0037	0.0240	0.0030
	33	33	33	33	33	33	33	33

6.20   Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for Masters and Doctoral degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.61424	0.59120	-0.37275	-0.35627	-0.10730	-0.42348	-0.44585	-0.22371
	<. 0001	<. 0001	0.0034	0.0052	0.4145	0.0007	0.0004	0.0858
	60	60	60	60	60	60	60	60

6.21   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for Grade 12 and lower

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.60137	0.46281	-0.29292	-0.20578	-0.12239	-0.29842	-0.34916	-0.14732
	<. 0001	0.0006	0.0351	0.1433	0.3874	0.0316	0.0112	0.2973
	52	52	52	52	52	52	52	52

6.22   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for all Diplomas

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.50816	0.54435	-0.01899	-0.18012	-0.05112	-0.00404	-0.22529	-0.03530
	0.0022	0.0009	0.9151	0.3080	0.7740	0.9819	0.2002	0.8429
	34	34	34	34	34	34	34	34

6.23   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for all Bachelors degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.05643	0.40626	-0.18944	-0.31504	0.04050	0.10444	-0.27208	-0.12163
	0.7934	0.0489	0.3753	0.1338	0.8510	0.6272	0.1984	0.5713
	24	24	24	24	24	24	24	24

6.24   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for Honours and equivalent degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.58973	0.36745	-0.16337	-0.24921	-0.38035	-0.28881	-0.30748	-0.14325
	0.0003	0.0354	0.3636	0.1619	0.0290	0.1031	0.0817	0.4265
	33	33	33	33	33	33	33	33

6.25   Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for Masters and Doctoral degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.53101	0.38210	-0.08417	-0.36043	-0.15251	-0.20304	-0.15227	-0.13284
	<. 0001	0.0026	0.5226	0.0047	0.2447	0.1197	0.2455	0.3116
	60	60	60	60	60	60	60	60

6.26 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for Grade 12 and lower

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.46221	-0.57220	0.07770	0.38291	0.15234	0.18060	0.37001	-0.02713
	0.0004	<. 0001	0.5766	0.0043	0.2715	0.1913	0.0059	0.8456
	54	54	54	54	54	54	54	54
Negative Problem Orientation	0.69561	0.60062	-0.29214	-0.26768	-0.20196	-0.35139	-0.36690	-0.10582
	<. 0001	<. 0001	0.0321	0.0504	0.1431	0.0092	0.0064	0.4463
	54	54	54	54	54	54	54	54
Rational Problem Solving	-0.42028	-0.52764	0.23357	0.25649	0.25203	0.36211	0.42282	0.13684
	0.0016	<. 0001	0.0892	0.0612	0.0660	0.0071	0.0014	0.3238
	54	54	54	54	54	54	54	54
Problem Definition and Formulation	-0.44302	-0.57497	0.25150	0.29282	0.25795	0.42101	0.44898	0.16172
	0.0008	<. 0001	0.0666	0.0317	0.0597	0.0015	0.0007	0.2427
	54	54	54	54	54	54	54	54
Generation of Alternatives	-0.37951	-0.43777	0.13216	0.21575	0.20466	0.24691	0.33885	0.04205
	0.0047	0.0009	0.3408	0.1171	0.1377	0.0719	0.0122	0.7627
	54	54	54	54	54	54	54	54
Decision Making	-0.42240	-0.48668	0.32348	0.32320	0.23135	0.42637	0.48743	0.17445
	0.0015	0.0002	0.0170	0.0171	0.0923	0.0013	0.0002	0.2071
	54	54	54	54	54	54	54	54
Solution Implementation Verification	-0.27673	-0.40661	0.13900	0.10063	0.21548	0.21690	0.25669	0.11489
	0.0428	0.0023	0.3161	0.4691	0.1176	0.1152	0.0610	0.4081
	54	54	54	54	54	54	54	54
Impulsivity/ Carelessness Style	0.38712	0.25154	-0.13716	-0.00206	0.14912	-0.21170	-0.11469	0.13684
	0.0038	0.0665	0.3226	0.9882	0.2819	0.1244	0.4089	0.3238
	54	54	54	54	54	54	54	54
Avoidance Style	0.33763	0.32263	-0.15114	-0.15822	0.07128	-0.13384	-0.20094	-0.06888
	0.0125	0.0173	0.2753	0.2532	0.6085	0.3346	0.1451	0.6207
	54	54	54	54	54	54	54	54
Social Problem Solving	-0.61441	-0.61096	0.23454	0.29090	0.10748	0.32861	0.39637	0.03812
	<. 0001	<. 0001	0.0878	0.0328	0.4392	0.0153	0.0030	0.7843
	54	54	54	54	54	54	54	54

6.27 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for all Diplomas

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	0.04004	-0.14797	0.01741	0.07969	-0.04584	0.08337	0.14172	-0.11520
	0.8193	0.3963	0.9209	0.6491	0.7937	0.6340	0.4167	0.5099
	35	35	35	35	35	35	35	35
Negative Problem Orientation	0.56470	0.55205	-0.16732	-0.15950	-0.20179	-0.15336	-0.13954	-0.03652
	0.0004	0.0006	0.3367	0.3601	0.2451	0.3791	0.4240	0.8350
	35	35	35	35	35	35	35	35
Rational Problem Solving	0.14702	-0.01431	0.05775	0.14943	-0.05661	0.07618	0.29890	-0.01022
	0.3994	0.9350	0.7417	0.3916	0.7467	0.6636	0.0811	0.9535
	35	35	35	35	35	35	35	35
Problem Definition and Formulation	0.13278	-0.04549	0.10215	0.12184	-0.02838	0.07303	0.34792	0.00709
	0.4470	0.7953	0.5593	0.4856	0.8714	0.6767	0.0406	0.9678
	35	35	35	35	35	35	35	35
Generation of Alternatives	0.17797	0.03068	-0.05065	0.05335	-0.17357	0.01446	0.18377	-0.15400
	0.3064	0.8611	0.7726	0.7608	0.3187	0.9343	0.2906	0.3771
	35	35	35	35	35	35	35	35
Decision Making	0.13905	0.03405	-0.05041	0.15238	-0.17611	-0.01235	0.22734	0.04008
	0.4257	0.8460	0.7736	0.3822	0.3115	0.9439	0.1891	0.8192
	35	35	35	35	35	35	35	35
Solution Implementation Verification	0.09918	-0.06105	0.18614	0.21722	0.13565	0.18674	0.33192	0.06184
	0.5708	0.7275	0.2843	0.2100	0.4372	0.2828	0.0514	0.7242
	35	35	35	35	35	35	35	35
Impulsivity/ Carelessness Style	0.24091	0.39284	0.06923	0.00516	0.12681	0.08332	-0.32515	0.01202
	0.1633	0.0196	0.6927	0.9765	0.4679	0.6342	0.0567	0.9453
	35	35	35	35	35	35	35	35
Avoidance Style	0.28115	-0.44985	-0.06677	-0.05527	-0.07731	-0.09913	-0.06140	0.12931
	0.1018	0.0067	0.7031	0.7525	0.6589	0.5710	0.7261	0.4591
	35	35	35	35	35	35	35	35
Social Problem Solving	-0.23898	-0.43203	0.08136	0.14455	0.01757	0.10937	0.28694	-0.06263
	0.1668	0.0096	0.6422	0.4074	0.9202	0.5317	0.0947	0.7208
	35	35	35	35	35	35	35	35

6.28   Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for all Bachelor degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	0.12418	-0.25785	0.22568	0.17121	0.34140	0.45507	0.40522	0.09905
	0.5632	0.2238	0.2890	0.4238	0.1025	0.0255	0.0495	0.6452
	24	24	24	24	24	24	24	24
Negative Problem Orientation	-0.01353	0.35968	-0.16302	-0.16125	-0.01760	-0.31177	-0.23442	-0.02800
	0.9500	0.0843	0.4466	0.4516	0.9349	0.1381	0.2702	0.8967
	24	24	24	24	24	24	24	24
Rational Problem Solving	0.10524	-0.40455	-0.01662	0.04794	0.30856	0.31118	0.19038	-0.05394
	0.6246	0.0499	0.9386	0.8240	0.1424	0.1388	0.3729	0.8023
	24	24	24	24	24	24	24	24
Problem Definition and Formulation	0.03820	-0.51917	0.04070	0.03968	0.24457	0.33524	0.27054	-0.01869
	0.8594	0.0093	0.8502	0.8540	0.2494	0.1093	0.2010	0.9309
	24	24	24	24	24	24	24	24
Generation of Alternatives	0.19685	-0.32983	-0.02196	-0.00968	0.22594	0.33475	0.13971	-0.03367
	0.3566	0.1155	0.9189	0.9642	0.2884	0.1098	0.5150	0.8759
	24	24	24	24	24	24	24	24
Decision Making	0.15905	-0.32563	-0.08826	-0.01168	0.26043	0.15489	0.09748	-0.09984
	0.4579	0.1205	0.6817	0.9568	0.2190	0.4699	0.6505	0.6425
	24	24	24	24	24	24	24	24
Solution Implementation Verification	0.00639	-0.31536	0.00926	0.13600	0.36889	0.31042	0.18788	-0.04145
	0.9764	0.1333	0.9658	0.5263	0.0761	0.1399	0.3793	0.8475
	24	24	24	24	24	24	24	24
Impulsivity/ Carelessness Style	-0.00596	0.21651	-0.30129	-0.09025	-0.41774	-0.52867	-0.19834	-0.12981
	0.9779	0.3096	0.1525	0.6749	0.0422	0.0255	0.3528	0.5455
	24	24	24	24	24	24	24	24
Avoidance Style	-0.11424	0.32835	-0.30483	-0.20726	-0.31876	-0.33915	-0.12544	-0.37209
	0.5950	0.1172	0.1475	0.3312	0.1290	0.1050	0.5592	0.0734
	24	24	24	24	24	24	24	24
Social Problem Solving	0.09390	-0.39876	0.23367	0.16802	0.34959	0.48820	0.30055	0.12788
	0.6625	0.0536	0.2718	0.4326	0.0940	0.0155	0.1536	0.5515
	24	24	24	24	24	24	24	24

6.29   Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for Honours and equivalent degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.16476	-0.33231	-0.11351	0.06273	0.26691	-0.06506	0.03371	-0.04959
	0.3596	0.0588	0.5294	0.7288	0.1332	0.7191	0.8523	0.7840
	33	33	33	33	33	33	33	33
Negative Problem Orientation	0.45277	0.38937	-0.04319	-0.13516	-0.41474	-0.15375	-0.26331	0.02114
	0.0081	0.0251	0.8114	0.4533	0.0164	0.3930	0.1387	0.9070
	33	33	33	33	33	33	33	33
Rational Problem Solving	0.11331	-0.07425	-0.34228	-0.17394	0.05599	-0.24551	-0.25234	-0.20663
	0.5301	0.6813	0.0512	0.3330	0.7570	0.1685	0.1566	0.2486
	33	33	33	33	33	33	33	33
Problem Definition and Formulation	0.07754	0.02286	-0.21006	-0.19702	0.02486	-0.20936	-0.12654	-0.16594
	0.6680	0.8995	0.2407	0.2718	0.8908	0.2423	0.4829	0.3560
	33	33	33	33	33	33	33	33
Generation of Alternatives	0.07621	-0.21164	-0.30741	0.00266	0.19446	-0.22766	-0.19577	-0.13120
	0.6734	0.2371	0.0818	0.9883	0.2782	0.2026	0.2749	0.4667
	33	33	33	33	33	33	33	33
Decision Making	0.28764	0.00711	-0.27462	-0.12817	0.07457	-0.17206	-0.22066	-0.11037
	0.1045	0.9687	0.1219	0.4772	0.6800	0.3383	0.2172	0.5409
	33	33	33	33	33	33	33	33
Solution Implementation Verification	-0.00764	-0.04722	-0.34126	-0.25060	-0.07836	-0.21492	-0.28456	-0.26235
	0.9663	0.7941	0.0519	0.1595	0.6647	0.2297	0.1085	0.1402
	33	33	33	33	33	33	33	33
Impulsivity/ Carelessness Style	0.22407	0.16142	0.03128	-0.05320	-0.34802	0.01070	-0.18747	-0.01545
	0.2100	0.3695	0.8628	0.7687	0.0472	0.9529	0.2962	0.9320
	33	33	33	33	33	33	33	33
Avoidance Style	0.40132	0.29760	-0.01374	-0.29806	-0.35183	-0.06286	-0.27995	0.09502
	0.0206	0.0926	0.9395	0.0920	0.0447	0.7282	0.1146	0.5989
	33	33	33	33	33	33	33	33
Social Problem Solving	-0.29333	-0.33124	-0.10630	0.09684	0.36921	-0.02273	0.13800	-0.09397
	0.0976	0.0597	0.5560	0.5919	0.0345	0.9001	0.4438	0.6030
	33	33	33	33	33	33	33	33

6.30　Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for Masters and Doctoral degrees

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.28193	-0.16378	-0.04710	0.15068	0.08466	0.20209	0.10940	0.05237
	0.0305	0.2152	0.7232	0.2546	0.5238	0.1248	0.4095	0.6937
	59	59	59	59	59	59	59	59
Negative Problem Orientation	0.45007	0.54703	-0.19713	-0.20872	-0.17320	-0.29035	-0.12259	-0.31417
	0.0003	<. 0001	0.1311	0.1095	0.1857	0.0244	0.3508	0.0145
	60	60	60	60	60	60	60	60
Rational Problem Solving	-0.16334	-0.12680	0.01247	0.01822	-0.07185	0.02963	-0.03886	-0.03222
	0.2164	0.3386	0.9253	0.8910	0.5887	0.8237	0.7701	0.8086
	59	59	59	59	59	59	59	59
Problem Definition and Formulation	-0.10930	-0.11169	-0.02985	0.00436	-0.12318	-0.08829	-0.06440	-0.05534
	0.4099	0.3997	0.8224	0.9739	0.3526	0.5061	0.6280	0.6772
	59	59	59	59	59	59	59	59
Generation of Alternatives	-0.20117	-0.16925	0.06608	0.02730	-0.02498	0.12412	0.03293	0.02615
	0.1266	0.2000	0.6190	0.8374	0.8511	0.3489	0.8044	0.8441
	59	59	59	59	59	59	59	59
Decision Making	-0.05921	0.03955	-0.05848	-0.03945	-0.12983	-0.03663	-0.08439	-0.10753
	0.6614	0.7662	0.6600	0.7668	0.3271	0.7830	0.5251	0.4176
	59	59	59	59	59	59	59	59
Solution Implementation Verification	-0.20087	-0.19956	0.05850	0.06990	0.01684	0.09063	-0.02977	0.01547
	0.1271	0.1297	0.6598	0.5988	0.8993	0.4948	0.8229	0.9074
	59	59	59	59	59	59	59	59
Impulsivity/ Carelessness Style	0.13921	0.15532	-0.05372	0.04218	0.08349	-0.04558	0.01596	-0.06468
	0.2930	0.2401	0.6861	0.7511	0.5296	0.7318	0.9045	0.6265
	59	59	59	59	59	59	59	59
Avoidance Style	0.29646	0.43564	-0.07714	-0.22361	-0.15057	-0.26140	-0.11879	-0.19936
	0.0226	0.0006	0.5614	0.0887	0.2550	0.0455	0.3702	0.1301
	59	59	59	59	59	59	59	59
Social Problem Solving	-0.31283	-0.28812	0.04838	0.28239	0.07745	0.24083	0.10789	0.22958
	0.0149	0.0256	0.7136	0.0288	0.5564	0.0638	0.4119	0.0776
	60	60	60	60	60	60	60	60

7.　Pearson correlation coefficients for the three position levels

7.1　Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for senior management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.33546	0.17462	-0.44039	-0.23868	-0.29847	-0.31703	-0.27450	-0.18475
	0.0006	0.0807	<. 0001	0.0162	0.0024	0.0012	0.0055	0.0644
	101	101	101	101	101	101	101	101
WEH	0.29598	0.15344	-0.42161	-0.25093	-0.25196	-0.30872	-0.24018	-0.15559
	0.0027	0.1255	<. 0001	0.0114	0.0110	0.0017	0.0156	0.1203
	101	101	101	101	101	101	101	101
WOB	0.33903	0.19367	-0.41843	-0.20714	-0.29011	-0.29405	-0.32283	-0.20655
	0.0005	0.0523	<. 0001	0.0377	0.0033	0.0028	0.0010	0.0382
	101	101	101	101	101	101	101	101
WOV	0.24111	0.08187	-0.26375	-0.11130	-0.28809	-0.18952	-0.08336	-0.10758
	0.0151	0.4157	0.0077	0.2678	0.0035	0.0577	0.4072	0.2842
	101	101	101	101	101	101	101	101

7.2　Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for middle management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.48369	0.27930	-0.26937	-0.41796	-0.04936	-0.25513	-0.24071	-0.17521
	<. 0001	0.0293	0.0358	0.0008	0.7056	0.0472	0.0617	0.1768
	61	61	61	61	61	61	61	61
WEH	0.49835	0.26734	-0.24109	-0.34785	0.02932	-0.24854	-0.29318	-0.11951
	<. 0001	0.0373	0.0612	0.0060	0.8225	0.0534	0.0218	0.3590
	61	61	61	61	61	61	61	61
WOB	0.38883	0.27604	-0.32801	-0.41177	-0.16101	-0.26725	-0.20710	-0.23779
	0.0020	0.0313	0.0099	0.0010	0.2151	0.0373	0.1093	0.0650
	61	61	61	61	61	61	61	61
WOV	0.30809	0.13786	-0.06286	-0.35813	-0.02893	-0.08472	0.00186	-0.10089
	0.0157	0.2894	0.6303	0.0046	0.8249	0.5162	0.9887	0.4391
	61	61	61	61	61	61	61	61

7.3   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-witnessed for specialist staff

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
WTOT	0.38711	0.36781	-0.45852	-0.35685	-0.05003	-0.27570	-0.34554	-0.10484
	0.0113	0.0166	0.0023	0.0204	0.7530	0.0772	0.0250	0.5088
	42	42	42	42	42	42	42	42
WEH	0.34391	0.28181	-0.48939	-0.28631	0.01508	-0.23909	-0.31911	-0.10759
	0.0257	0.0706	0.0010	0.0660	0.9245	0.1273	0.0394	0.4976
	42	42	42	42	42	42	42	42
WOB	0.34137	0.35691	-0.29687	-0.35449	-0.11841	-0.23736	-0.27113	-0.06709
	0.0269	0.0203	0.0562	0.0213	0.4551	0.1301	0.0824	0.6729
	42	42	42	42	42	42	42	42
WOV	0.44954	0.52110	-0.48271	-0.43412	-0.10352	-0.35766	-0.43871	-0.12928
	0.0028	0.0004	0.0012	0.0041	0.5141	0.0200	0.0037	0.4145
	42	42	42	42	42	42	42	42

7.4   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for senior management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.15466	0.06073	-0.37216	-0.12343	-0.23252	-0.25501	-0.20862	-0.13490
	0.1206	0.5443	0.0001	0.2165	0.0187	0.0097	0.0354	0.1764
	102	102	102	102	102	102	102	102
EEH	0.14591	0.05395	-0.35300	-0.15761	-0.16645	-0.25417	-0.21589	-0.11922
	0.1434	0.5902	0.0003	0.1136	0.0945	0.0099	0.0293	0.2327
	102	102	102	102	102	102	102	102
EOB	0.25205	0.16480	-0.38676	-0.09830	-0.32557	-0.26792	-0.25486	-0.15390
	0.0110	0.0996	<. 0001	0.3281	0.0009	0.0068	0.0101	0.1244
	101	101	101	101	101	101	101	101
EOV	0.23314	0.12543	-0.29096	-0.15952	-0.20014	-0.26998	-0.15857	-0.24091
	0.0196	0.2137	0.0033	0.1129	0.0459	0.0066	0.1151	0.0158
	100	100	100	100	100	100	100	100

7.5   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for middle management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.54868	0.28582	-0.33267	-0.35179	-0.12592	-0.26139	-0.39952	-0.10841
	<. 0001	0.0256	0.0088	0.0054	0.3336	0.0419	0.0014	0.4056
	61	61	61	61	61	61	61	61
EEH	0.55715	0.24435	-0.28183	-0.28551	-0.03029	-0.23407	-0.45507	-0.04966
	<. 0001	0.0577	0.0278	0.0257	0.8168	0.0694	0.0002	0.7039
	61	61	61	61	61	61	61	61
EOB	0.48905	0.33242	-0.39673	-0.36641	-0.25232	-0.31365	-0.30378	-0.16441
	<. 0001	0.0089	0.0015	0.0074	0.0498	0.0138	0.0173	0.2054
	61	61	61	61	61	61	61	61
EOV	0.22153	0.04979	-0.03899	-0.23142	0.01840	0.01658	-0.14437	-0.05398
	0.0862	0.7032	0.7654	0.0727	0.8881	0.8991	0.2670	0.6795
	61	61	61	61	61	61	61	61

7.6   Experience of Work and Life Circumstances Questionnaire with Aggression in the Workplace Questionnaire-experienced for specialist staff

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
ETOT	0.35621	0.23179	-0.41956	-0.31958	-0.01149	-0.35288	-0.33356	-0.13704
	0.0206	0.1397	0.0057	0.0391	0.9424	0.0219	0.0309	0.3868
	42	42	42	42	42	42	42	42
EEH	0.34468	0.17043	-0.47305	-0.24536	0.05585	-0.30254	-0.33544	-0.10432
	0.0254	0.2806	0.0016	0.1173	0.7254	0.0515	0.0299	0.5109
	42	42	42	42	42	42	42	42
EOB	0.36627	0.28952	-0.29747	-0.36254	-0.12319	-0.33817	-0.28621	-0.12222
	0.0170	0.0629	0.0557	0.0183	0.4370	0.0285	0.0661	0.4407
	42	42	42	42	42	42	42	42
EOV	0.27374	0.28454	-0.34436	-0.24347	0.08270	-0.37368	-0.35562	-0.22047
	0.0833	0.0714	0.0275	0.1250	0.6072	0.0161	0.0225	0.1660
	41	41	41	41	41	41	41	41

7.7 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for senior management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.34436 0.0004 102	0.41709 <. 0001 102	0.07899 0.4300 102	-0.08305 0.4066 102	0.08402 0.4012 102	-0.04500 0.6533 102	-0.22009 0.0262 102	-0.07429 0.4580 102
Factor Q$_4$	0.56164 <. 0001 102	0.49836 <. 0001 102	-0.25630 0.0093 102	-0.27005 0.0061 102	-0.14392 0.1490 102	-0.27275 0.0055 102	-0.29940 0.0022 102	-0.24617 0.0126 102
Factor -C	0.42463 <. 0001 102	0.49705 <. 0001 102	-0.17666 0.0757 102	-0.14846 0.1364 102	0.06673 0.5052 102	-0.12352 0.2161 102	-0.32857 0.0007 102	-0.21195 0.0325 102
Factor L	0.42550 <. 0001 102	0.46953 <. 0001 102	-0.17420 0.0799 102	-0.20849 0.0355 102	0.04386 0.6616 102	-0.14482 0.1464 102	-0.38464 <. 0001 102	-0.29779 0.0024 102
Factor O	0.59388 <. 0001 102	0.52407 <. 0001 102	-0.11081 0.2676 102	-0.18265 0.0661 102	0.00978 0.9222 102	-0.11947 0.2317 102	-0.22352 0.0239 102	-0.12139 0.2242 102
Score A	0.51551 <. 0001 102	0.53739 <. 0001 102	-0.11985 0.2302 102	-0.14036 0.1594 102	-0.02276 0.8204 102	-0.15743 0.1140 102	-0.27981 0.0044 102	-0.24067 0.0148 102
Score B	0.61035 <. 0001 102	0.58241 <. 0001 102	-0.17934 0.0713 102	-0.27705 0.0048 102	0.01667 0.8680 102	-0.18370 0.0646 102	-0.36138 0.0002 102	-0.18024 0.0699 102
Total Anxiety Score	0.61109 <. 0001 102	0.60652 <. 0001 102	-0.16329 0.1010 102	-0.22920 0.0205 102	-0.00227 0.9819 102	-0.18510 0.0625 102	-0.34874 0.0003 102	-0.22597 0.0224 102

7.8 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for middle management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.33084 0.0092 61	0.32452 0.0107 61	-0.17732 0.1716 61	-0.22170 0.0860 61	-0.01159 0.9294 61	-0.23973 0.0628 61	-0.18476 0.1540 61	0.02253 0.8632 61
Factor Q$_4$	0.47261 0.0001 61	0.29321 0.0218 61	-0.22258 0.0847 61	-0.31538 0.0133 61	-0.06049 0.6433 61	-0.25907 0.0438 61	-0.27840 0.0298 61	-0.08820 0.4991 61
Factor -C	0.36720 0.0036 61	0.31511 0.0134 61	-0.21638 0.0939 61	-0.19277 0.1366 61	-0.04376 0.7377 61	-0.24276 0.0594 61	-0.17645 0.1737 61	-0.17812 0.1696 61
Factor L	0.39479 0.0016 61	0.39767 0.0015 61	-0.13364 0.3045 61	-0.17937 0.1666 61	-0.07791 0.5506 61	-0.18299 0.1581 61	-0.18431 0.1550 61	-0.02354 0.8571 61
Factor O	0.42491 0.0006 61	0.41875 0.0008 61	-0.16941 0.1918 61	-0.27583 0.0314 61	-0.13097 0.3144 61	-0.24507 0.0570 61	-0.26192 0.0414 61	-0.11584 0.3740 61
Score A	0.51554 <. 0001 61	0.40368 0.0013 61	-0.19474 0.1326 61	-0.26172 0.0416 61	-0.02291 0.8609 61	-0.25529 0.0471 61	-0.26258 0.0409 61	-0.03607 0.7826 61
Score B	0.39807 0.0015 61	0.38186 0.0024 61	-0.22390 0.0828 61	-0.29666 0.0203 61	-0.12749 0.3275 61	-0.28077 0.0284 61	-0.24810 0.0539 61	-0.13862 0.2867 61
Total Anxiety Score	0.50383 <. 0001 61	0.43527 0.0005 61	-0.23304 0.0707 61	-0.31072 0.0148 61	-0.08618 0.5090 61	-0.29809 0.0196 61	-0.28296 0.0271 61	-0.09961 0.4450 61

7.9 Experience of Work and Life Circumstances Questionnaire with the IPAT Anxiety Scale for specialist staff

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Factor -Q$_3$	0.57385	0.39503	-0.28588	-0.32000	-0.24786	-0.17179	-0.46437	0.03530
	<. 0001	0.0096	0.0655	0.0388	0.1135	0.2767	0.0019	0.8244
	42	42	42	42	42	42	42	42
Factor Q$_4$	0.56230	0.42808	-0.32405	-0.33796	-0.44957	-0.34244	-0.46482	-0.32725
	0.0001	0.0047	0.0363	0.0286	0.0028	0.0264	0.0019	0.0344
	42	42	42	42	42	42	42	42
Factor -C	0.24805	0.02715	-0.14834	-0.15493	0.12497	-0.15894	-0.15961	0.05058
	0.1132	0.8645	0.3485	0.3272	0.4304	0.3147	0.3126	0.7504
	42	42	42	42	42	42	42	42
Factor L	0.11304	-0.09760	-0.23196	-0.13504	-0.10223	-0.12295	-0.05204	0.02029
	0.4760	0.5386	0.1394	0.3938	0.5194	0.4379	0.7435	0.8244
	42	42	42	42	42	42	42	42
Factor O	0.56207	0.36530	-0.27870	-0.34588	-0.24217	-0.45867	-0.41311	-0.22957
	0.0001	0.0174	0.0739	0.0249	0.1223	0.0023	0.0065	0.1436
	42	42	42	42	42	42	42	42
Score A	0.47690	0.29594	-0.40790	-0.31899	-0.36575	-0.32390	-0.42226	0.20669
	0.0014	0.0571	0.0073	0.0395	0.0172	0.0364	0.0053	0.1891
	42	42	42	42	42	42	42	42
Score B	0.59621	0.35209	-0.23954	-0.34815	-0.18956	-0.35276	-0.40864	-0.11921
	<. 0001	0.0222	0.1265	0.0239	0.2292	0.0219	0.0072	0.4521
	42	42	42	42	42	42	42	42
Total Anxiety Score	0.61005	0.36762	-0.35633	-0.37706	-0.30407	-0.38241	-0.46718	-0.17923
	<. 0001	0.0166	0.0205	0.0138	0.0503	0.0124	0.0018	0.2561
	42	42	42	42	42	42	42	42

7.10 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for senior management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.72655	0.74382	-0.25307	-0.22574	-0.15140	-0.31951	-0.46874	-0.35157
	<. 0001	<. 0001	0.0107	0.0232	0.1307	0.0011	<. 0001	0.0003
	101	101	101	101	101	101	101	101

7.11 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for middle management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.61747	0.53020	-0.30686	-0.33328	-0.05414	-0.33820	-0.43853	-0.09298
	<. 0001	<. 0001	0.0162	0.0087	0.6786	0.0077	0.0004	0.4760
	61	61	61	61	61	61	61	61

7.12 Experience of Work and Life Circumstances Questionnaire with the Beck Depression Inventory for specialist staff

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Depression	0.53439	0.51465	-0.50144	-0.24653	-0.12668	-0.54127	-0.43597	-0.41538
	0.0003	0.0005	0.0007	0.1155	0.4241	0.0002	0.0039	0.0062
	42	42	42	42	42	42	42	42

7.13 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for senior management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.61001	0.51569	0.01278	-0.20267	0.01733	-0.01262	-0.19204	-0.09685
	<. 0001	<. 0001	0.8991	0.0421	0.8635	0.9003	0.0544	0.3353
	101	101	101	101	101	101	101	101

7.14 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for middle management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.36653	0.30608	-0.17625	-0.27295	-0.10185	-0.16370	-0.20815	-0.00208
	0.0040	0.0174	0.1780	0.0349	0.4387	0.2114	0.1105	0.9874
	60	60	60	60	60	60	60	60

7.15 Experience of Work and Life Circumstances Questionnaire with the Penn State Worry Questionnaire for specialist staff

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Worry	0.51203	0.37827	-0.23149	-0.39688	-0.48052	-0.37449	-0.38615	-0.25175
	0.0006	0.0147	0.1453	0.0102	0.0015	0.0159	0.0126	0.1123
	41	41	41	41	41	41	41	41

7.16 Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for senior management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.14392	-0.23111	-0.16980	0.01213	-0.07649	-0.01860	0.14544	-0.13706
	0.1490	0.0194	0.0880	0.9037	0.4448	0.8528	0.1447	0.1695
	102	102	102	102	102	102	102	102
Negative Problem Orientation	0.57797	0.55213	-0.12489	-0.09469	-0.09608	-0.14493	-0.20834	-0.09370
	<. 0001	<. 0001	0.2110	0.3438	0.3368	0.1461	0.0356	0.3489
	102	102	102	102	102	102	102	102
Rational Problem Solving	-0.01743	-0.20852	-0.19334	-0.04373	-0.12786	-0.05285	0.14094	-0.09238
	0.8619	0.0355	0.0515	0.6625	0.2003	0.5978	0.1577	0.3558
	102	102	102	102	102	102	102	102
Problem Definition and Formulation	-0.04429	-0.23254	-0.14103	-0.01096	-0.13959	-0.02634	0.21370	-0.08175
	0.6585	0.0187	0.1574	0.9129	0.1617	0.7927	0.0310	0.4140
	102	102	102	102	102	102	102	102
Generation of Alternatives	-0.03352	-0.18482	-0.14253	-0.05297	-0.07660	-0.03026	0.09494	-0.11716
	0.7381	0.0629	0.1530	0.5969	0.4441	0.7627	0.3425	0.2409
	102	102	102	102	102	102	102	102
Decision Making	0.05306	-0.13314	-0.18667	0.03523	-0.16338	-0.03305	0.17814	-0.02171
	0.5963	0.1822	0.0603	0.7252	0.1008	0.7416	0.0732	0.8286
	102	102	102	102	102	102	102	102
Solution Implementation Verification	-0.02969	-0.19087	-0.21781	-0.11224	-0.08587	-0.09241	0.03365	-0.10294
	0.7671	0.0547	0.0279	0.2614	0.3908	0.3556	0.7370	0.3032
	102	102	102	102	102	102	102	102
Impulsivity/ Carelessness Style	0.20092	0.24905	0.00996	0.08065	0.07066	-0.05638	-0.15568	0.03155
	0.0429	0.0116	0.9209	0.4203	0.4804	0.5736	0.1182	0.7529
	102	102	102	102	102	102	102	102
Avoidance Style	0.33920	0.46266	-0.13698	-0.13737	-0.12727	-0.15396	-0.20811	-0.11740
	0.0005	<. 0001	0.1698	0.1686	0.2024	0.1224	0.0358	0.2399
	102	102	102	102	102	102	102	102
Social Problem Solving	-0.34205	-0.45924	-0.04022	0.03465	-0.01953	0.07167	0.23619	-0.02257
	0.0004	<. 0001	0.6882	0.7295	0.8456	0.4741	0.0168	0.8219
	102	102	102	102	102	102	102	102

7.17   Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for middle management

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	-0.33584 0.0081 61	-0.37966 0.0025 61	0.27837 0.0298 61	0.41902 0.0008 61	0.24893 0.0530 61	0.42273 0.0007 61	0.23654 0.0665 61	0.18308 0.1579 61
Negative Problem Orientation	0.46697 0.0001 61	0.45795 0.0002 61	-0.25713 0.0454 61	-0.32837 0.0098 61	-0.15454 0.2344 61	-0.35448 0.0051 61	-0.18929 0.1440 61	-0.17596 0.1749 61
Rational Problem Solving	-0.15228 0.2414 61	-0.20977 0.1047 61	0.25919 0.0437 61	0.24841 0.0536 61	0.16441 0.2055 61	0.29793 0.0197 61	0.02456 0.8510 61	0.17262 0.1834 61
Problem Definition and Formulation	-0.13714 0.2919 61	-0.22311 0.0839 61	0.26488 0.0391 61	0.20904 0.1059 61	0.15771 0.2248 61	0.25538 0.0470 61	0.02850 0.8274 61	0.17686 0.1727 61
Generation of Alternatives	-0.14276 0.2724 61	-0.19400 0.1341 61	0.17020 0.1897 61	0.22190 0.0857 61	0.12610 0.3329 61	0.25367 0.0485 61	0.02180 0.8676 61	0.15177 0.2430 61
Decision Making	-0.14195 0.2751 61	-0.14170 0.2760 61	0.18195 0.1605 61	0.18927 0.1440 61	0.06670 0.6095 61	0.21849 0.0907 61	-0.00363 0.9779 61	0.09866 0.4494 61
Solution Implementation Verification	-0.12926 0.3208 61	-0.20412 0.1146 61	0.32933 0.0096 61	0.27808 0.0300 61	0.24747 0.0545 61	0.35114 0.0055 61	0.04297 0.7423 61	0.20037 0.1215 61
Impulsivity/ Carelessness Style	0.37048 0.0033 61	0.28585 0.0255 61	-0.12559 0.3348 61	-0.25294 0.0492 61	0.07452 0.5681 61	-0.12015 0.3564 61	-0.09274 0.4772 61	-0.03937 0.7632 61
Avoidance Style	0.35012 0.0057 61	0.39389 0.0017 61	-0.16831 0.1948 61	-0.28017 0.0287 61	-0.07221 0.5802 61	-0.31562 0.0132 61	-0.16541 0.2027 61	-0.12009 0.3566 61
Social Problem Solving	-0.42127 0.0007 61	-0.43621 0.0004 61	0.27784 0.0302 61	0.38690 0.0021 61	0.14557 0.2630 61	0.38518 0.0022 61	0.18233 0.1596 61	0.17555 0.1760 61

7.18   Experience of Work and Life Circumstances Questionnaire with the Social Problem-Solving Questionnaire-Revised for specialist staff

Variable	LOS	OWS	IWSOF	IWSTC	IWSPW	IWSCM	IWSSM	IWSRF
Positive Problem Orientation	0.00965 0.9522 41	-0.25964 0.1011 41	-0.09766 0.5436 41	0.19275 0.2273 41	0.26149 0.0986 41	-0.13530 0.3990 41	0.13116 0.4137 41	-0.13322 0.4063 41
Negative Problem Orientation	0.30052 0.0531 42	0.46374 0.0020 42	-0.08952 0.5729 42	-0.21966 0.1622 42	-0.35284 0.0219 42	-0.13163 0.4060 42	-0.23810 0.1289 42	-0.03378 0.8318 42
Rational Problem Solving	-0.04376 0.7859 41	-0.22431 0.1586 41	0.01655 0.9182 41	-0.00216 0.9893 41	0.27885 0.0775 41	-0.05550 0.7304 41	0.08263 0.6075 41	-0.13539 0.3987 41
Problem Definition and Formulation	-0.08154 0.6123 41	-0.25775 0.1037 41	0.07390 0.6461 41	0.02851 0.8596 41	0.29481 0.0613 41	-0.01487 0.9265 41	0.10946 0.4957 41	-0.02981 0.8532 41
Generation of Alternatives	0.03005 0.8520 41	-0.22014 0.1667 41	-0.14561 0.3637 41	0.00079 0.9961 41	0.15291 0.3399 41	-0.11096 0.4898 41	0.03405 0.8326 41	-0.13986 0.3831 41
Decision Making	-0.05689 0.7239 41	-0.15937 0.3196 41	-0.00188 0.9907 41	-0.08664 0.5901 41	0.23096 0.1463 41	-0.07744 0.6303 41	0.02618 0.8709 41	-0.12561 0.4339 41
Solution Implementation Verification	-0.04299 0.7896 41	-0.11820 0.4617 41	0.13119 0.4136 41	0.04879 0.7620 41	0.25516 0.1074 41	0.01904 0.9060 41	0.10699 0.5056 41	-0.14468 0.3668 41
Impulsivity/ Carelessness Style	0.11668 0.4675 41	0.04724 0.7693 41	0.03814 0.8128 41	0.18693 0.2419 41	-0.08279 0.6068 41	0.02873 0.8585 41	-0.02693 0.8673 41	0.14163 0.3771 41
Avoidance Style	0.05636 0.7263 41	0.15682 0.3275 41	0.00660 0.9673 41	-0.19421 0.2237 41	-0.16103 0.3145 41	0.01444 0.9286 41	-0.12969 0.4190 41	0.02813 0.8614 41
Social Problem Solving	-0.14483 0.3601 42	-0.20711 0.1882 42	0.01247 0.9375 42	0.31683 0.0409 42	0.27820 0.0744 42	0.12415 0.4334 42	0.23989 0.1260 42	0.00961 0.9518 42