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CHAPTER 1

SCIENTIFIC ORIENTATION TO THE RESEARCH

“Research is formalised curiosity. It is poking and prying with a purpose.”

– Zora Neale Hurston

1.1 INTRODUCTION

This research focused on the construction of a measuring instrument for determining which coping strategies academics adopt in response to occupational stress. The constructs of relevance to the research were thus stress, occupational stress, emotion regulation and coping. The aim of this chapter is to provide the background to and motivation for the intended research, which led to the formulation of the problem statement, and research questions and objectives. Subsequently, the specific objectives of the research are stated and the paradigm perspectives, which guide the research, are discussed. The research design and research method, which lend structure to the research process, are formulated. Finally, the manner in which the chapters are presented is outlined. The chapter concludes with a summary of the scientific orientation to the research.

1.2 BACKGROUND TO AND RATIONALE FOR THE RESEARCH

Despite incredible advancements in science and technology, employees still seem to experience high degrees of psychological stress in the workplace (Khan et al., 2017; Samdani & Deshmukh, 2014). Academics are no exception, and are thus probable candidates for experiencing occupational stress (Darabi, Macaskill, & Reidy, 2017; Rothmann & Barkhuizen 2008; Rothmann & Jordaan, 2006). Traditionally, academics have been envied for their tenure, light workloads, flexibility, perquisites such as overseas trips for study and conference purposes, and the freedom to pursue their own research (Barkhuizen & Rothmann, 2008; Gillespie, Walsh, Winefield, Dua, & Stough, 2001). Thorsen (1996), however, was one of the first researchers to observe that the occupation of being an academic had lost the characteristics for which it was traditionally considered stress-free and beneficial for work wellbeing.

In recent years, other researchers have confirmed that the academic environment and perceptions about academia have changed significantly (Malik, Bjorkqvist, & Osterman, 2017; Mudrak et al., 2017; Rothmann & Barkhuizen, 2008; Rothmann & Jordaan, 2006). These changes can be ascribed to the substantial growth in student numbers and higher education

institutions, increased emphasis on research, adapting to an ever-changing curriculum, implementing newly introduced quality assurance procedures, keeping abreast with rapid technological advances, and concerns for equity and the social benefits of education (Barkhuizen, 2005; Catano et al., 2010; Slišković & Maslić Seršić, 2011). These changes are further coupled with constraints imposed by economic pressure, downturns in the economy, legislation, globalisation and social shifts in countries (Catano et al., 2010; Rothmann & Jordaan, 2006).

Factors that have contributed to the problems in higher education systems are inequalities and distortions of the system, under-prepared students, declining state subsidisation and unequal distribution of resources, unintelligible and poor articulation between various higher education institutions, and increased competition from international and private higher education institutions (Rothmann & Barkhuizen, 2008; Rothmann & Jordaan, 2006). Hence academics are subjected to various organisational stressors. Workload, for example, has been observed by many researchers as a major source of occupational stress among academics (Ablanedo-Rosas, Blevins, Gao, Teng, & White, 2011; Biron, Brun, & Ivers, 2008; Devonport, Biscoomb, & Lane, 2008; Gillespie et al., 2001; Mudrak et al., 2017). Along with the workload, all domains of academics' work are becoming more demanding (Barkhuizen, 2005; Devonport et al., 2008; Nayak, 2008). This primarily refers to the academic's role as researcher. Academics are now required to possess entrepreneurial skills to obtain funding and are placed under increasing pressure to publish research articles in high-end journals (Malik et al., 2017; Slišković & Maslić Seršić, 2011; Snowball & Shackleton, 2018). In addition, they are required to work with an increasing number of demanding students and respond to demands from management (Darabi et al., 2017). Lack of resources, difficulty in maintaining an effective work-life balance (Husin, Ghazali, Abdullah, & Hadi, 2018), job insecurity (Gillespie et al., 2001), lack of promotion opportunities (Archibong, Bassey, & Effiom, 2010), poor interpersonal relationships (Slišković & Maslić Seršić, 2011), and poor leadership and management practices (Winefield et al., 2003), are just some of the stressors that academics have to cope with on a daily basis. Lastly, while academics have to teach and keep abreast of advances in all aspects of their work, a substantial amount of administrative work is left for them to do (Bezuidenhout & Cilliers, 2010; Darabi et al., 2017; Slišković & Maslić Seršić, 2011). Higher education institutions are therefore developing a concerned imbalance with their environment, which is an indication that academia have lost the characteristic of a traditionally stress-free environment (Slišković & Maslić Seršić, 2011).

For decades, the concept of stress has been a source of immense interest, and has gradually evolved from an engineering perspective in the 17th century to the seminal work of Richard Lazarus and Susan Folkman in the 20th century (Cooper & Dewe, 2008). These researchers noted that stress is process oriented and transactional, encompassing appraisals, coping and emotions. From this perspective, it is defined as the “relationship between the person and the environment that is appraised by the person as taxing or exceeding his/her resources and endangering his/her wellbeing”, (Lazarus & Folkman, 1984, p. 19). Similarly, stress is defined by Catano et al. (2010, p. 233) as “a process whereby environmental factors called stressors may increase the likelihood a person will feel stress, an internal state characterised by arousal and displeasure.” Stress is thus a physical, mental and emotional state that occurs in response to a stressor. A stressor is defined as a situation and/or stimuli that cause individuals to experience stress (Collins English Dictionary, 2016). Many individuals perceive the organisation (or workplace) as a source of stress that affects their health and wellbeing (Cooper & Dewe, 2008). Occupational stress is defined as the perception of a discrepancy between demands in the environment (stressors) and the employee’s ability to cope with these demands (Beheshtifar & Nazarian, 2013; Ongori & Agolla, 2008). There are mainly four categories of determinants of stress in the workplace, namely extra-organisational sources, organisational sources, group stressors and individual stressors (Beheshtifar & Nazarian 2013; Vokić & Bogdanić, 2008). Occupational stress results from individuals’ inability to cope with the pressures of a job, because of a poor fit between their abilities and their work requirements. The perception of stress, however, increases until the individual has made a conscious decision to cope with the stressor.

The effects of stress in organisations are damaging as they result in loss of productivity as a result of absenteeism, work-related accidents, stress claims, a demotivated workforce and even alcohol and drug abuse, just to name a few (Van der Colff & Rothmann, 2009). Stevenson and Harper (2006) found that the consequences of stress on academic staff are teaching below standard, absenteeism, conflict with students and seeking employment elsewhere. These consequences have a further detrimental effect on students’ learning experiences. Barkhuizen and Rothmann (2008) further state that occupational stress among academics is associated with job dissatisfaction, increased smoking, alcohol and drug abuse, physical ill-health and poor mental wellbeing. Darabi et al. (2017) and Pienaar and Bester (2008) warn that the occupational stress that academics experience will continue to increase in the future, unless higher education institutions and academics adopt mechanisms to cope with workplace stressors.

The concept of coping is defined as the “constantly changing cognitive and behavioural efforts to manage specific internal and/or external demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). Coping plays a central role in psychology theory, and has significant implications for health and health-related interventions. Coping theorists are generally concerned with how people respond to uncontrollable stress to regain personal control. If individuals are unable to regain control, they may experience feelings of helplessness and give up (Baumeister & Vohs, 2007). Researchers have therefore proposed coping strategies that individuals can adopt to avoid a sense of despair and gain strength from exposure to a stressful encounter. Lazarus and Folkman (1984), for example, defined the following two major coping strategies: (1) emotion-focused coping, which refers to the regulation of emotions that are generated by the appraisal process; and (2) problem-focused coping, which refers to the management of the problem itself (Folkman, 2010). Coping therefore has two primary functions, namely (1) the regulation of distressing emotions, and (2) doing something to change the situation that is causing distress (Folkman & Lazarus, 1985).

Psychologists have suggested that both coping and emotion regulation are components of the self-regulation construct, because an emotion is elicited when a situation is perceived as stressful (Baumeister & Vohs, 2007; Compas et al., 2014). Emotion regulation is defined by Gross (1998, p. 275) as “the process by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions”, and more recently, as the process by which individuals influence the incidence, timing, nature, experience and expression of their emotions (Gross, 2015). Researchers have therefore become increasingly interested in emotional experiences during highly stressful life experiences, such as chronic illnesses and traumatic experiences. Despite this interest, little attention has been devoted to the concepts of coping and emotion regulation from an industrial and organisational psychology perspective, and to the coping strategies that employees, and more specifically academics, adopt to modulate heightened emotions in response to occupational stress. In a study conducted by Odirile, Mpofu, and Montsi (2008), the researchers examined the coping strategies that higher education employees use to cope with work stress. The results revealed that academics mainly use problem solving and avoidance coping strategies to handle stress. The results further revealed that academics with higher qualifications use avoidance coping strategies. Researchers, however, have failed to explore whether age, gender, job rank and/or tenure have an influence on the coping strategies that academics adopt to cope with stress.

Coping is an important explanatory variable, but there is no clear consensus on how it should be measured (Dewe, O'Driscoll, & Cooper, 2010). Although various questionnaires have been developed to assess different aspects of coping, there is a lack of consensus on the best system for categorising the many coping strategies that have been identified in research on stress and coping (Allen & Leary, 2010; Folkman, 2010). In a synthesis of research on various coping strategies, Skinner, Edge, Altman, and Sherwood (2003), for example, identified 400 types of coping strategies, showing little agreement among researchers on the best way to conceptualise coping and coping strategies. Researchers also seem to confuse coping resources with coping strategies. Coping resources are those social and individual characteristics that individuals use to aid them in withstanding threats posed by their environment. By contrast, a coping strategy is a coping response because it is a means of responding to a stressor (Chen, 2007).

Furthermore, existing coping questionnaires do not cover all the domains that are relevant to the coping process (Sveinbjornsdottir & Thorsteinsson, 2008; Zuckerman & Gagné, 2003). Hence the current coping measures represent a broad array of potential coping responses (Compas et al., 2001). For example, Carver, Scheier, and Weintaub (1989) identified several forms of problem-focused coping that were not included in previous measures. In their research, Stanton, Kirk, Cameron, and Danoff-Burg (2000) argued that the measures of emotion-focused coping fail to assess the "emotion approach" to coping. Folkman (2010) also contends that although various coping researchers mention religious and spiritual beliefs in relation to coping resources, very little is said about the use of religion and spirituality for coping. There are still problems with the clarity and specificity of items, recognition of differences between coping goals and coping strategies and the overlap between coping and measures of psychopathology (Compas et al., 2001). There are thus a number of conceptual and methodological concerns regarding the measurement of coping. Schwarzer and Schwarzer (1996), and Wong, Reker, and Peacock (2006) have argued that there is a need for a valid, reliable and comprehensive coping instrument. Van Wyk (2010) further advocates that currently no coping instrument has been developed and very few instruments have been validated in a South African and African context.

From the discussion above it is evident that there is a need for the development of an instrument to determine which coping strategies academics adopt in response to occupational stress. The researcher is of the opinion that the results of this study would not only lead to the development of a new instrument, but also provide insight into the coping strategies that employees in higher education institutions adopt in response to occupational stress. It was

further anticipated that a conceptual model for coping with occupational stress would be developed. The conceptual model should allow higher education institutions to assist employees in regulating their emotions to change their perception of a workplace stressor.

1.3 PROBLEM STATEMENT

Based on the foregoing background discussion, the following research problems were identified:

Firstly, it is evident that stress is still a concern in organisations and in higher education institutions. In the past two decades, academia has become a highly demanding occupation and academics are subjected to various organisational stressors (Ablanedo-Rosas et al., 2011; Barkhuizen & Rothmann, 2008; Darabi et al., 2017; Devonport et al., 2008; Salami, 2011). Previous research has explored the stressors that academics experience in the workplace (Barkhuizen & Rothmann, 2006, 2008; Bell, Rajendran, & Theiler, 2012; Devonport et al., 2008; Rothmann & Barkhuizen, 2008; Rothmann & Jordaan, 2006; Salami, 2011; Slišković & Maslić Seršić, 2011), but devoted little attention to the strategies they adopt in response to occupational stress. Consequently, researchers have failed to explore whether demographic variables influence the coping strategies that academics adopt.

Secondly, little attention has been devoted to the concepts of coping and emotion regulation from an industrial and organisational psychology perspective, as well as to the coping strategies that individuals, and more specifically academics, adopt to regulate heightened emotions in response to occupational stress. It is anticipated that academics will continue to experience occupational stress unless they adopt mechanisms to regulate the emotion elicited by the appraisal of a workplace stressor.

Lastly, although various questionnaires have been developed to assess different aspects of coping, there is no clear consensus on how coping should be measured. Existing literature outlines various conceptual and methodological concerns regarding the measurement of coping, and existing coping measures do not address all the domains of coping. Van Wyk (2010) further advocates that currently no coping instrument has been developed and very few instruments have been validated in a South African and African context. There is thus a need for a valid, reliable and comprehensive coping instrument to determine which coping strategies academics adopt in response to occupational stress in the South African context.

The problem statement gave rise to the following general research question, from which the specific research objectives were derived:

Can a valid and reliable instrument be developed for determining which coping strategies academics adopt in response to occupational stress?

From the above, the research questions as set out below were formulated in terms of the literature review and empirical study.

1.3.1 Research questions concerning the literature review

In terms of the literature review, the specific research questions were formulated as follows:

- Research question 1:** How does the literature conceptualise the constructs of stress, occupational stress, emotion regulation and coping?
- Research question 2:** Which stressors are academics confronted with in their institutions?
- Research question 3:** What are the consequences of occupational stress for academics and their institutions?
- Research question 4:** Which coping strategies do academics adopt in response to occupational stress?
- Research question 5:** Which coping and emotion regulation questionnaires and strategies are currently available?
- Research question 6:** Which dimensions and subdimensions could be identified for measuring coping with occupational stress in higher education institutions in South Africa?
- Research question 7:** Could a conceptual model for coping with occupational stress be developed for higher education institutions in South Africa?

1.3.2 Research questions concerning the empirical study

In terms of the empirical study, the specific research questions were formulated as follows:

- Research question 1:** Can a valid and reliable instrument be developed for determining which coping strategies academics adopt in response to occupational stress?

- Research question 2:** Which occupational stressors are academics confronted with in their institutions?
- Research question 3:** Which coping strategies do academics adopt to regulate emotions to respond to occupational stressors that are perceived as taxing and/or exceeding their coping resources?
- Research question 4:** Do the proposed coping strategies positively and significantly predict coping success?
- Research question 5:** Is there a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model?
- Research question 6:** Is the Coping Strategies Questionnaire invariant across different demographic groups?
- Research question 7:** Do significant differences exist between individuals from different demographic backgrounds concerning the coping strategies they adopt in response to occupational stress?
- Research question 8:** Based on the empirical results, would it be possible to develop an empirical model for coping with occupational stress for higher education institutions in South Africa?

1.4 RESEARCH OBJECTIVES

From the discussion and research questions above, the research objectives as set out below were formulated.

1.4.1 Primary objective

The primary objective of this research was to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress. A further aim of the study was to determine whether individuals from different demographic backgrounds differ significantly with regard to the coping strategies they adopt in response to occupational stress.

1.4.2 Specific objectives

The following specific objectives were formulated for the literature review and the empirical study:

1.4.2.1 *Literature review*

In terms of the literature review, the specific objectives were formulated as follows:

- Research objective 1:** To conceptualise the constructs of stress, occupational stress, emotion regulation and coping by means of a comprehensive literature review
- Research objective 2:** To determine which stressors academics are confronted with in their institutions
- Research objective 3:** To explore the consequences of occupational stress on academics and their institutions
- Research objective 4:** To determine which coping strategies academics adopt in response to occupational stress
- Research objective 5:** To review and discuss existing coping and emotion regulation questionnaires and dimensions
- Research objective 6:** To identify dimensions and subdimensions for measuring coping with occupational stress in higher education institutions in South Africa
- Research objective 7:** To develop a conceptual model for coping with occupational stress for higher education institutions in South Africa, based on the theoretical relationship dynamics between occupational stress, coping and emotion regulation

1.4.2.2 *Empirical study*

In terms of the empirical study, the specific objectives were formulated as follows:

- Research objective 1:** To construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress
- Research objective 2:** To explore which occupational stressors academics are confronted with in their institutions
- Research objective 3:** To explore which coping strategies academics adopt to regulate heightened emotions to respond to occupational stressors that are perceived as taxing or exceeding their coping resources

- Research objective 4:** To determine whether the proposed coping strategies positively and significantly predict coping success
- Research objective 5:** To determine whether there is a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model
- Research objective 6:** To test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups
- Research objective 7:** To assess whether significant differences exist between individuals from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress
- Research objective 8:** To develop an empirical model for coping with occupational stress for higher education institutions in South Africa
- Research objective 9:** To formulate conclusions based on the findings, and make recommendations for industrial and organisational psychology practices, specifically in higher education institutions, and for possible future research based on the findings of this study

1.5 STATEMENT OF SIGNIFICANCE

Colquitt and Zapata-Phelan (2007) developed a taxonomy that can be used to capture the many facets of an empirical study's theoretical contribution. The taxonomy is composed of two dimensions, namely (1) the extent to which the study develops a new theory; and (2) the extent to which the study tests existing theory. Colquitt and Zapata-Phelan (2007) further suggest that a study can contribute by being strong in theory building or theory testing, or both. Theory building is defined as the degree to which the study clarifies or supplements existing theory or introduces relationships and constructs that serve as the foundation for a new theory. Theory testing, however, is defined as the degree to which existing theory is applied in an empirical study as a means of grounding a specific set of prior hypotheses. Given the background of this taxonomy, Colquitt and Zapata-Phelan (2007) have classified theoretical contributions into five categories, namely *reporters*, *testers*, *qualifiers*, *builders* and *expanders*. The categories of builders, testers and expanders are deemed higher in their theoretical contribution, whereas reporters and qualifiers tend to be lower in their theoretical contribution. The taxonomy of Colquitt and Zapata-Phelan (2007) is illustrated in figure 1.1, and subsequently sets the scene for the discussion to follow.

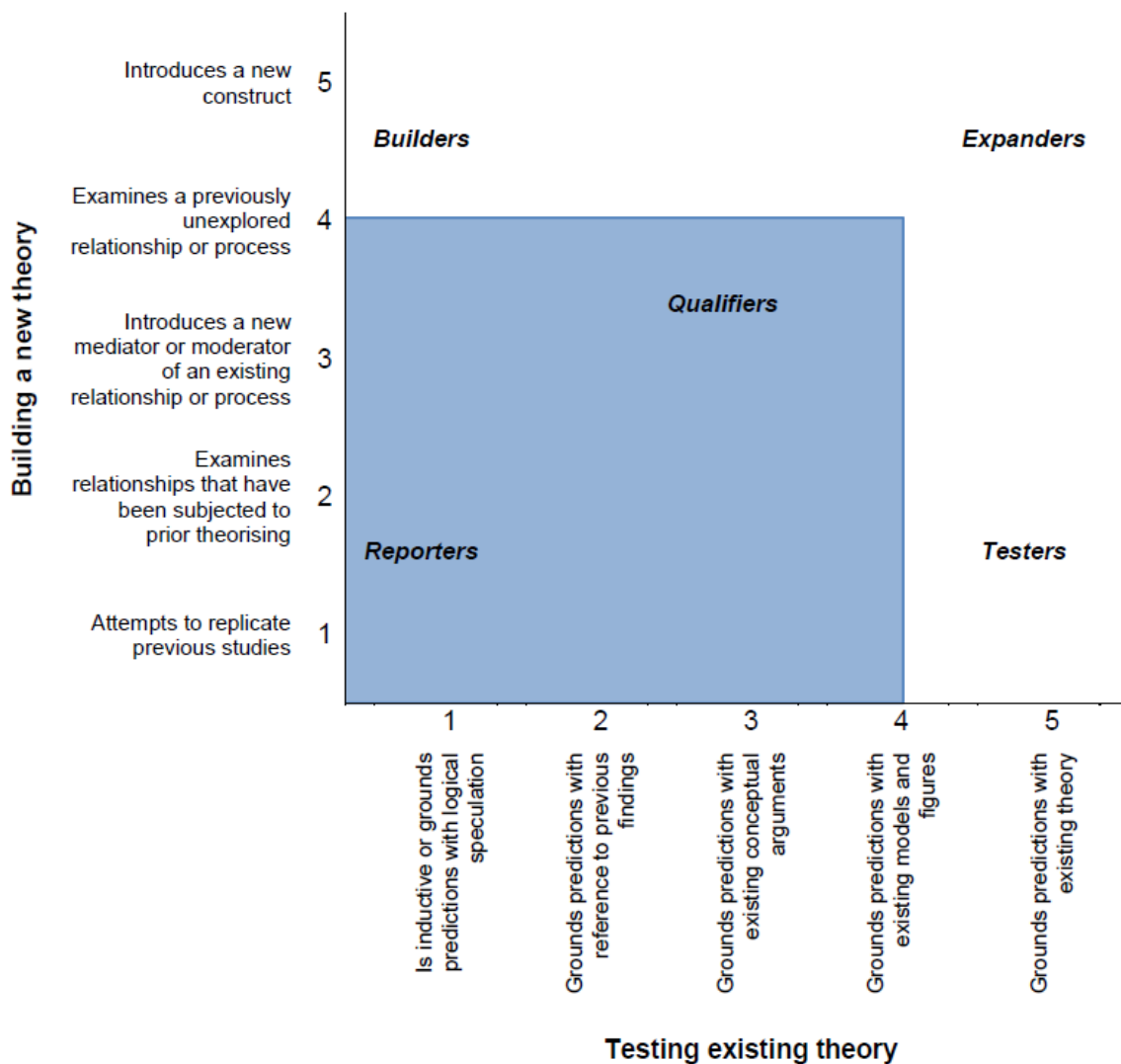


Figure 1.1. A taxonomy of theoretical contributions for empirical research

Source: Adapted from Colquitt and Zapata-Phelan (2007, p. 1283)

1.5.1 Contribution at a theoretical level

If readers of this study develop an understanding of why there is a need for a valid, reliable and comprehensive coping instrument to determine which coping strategies academics adopt in response to occupational stress in the South African context, then the outcomes would be significant enough to justify the pursuit of this research. Positive outcomes from the proposed research could further include raising awareness of the following:

- Academia has become a highly demanding occupation and academics are subjected to various organisational stressors.

- Little attention has been paid to the coping strategies that academics adopt to regulate heightened emotions in response to occupational stress.
- Individuals from different demographic backgrounds cope differently when exposed to occupational stressors.

If a conceptual model for coping with occupational stress could be developed, the findings might prove useful to future researchers in exploring whether (1) occupational stressors elicit an emotion, and (2) if the proposed coping strategies that individuals adopt in response to occupational stress would modulate their perception of the stressor. The research results should furthermore contribute to the body of knowledge concerned with occupational stress, emotion regulation and coping that might enhance employees' health and wellbeing.

1.5.2 Contribution at an empirical level

Firstly, at an empirical or methodological level, this research might prove useful because of the development of a valid, reliable and comprehensive coping instrument. Secondly, the instrument could be used to explore which coping strategies academics adopt when they are exposed to stressors in the workplace, and to assess whether significant differences exist between individuals from different demographic backgrounds. Thirdly, the empirical research should determine whether the coping strategies that academics adopt regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding the individual's coping resources. Lastly, the results could be used to construct and refine a conceptual model that could be used in the industrial and organisational psychology context.

1.5.3 Contribution at a practical level

If the instrument is valid and reliable, it could be used as a diagnostic tool to determine how employees cope with occupational stress. The instrument could further be used by industrial psychologists and human resource practitioners, specifically in higher education institutions, to identify interventions to assist employees in coping with occupational stress which would promote the health and wellbeing of both the individual and the organisation.

The study could further establish whether individuals from different demographic backgrounds differ with regard to the coping strategies they adopt in response to occupational stress. Considering the current organisational context, which is characterised by cultural and generational diversity, the results might be valuable in the organisational context.

It is anticipated that this research could make a valuable contribution to the existing body of knowledge because, to date, there has been no existing study on constructing a valid, reliable and comprehensive coping instrument for determining which coping strategies academics adopt in response to occupational stress in the South African context. In terms of Colquitt and Zapata-Phelan's (2007) taxonomy, the study could be classified as an *expander* in that the researcher expands a given theory by taking it in a new and different direction. This study would be relatively high in both theory building and theory testing.

1.6 THE RESEARCH MODEL

The research model of Mouton and Marais (1996) served as a framework for this research. The research model incorporates the five dimensions of social science research, namely the sociological, ontological, teleological, epistemological and methodological dimensions, and their systematisation within the framework of the research process. The five dimensions are aspects of one and the same research process. The *sociological dimension* conforms to the requirements of the sociological research ethic, which makes use of the research community for its sources of theory development. The *ontological dimension* encompasses that which is investigated in reality. The *teleological dimension* suggests that the research should be systematic and goal directed. The *epistemological dimension* relates to the quest for truth. The *methodological assumptions* are beliefs about the nature of social science and scientific research.

The assumption of this model is that it represents a social process. Social science research is a collaborative human activity in which social reality is studied objectively in order to gain an understanding of this reality (Mouton & Marais, 1996). Such a model is described as a systems theoretical model with three subsystems that are interrelated with one another and with the research domain of the specific discipline, in this instance, industrial and organisational psychology. The subsystems are anchored in a specific research paradigm and comprise the intellectual climate, the market for intellectual resources and the research process itself.

1.7 PARADIGM PERSPECTIVE OF THE RESEARCH

A paradigm in the social sciences includes acceptable theories, models, bodies of research and the methodologies of a specific perspective (Mouton, 2001). Their origin is mainly philosophical and is neither testable nor meant to be tested. In this research, the term "paradigm" was used in its meta-theoretical or philosophical sense to denote an implicit or

explicit view of reality (Morgan, 1980). The paradigm perspective therefore refers to the intellectual climate or variety of meta-theoretical values or beliefs and assumptions underlying the theories and models that form the context of this research. This study was conducted in the field of industrial and organisational psychology.

1.7.1 The intellectual climate

The concept “intellectual climate” encompasses the variety of meta-theoretical values or beliefs which are held by those practising a discipline (Mouton & Marais, 1996). The literature review for this study was presented from the humanistic and salutogenic paradigm and the empirical study from the post-positivist research paradigm.

1.7.1.1 The literature review

a The humanistic perspective

The humanistic paradigm maintains that individuals have the ability for self-direction and do not simply react to instincts or external factors (Meyer, Moore, & Viljoen, 1997). The assumptions of the humanistic paradigm are discussed below (Cilliers & May, 2010; Meyer et al., 1997; Quitmann, 1985).

- *The individual is an integrated whole.* The focus of the current study was on perspectives of individuals in an organisation as being collective. It would go beyond exploring the views of individuals in the organisational unit, taking into consideration the impact of the collective on the individual.
- *The individual is a dignified human being.* Human beings have qualities that distinguish them from other objects, such as stones and trees. The current study was interested in the sample’s strategies of coping with occupational stress.
- *Human nature is positive.* People are basically good, and their destructive behaviour is caused by environmental influences, such as poverty, unemployment, favouritism, discrimination and racism.
- *The individual has conscious processes.* Conscious processes dictate the individual’s decisions.
- *The individual is an active being.* Individuals are active participants in life, who make choices and are responsible for the course their lives take.

Theoretically, this paradigmatic perspective relates to the concept of occupational stress.

b The salutogenic paradigm

In this study, the constructs of emotional regulation and coping were presented from the salutogenic perspective, which was coined by Antonovsky (1979). The salutogenic perspective is defined as the approach that seeks to explain health rather than disease (Sagy, Eriksson, & Braun-Lewensohn, 2015). Its focus is therefore on the origins of health, staying well and coping with stressors. Salutogenic thinking has challenged the traditional pathogenic orientation, which is concerned with the origin of disease. By contrast salutogenesis, focuses on the unravelling of the mystery of health and attempts to address how individuals manage stress and stay well (Stümpfer, 1995). Salutogenesis recognises that stressors are prevalent in individuals' lives and therefore need to be managed (Dhaniram, 2002). It rejects the notion that stressors are inherently bad, in favour of the possibility that they may have salutary consequences (Dhaniram, 2002). The salutogenic paradigm is therefore concerned with how individuals learn to live and live well with stressors, and possibly even turn the existence of stressors to their advantage.

1.7.1.2 The empirical research

The empirical study was presented from the post-positivist paradigm perspective.

The post-positivist paradigm emerged from the collapse of the positivist stance in the 1930s, and is generally applied in social science research. The purpose of the post-positivist paradigm is to discover the truth about something (Willis, 2007). Therefore, instead of trying to explain how something operates, researchers strive to understand why it or individuals behave in the manner that they do, or to reveal power relationships and structures (McGregor & Murnane, 2010). Post-positivists thus search for causal explanations among phenomena (Tracy, 2013). The purpose of post-positivistic research is to search for meanings in specific social and cultural contexts (McGregor & Murnane, 2010) by searching for beliefs, concepts and ideas that can be generalised across various contexts (Willis, 2007). Post-positivists therefore conduct a series of studies with precisely formulated hypotheses and well-defined problems and methods. Post-positivist researchers always test their theories by conducting scientific research (Willis, 2007). These researchers are therefore objective analysts and are in control of their research. Despite these positive characteristics, research reveals that post-positivist researchers can influence their participants negatively (Corbetta, 2003), resulting in biasedness and imperfect observations with errors (Moutinho & Hutcheson, 2011). Post-positivists also believe that their observations are theory laden (Corbetta, 2003; Moutinho &

Hutcheson, 2011), meaning that any recoding of reality is conditioned by the researcher's social circumstances and theoretical framework. This is also known as critical realism.

The methodology used in the post-positivist paradigm draws on multiple methods of observation (Dwyer, Gill, & Seetaram, 2012; Sharma, 2010). Quantitative and qualitative methods, such as quasi-experimental methods, the manipulation of variables, quantitative interviews, statistical analysis, and so forth, are used to analyse new hypotheses and can thus be accepted or rejected by means of new experiments (Corbetta, 2003).

The empirical study in the current research consisted of a quantitative study conducted within the ambit of the post-positivistic research paradigm. The post-positivist paradigm rejects the idea that the individual can see the world perfectly. Post-positivists therefore become critical realists who believe that reality is socially constructed, and the aim of their research is to uncover the meaning of this reality as understood by individuals (Sharma, 2010). Thematically, in the current research, the quantitative study would focus on constructing a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress, and to assess whether significant differences exist between individuals from different demographic groups concerning the coping strategies they adopt. The instrument was used as a quantitative measure that would add value through the use of statistical science and techniques. Throughout the research process, the researcher attempted to remain objective and in control of the process. The characteristics of the post-positivistic paradigm are summarised in table 1.1.

Table 1.1
Characteristics of post-positivism

	<i>Post-positivism</i>
Ontology: <i>(the researcher's view of the nature of reality and being)</i>	<ul style="list-style-type: none"> • One true reality that is apprehended and measured imperfectly. • Truths are influenced by social and historical circumstances. • Critical realism.
Epistemology: <i>(the researcher's view of what constitutes acceptable knowledge)</i>	<ul style="list-style-type: none"> • Modified dualism-objectivism. • Objectivity and researcher-subject independence are important. • Results are probabilistically true.
Axiology:	<ul style="list-style-type: none"> • Value-free.

<i>Post-positivism</i>	
<i>(the researcher's view of the role of values in research)</i>	<ul style="list-style-type: none"> • Researcher is independent or emotionally detached from the data. • Researcher remains objective.
Methodology: <i>(refers to the process and procedures of the research)</i>	<ul style="list-style-type: none"> • Highly structured and controlled. • Large samples. • Quantitative, but mixed methods could be used. • Research is scientific if internal and external validity, reliability and objectivity are addressed.

Source: Corbetta (2003, p. 11); Dwyer et al. (2012, p. 312); Hays and Singh (2012, p. 40); Ponterotto (2005, pp. 130-132); Saunders, Lewis, and Thornhill (2016, p. 119)

1.7.2 Market for intellectual resources

The market for intellectual resources refers to the collection of beliefs that have a direct influence on the epistemic states of scientific statements (Mouton & Marais, 1996). For the purpose of this study, the theoretical models, meta-theoretical statements and conceptual descriptions relating to stress, occupational stress, emotion regulation and coping, and theoretical and methodological assumptions would be presented.

1.7.2.1 *Meta-theoretical statements*

The meta-theoretical statements represent an important category of assumptions underlying the theories, models and paradigms of this study. Meta-theoretical values and beliefs have become part of the intellectual climate of each particular discipline in the social sciences (Mouton & Marais, 1996). In this study, meta-theoretical statements were presented on the following disciplines:

a Industrial and organisational psychology

This study was conducted in the context of industrial and organisational psychology, which is described as “the application of psychological principles, theories and research to the work setting” (Landy & Conte, 2016, p. 4). Truxillo, Bauer, and Erdogan (2016) define industrial and organisational psychology as the science of human behaviour relating to work. The subject applies psychological theories and principles to organisations and individuals in their workplaces. Industrial and organisational psychologists contribute to the organisation’s

success by improving the performance, motivation, job satisfaction, occupational health and safety, and overall health and wellbeing of its employees. Industrial and organisational psychologists and human resource practitioners are scientists who derive principles of individual, group and organisational behaviour through research to develop scientific knowledge for solving organisational problems (Landy & Conte, 2016; Van Zyl, Nel, Stander, & Rothmann, 2016). The primary objective of this study was to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress.

The relevant subfields of industrial and organisational psychology included in this research were organisational psychology and psychometrics.

b Organisational psychology

Organisational psychology is a subfield of industrial and organisational psychology that has to do with organisational responsiveness to psychological, sociopolitical and economic forces that focus on individual, group and system-level interventions (Coetzee & Schreuder, 2009). Work in this subfield investigates factors such as motivation at work; attitudes, emotions and work; stress and employee health and wellbeing; diversity; leadership; group dynamics; and organisational change (Landy & Conte, 2016). Organisational psychology is thus concerned with social and group influences. Thematically, the notions of occupational stress, emotion regulation and coping and their relation to employee and organisational health and wellbeing were of relevance to this research.

c Psychometrics

This branch of psychology relates to the principles and practices of psychological measurement, and includes, for example, the development and standardisation of psychological tests and related statistical procedures (Coetzee & Schreuder, 2009). Psychometrics allows researchers to measure behaviour in various forms, providing different explanations for inter and intrapersonal functioning. In this study, a valid and reliable instrument was developed for determining which coping strategies academics adopt in response to occupational stress.

1.7.2.2 *Theoretical models*

The following theoretical models were considered in this study:

The literature review on stress and occupational stress focuses on House's (1974) Paradigm for Stress Research, the Person-Environment Fit Model (French, Rodgers, & Cobb, 1974), Lazarus and Folkman's Transactional Theory of Stress and Coping (Lazarus & Folkman, 1984), the Vitamin Model (Warr, 1987), the Social Environment Model (Drenth, Thierry, & De Wolff, 1998), Karasek's Job Demand-Control Model (Karasek, 1979), the Job Demands-Resources Model (Bakker & Demerouti, 2007), the Spielberger State-Trait Model (Spielberger, Vagg, & Wasala, 2003), and the ASSET Model (Johnson, 2008).

In terms of the literature review on emotion regulation and coping, the specific theories to be reviewed were the psychoanalytic approach to coping (Carver et al., 1989), coping as a personality trait or style, the contextual approach to coping (Lazarus & Folkman, 1984), the integrative conceptual framework (Zeidner & Endler, 1996), the appraisal theory of coping and emotion (Folkman & Lazarus, 1988), and the process model of emotion regulation (Gross, 1998; 2002; 2015). The measurement instruments of various coping and emotion regulation researchers are also reviewed and discussed briefly.

1.7.2.3 *Conceptual descriptions*

The conceptual descriptions set out below served as points of departure for discussions in this study.

a Stress

In the context of the present study, stress is defined as the "agitation, feeling of anxiety, and/or physical tension that occur when the demands placed on the individual are believed to exceed the person's ability to cope" (Slocum & Hellriegel, 2007, p. 448). This definition was deemed appropriate for the purposes of this study, because stress is seen as a threat or challenge that is appraised as taxing or exceeding the coping resources of an individual. This definition is supported by the theory of coping and emotion regulation, in that coping is a conscious effort to regulate emotional experiences initiated by stressors that are threatening or harmful to the individual's health and wellbeing.

b Occupational stress

Occupational stress is defined as the perceived discrepancy between demands in the workplace and the individual's ability to cope with these demands. Occupational stressors are further classified into extra-organisational, organisational, group and individual stressors (Beheshtifar & Nazarian 2013; Vokić & Bogdanić, 2008).

c Emotion

For the purpose of this study, emotion was defined as feelings that result in physical and psychological changes that influence one's behaviour (Ember & Ember, 2004; Gross, 2015). An emotion is elicited when a situation is appraised as taxing or exceeding the individual's coping resources. Coping and regulation strategies are adopted to influence the felt emotion and change the person-environment relationship.

d Emotion regulation

Emotion regulation is defined by Gross (1998, p. 275) as "the process by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions", and more recently as the process by which individuals influence the incidence, timing, nature, experience and expression of their emotions (Gross, 2015). Emotion regulation is thus conceptualised as a control process through which individuals modulate and/or divert their emotions and/or attention consciously and unconsciously to respond to environmental demands (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Koole, Van Dillen, & Sheppes, 2010). Individuals therefore engage in regulatory strategies to exert control over their behaviour and modify the magnitude of their emotional experience.

e Coping

In the context of the present study, coping was conceptualised as "emotion regulation under stress", and defined as the conscious efforts that individuals adopt to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding the individual's coping resources.

1.7.2.4 *Central hypothesis*

A valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress can be developed. Individuals from different demographic backgrounds differ significantly with regard to the coping strategies they adopt in response to occupational stress.

1.7.2.5 *Theoretical assumptions*

Based on the literature review, the following theoretical assumptions were addressed in this study:

- There is a need to develop an instrument for determining which coping strategies academics adopt in response to occupational stress.
- An emotion is elicited when a workplace stressor is appraised as taxing or exceeding the individual's coping resources. There is thus an imbalance between the demands in the environment and the resources available to respond to them.
- Emotional responses are experienced because of the individual's inability to regulate emotions. Coping and regulatory strategies are adopted to respond to the felt emotion and modulate the individual's perception of the stressor.
- Coping is closely linked to emotion and the regulation thereof to respond to environmental demands.
- Coping is a continuous effort to help individuals decrease negative emotional experiences by maintaining psychological adaptation during stressful periods.
- Six coping strategies, namely cognitive, emotional, social support, leisure, religious and experiential avoidance, are adopted to respond to the felt emotion. Adaptive coping strategies (cognitive, emotional, social support, leisure and religious strategies) modulate the felt emotions so that the individual's perception of the stressor is changed. Experiential avoidance, a maladaptive coping strategy, prevents the individual from taking action to change the aversive experiences of events that elicit an emotion.
- Academics experience occupational stress and consequently adopt strategies to respond to the felt emotion and modulate their perception of the stressor.
- Demographic variables, such as age, gender, job level and tenure, influence the coping strategies that academics adopt in response to occupational stress.
- Knowledge of the coping strategies that academics adopt in response to occupational stress should enable higher education institutions to assist employees in regulating their emotions to change their perception of a workplace stressor.

1.7.2.6 *Methodological assumptions*

Methodological assumptions are beliefs concerning the nature of social science and scientific research. Methodological beliefs are more than methodological preferences, assumptions and presuppositions about what ought to constitute proper research. There is a direct link between methodological beliefs and the epistemic status of research findings (Mouton & Marais, 1996). The main epistemological assumptions set out below are the methodological assumptions that affect the nature and structure of the research domain, and these relate to methodological choices, assumptions and suppositions that constitute sound research.

a Sociological dimension

The sociological dimension conforms to the requirements of the sociological research ethic that makes use of the research community and its sources of theory development (Mouton & Marais, 1996). Within the bounds of the sociological dimension, research is experimental, analytical and exact, because the phenomena that are studied are subject to quantitative research analysis. This is described in chapter 5 (research methodology) and chapter 6 (the research results).

b Ontological dimension

The ontological dimension of research encompasses that which is investigated in reality (Mouton & Marais, 1996). It relates to the study of human activities and institutions whose behaviour can be measured. In this study, an instrument was developed for determining which coping strategies academics adopt in response to occupational stress.

c The teleological dimension

The teleological dimension suggests that the research should be systematic and goal directed (Mouton & Marais, 1996). It is therefore necessary to state the problem under investigation and relate it to the research goals. The research goals were explicit in this study, namely to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress. The study further aimed to determine whether individuals from different demographic backgrounds differ significantly with regard to the coping strategies they adopt in response to occupational stress. Furthermore, in practical terms, the teleological dimension seeks to further the fields of industrial and organisational

psychology and human resource management by providing knowledge that would enable higher education institutions to assist employees in regulating their emotions to change their perception of a workplace stressor.

d The epistemological dimension

The epistemological dimension relates to the quest for truth (Mouton & Marais, 1996). An objective of research in the social sciences is to generate valid findings that approximate reality as closely as possible. This study attempted to achieve this truth through an effective research design and the generation of reliable and valid results.

e The methodological dimension

Methodological assumptions are beliefs about the nature of social science and scientific research. Methodological beliefs are more than the methodological preferences, assumptions and presuppositions about what ought to constitute sound research (Mouton & Marais, 1996). An optimal research design incorporating relevant methods was used in this study. Research methodologies can be classified as qualitative or quantitative.

Both methods were used in this research. Qualitative (exploratory) research was presented in the form of a literature review on stress, occupational stress, emotion regulation and coping. Quantitative (descriptive and exploratory) research was presented in the empirical study.

1.8 RESEARCH DESIGN

A research design is the overall plan for connecting the research objectives to the empirical research (Saunders, Lewis, & Thornhill, 2016). In other words, the research design articulates what data is required, what methods are going to be used to collect and analyse the data, and how all of this is going to answer the research question. The research design is discussed with reference to the types of research conducted, followed by an overview of validity and reliability.

1.8.1 Exploratory research

The objective of exploratory research is to gather information from a relatively unknown field or to gain new insight into phenomena (Mouton & Marais, 1996; Saunders et al., 2016). Exploratory research entails gaining new insights, establishing central concepts and

constructs, and then establishing priorities. This research was exploratory because the researcher aimed to explore (by means of a newly developed instrument) which coping strategies academics adopt in response to occupational stress.

1.8.2 Descriptive research

Descriptive research describes the characteristics of an individual, situation, group, organisation and/or social objects at the time of the study (Mouton & Marais, 1996; Salkind, 2018). Its purpose is to systematically classify the relationships between variables in the research domain. The overriding aim is to describe issues as accurately as possible.

In the literature review, descriptive research was applicable to the conceptualisation of the constructs of stress, occupational stress, emotion regulation and coping.

In the empirical study, descriptive research was applicable in terms of the biographical characteristics of the sample of participants and their mean scores.

1.8.3 Explanatory research

Explanatory research goes further than merely indicating that relationships exist between the variables (Mouton & Marais, 1996). It indicates the direction of the relationship in a causal relationship model. The researcher therefore seeks to explain the direction of the relationship. This form of research was not applicable to this study.

1.8.4 Validity

The purpose of research design is to plan and structure the research project in a way that ensures that the literature review and empirical study are valid in terms of the constructs in the study (Mouton & Marais, 1996). Validity, according to Saunders et al. (2016), refer to the appropriateness of the measures used, the accuracy of the analysis of the results and the generalisability of the findings. Internal, external and measurement validity are important and desirable in research design. For research to be internally valid, the constructs should be measured in a valid manner and the measurement of data should be accurate and reliable. External validity is concerned with generalising the findings to other relevant settings or groups. Lastly, measurement validity includes, for example, face validity, content validity, construct validity and predictive validity.

Ensuring validity requires making a series of informed decisions about the purpose of the research, theoretical paradigms that are used in the research, the context within which the research takes place and the research techniques that are used to collect and analyse data (Terre Blanche & Durrheim, 2002).

1.8.4.1 Validity of the literature review

The validity of the literature review was ensured by using literature that was relevant and up to date in terms of the research topic, problem statement and research objectives. Every attempt was made to search for and make use of the most recent as well as academically and scientifically sound sources pertinent to the concepts relevant to this research. However, a number of contemporary, mainstream sources were also consulted because of their relevance to the study. The work of seminal authors was also referred to. A variety of sources were consulted including books, chapters in books, journal articles, online articles, unpublished theses or dissertations, and conference papers.

1.8.4.2 Validity of the empirical research

In terms of the empirical research, the measurement validity of the instrument was addressed in a logical manner and also by means of statistical analysis. The instrument development process and methodological methods that were followed and applied are described in chapters 5 and 6.

1.8.5 Reliability

Reliability is the extent to which an instrument is repeatable and yields consistent results as indicated by what is measurable (Foxcroft & Roodt, 2009; Salkind, 2018). Reliability in literature was addressed by using existing literature sources, theories and models. Reliability in the empirical study was ensured through the use of a representative sample and determining the reliability of the instrument.

1.8.6 The unit of research

In the social sciences, the most common object of research is the individual human being (Babbie, 2008). The unit of analysis distinguishes between the characteristics, conditions, orientations and actions of individuals, groups, organisations and social artefacts (Mouton &

Marais, 1996). At individual level, the individual scores of the instrument were considered. At group level, the overall scores on the instrument were considered. At subgroup level, the age, gender, highest qualification, job level and tenure were taken into account.

1.8.7 The variables

A variable is defined as an individual element or attribute upon which data has been collected (Saunders et al., 2016). There are two types of variables, namely independent and dependent. The independent variable is not dependent on anything else and manipulated to determine its effects on the dependent variable (Salkind, 2018). The independent variable therefore has a causal effect on the dependent variable. The dependent variable, however, changes in response to variations in the other variables. A secondary objective of the empirical study was to determine whether the proposed coping strategies positively and significantly predict coping success. The coping strategies were therefore the independent variable, while coping success was the dependent variable. Coping success therefore depends on the type of coping strategies that academics adopt in response to occupational stress.

1.8.8 Delimitations

Firstly, the study was confined to research dealing with the constructs of stress, occupational stress, emotion regulation and coping.

Secondly, the research was intended to be grounded research that would restrict its focus to the primary objectives outlined in section 1.4. If a valid and reliable coping instrument and conceptual model could be developed, then the groundwork information would be useful to future researchers.

Thirdly, control variables were limited to age, gender, highest qualification, job level and tenure. Moreover, no attempt was made to manipulate or classify any of the information, results or data on the basis of family or spiritual background. Also not included in any classification process were the factors of disability or physical and psychological illness.

Lastly, the study was restricted to a South African population, especially individuals employed in higher education institutions. As such, individuals from other countries and industries were excluded and the findings were not generalised.

1.8.9 Ethical considerations

Research that involves individuals or participants raises unique and complex ethical, legal, social and political issues. Research ethics is specifically interested in the analysis of ethical issues that are raised when individuals are involved in research. Research ethics is accordingly defined as “the standards of the researcher’s behaviour in relation to the rights of those who become the subject of a research project, or who are affected by it” (Saunders et al., 2016, p. 726). The following three objectives apply in research ethics (Walton, n.d.):

- (1) protect the individuals (the broadest objective)
- (2) ensure that research is conducted in a way that serves the interests of the individuals, groups and/or society as a whole
- (3) examine specific research activities and projects for their ethical soundness, looking at issues such as managing risk, ensuring anonymity, managing confidentiality and obtaining informed consent.

The procedures followed in this study adhered to the ethical requirements that are necessary to ensure ethical responsibility.

To ensure that the research met the ethical requirements, the following ethical principles were adhered to (De Vos, Delport, Fouché, & Strydom, 2011):

- The study was conducted within recognised parameters.
- Approval was obtained from the host institution.
- Permission and ethical clearance were obtained from the research ethics committee of the particular institution.
- Various sources were consulted to analyse and describe the constructs under investigation.
- Experts in the field of research were consulted to ensure the theoretical and methodological soundness of the research.
- All sources were cited and acknowledged.
- Informed consent was obtained from the participants.
- The participants were not forced to or coerced into completing the questionnaire.
- The participants were informed about the results of the research.
- Access to appropriate information on the research was provided by reporting the research process and findings in the form of a thesis.

1.9 RESEARCH METHODOLOGY

The research was conducted in two phases, namely the literature review and the quantitative study. Figure 1.2 provides an overview of the different phases.

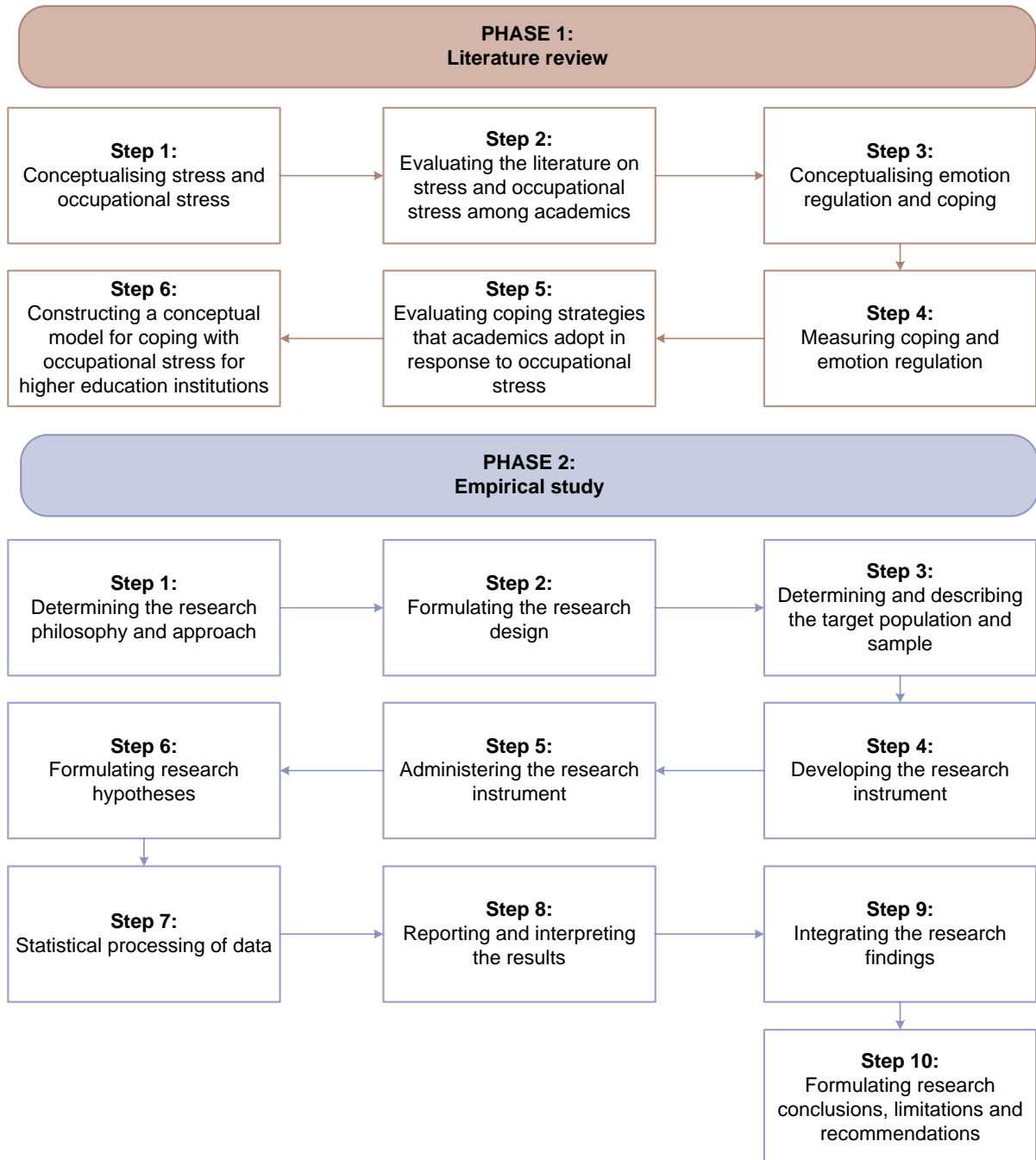


Figure 1.2. Overview of the research methodology

Source: Author's own compilation

1.9.1 Phase 1: The literature review

The literature review consisted of a review of the literature on stress, occupational stress, emotion regulation and coping.

Step 1: *Conceptualising stress and occupational stress*

The concepts of stress and occupational stress were conceptualised and defined, and the sources and consequences of occupational stress were discussed.

Step 2: *Evaluating the literature on stress and occupational stress among academics*

An evaluation was made of the literature trends in occupational stress among academics, and the sources and consequences of occupational stress among academics were discussed.

Step 3: *Conceptualising emotion regulation and coping*

This step involved a discussion of the meta-theoretical context of emotion regulation and coping. The constructs of emotion regulation and coping were first conceptualised and defined. Thereafter, various theoretical approaches to emotion regulation and coping were addressed.

Step 4: *Measuring coping and emotion regulation*

A number of existing coping and emotion regulation questionnaires were reviewed to summarise their composition, and their psychometric properties and the critique they obtained from other researchers were examined. From this discussion it was anticipated that a number of dimensions and subdimensions that categorise coping and emotion regulation strategies would emerge.

Step 5: *Evaluating coping strategies that academics adopt in response to occupational stress*

A critical evaluation was made of the coping strategies that academics adopt in response to occupational stress.

Step 6: *Constructing a conceptual model for coping with occupational stress for higher education institutions*

This step relates to the theoretical integration of the constructs of stress, occupational stress, emotion regulation and coping with the formulation of a conceptual model with proposed theoretical dimensions for coping with occupational stress. This model was used not only to gain an understanding of the constructs under investigation, but also to generate items that measure the constructs and proposed dimensions.

1.9.2 Phase 2: The empirical study

The quantitative study was conducted in the South African organisational context, and was conducted as set out in this section.

Step 1: *Determining the research philosophy and approach*

For the purpose of this study a quantitative research approach was adopted. The research philosophy and approach are addressed in chapter 5.

Step 2: *Formulating the research design*

To achieve the research objectives of this study, a non-experimental, ex post factor, cross-sectional, quantitative research design was used.

Step 3: *Determining and describing the target population and sample*

A non-probability, convenience sample was selected from adults who were permanently employed as academics in a higher education institution in the Gauteng province of South Africa. The target population and sample is discussed in chapter 5.

Step 4: *Developing the research instrument*

A combination of steps suggested by scale development authors was followed to develop the instrument. The process was broken down into three phases, namely: (1) theoretical investigation; (2) instrument purification; and (3) instrument optimisation. The instrument development process is outlined in chapter 5.

Step 5: *Administering the research instrument*

Data was collected by means of a self-administered, online questionnaire. The questionnaire was uploaded electronically onto an online survey application

called SurveyMonkey. The URL link to the questionnaire was copied into an electronic mail which was sent to the participants. The link redirected the respondents to the SurveyMonkey platform where their responses were captured.

Step 6: *Formulating research hypotheses*

The research hypotheses were formulated to achieve the research objectives of this study.

Step 7: *Statistical processing of data*

The statistical procedures relevant to this study included descriptive statistical analysis (internal consistency reliability, thematic analysis, and means, standard deviations, skewness, kurtosis and frequency data), and inferential statistical analysis (standard multiple regression analysis, multigroup or multisample SEM analysis, independent sample t-tests and analysis of variance [ANOVA]). Statistical processes, such as exploratory factor analysis (EFA), confirmatory factor analysis (CFA) and structural equation modelling (SEM), were used to evaluate the performance of the individual items and further refine the instrument.

Step 8: *Reporting and interpreting the results*

The results were depicted in tables, diagrams and/or graphs and the discussion of the findings were presented in a systematic framework, ensuring that the interpretation of the findings was conveyed in a clear and articulate manner. Chapter 6 reports on and discusses the results.

Step 9: *Integrating the research findings*

The findings relating to the literature review were integrated with the findings of the empirical research as an integration of the overall findings of the research. Chapter 7 integrates the literature and empirical studies.

Step 10: *Formulating research conclusions, limitations and recommendations*

The final step related to the conclusions based on the results of the research and their integration with the theory discussed in chapters 2, 3 and 4. In chapter 7, conclusions regarding the central hypothesis and hypotheses are drawn, the limitations of the study are addressed and recommendations made for both

industrial and organisational psychologists and future researchers. Lastly, the contributions of the research are addressed.

1.10 CHAPTER LAYOUT

The thesis comprises seven chapters, set out as follows:

Chapter 1: Scientific orientation to the research

This chapter outlines the background to and rationale for the research, the problem statement and the research objectives.

Chapter 2: Stress and occupational stress

This chapter provides a critical review of stress and occupational stress, including various definitions, appropriate models and theories. The sources and consequences of occupational stress are briefly discussed, and the literature trends in occupational stress among academics are described.

Chapter 3: Emotion regulation and coping with occupational stress

This chapter contextualises emotion regulation and coping by offering various definitions, models and theories. Secondly, for the purposes of this study, a number of existing coping and emotion regulation questionnaires, and dimensions and subdimensions are reviewed and briefly discussed. This chapter further differentiates between coping resources and coping strategies. Lastly, the coping strategies that academics adopt in response to stress are examined.

Chapter 4: Conceptual model for coping with occupational stress

This chapter offers an integration of the theoretical findings that were significant for the development of a conceptual model. Secondly, the proposed theoretical dimensions and subdimensions, and conceptual model are outlined and discussed.

Chapter 5: Research methodology

The research design and methodology used to conduct the research are outlined. The methodology addressed in this chapter includes a description of the research approach and design. The population, sampling frame and sampling method are discussed, followed by an explanation of how the instrument was developed, administered and validated. This chapter further includes a description of the data analysis methods that were applied, and the research

hypotheses formulated to achieve the empirical objectives of the study are discussed. The chapter concludes with an explanation of the procedures that were followed to adhere to the ethical requirements necessary to ensure ethical accountability.

Chapter 6: Research results

The results emanating from the research are presented and discussed in this chapter.

Chapter 7: Conclusions, limitations and recommendations

In this chapter, the main conclusions of the literature review and the empirical study are discussed. Conclusions are drawn in terms of the literature review, empirical study and instrument development process. Conclusions regarding the research hypotheses are also drawn. The limitations of the research are discussed, and recommendations for both industrial and organisational psychologists and future researchers are made. Lastly, the integration of the research is presented, emphasising the extent to which the study contributes to the existing body of knowledge on occupational stress, emotion regulation and coping.

1.11 CHAPTER SUMMARY AND CONCLUSION

The scientific overview of the research was presented in this chapter. The background to and rationale for the research, the problem statement, research questions and objectives of the study, statement of significance, the research model, paradigm perspectives, the theoretical research and its design and methodology, and the research method were also discussed. Ethical considerations, as well as matters pertaining to the validity and reliability of the research were outlined, and the research methodology process was illustrated and briefly discussed. Lastly, the layout of the chapters of the thesis was set out.

The motivation for this study was a need for the development of an instrument for determining which coping strategies academics adopt in response to occupational stress. It was anticipated that the results of this study would not only lead to the development of a new instrument, but would also provide insight into the coping strategies that employees in higher education institutions adopt in response to occupational stress. At a practical level, the instrument could be used as a diagnostic tool for determining how employees respond to occupational stress. The instrument could further be used by industrial psychologists and human resource practitioners to identify interventions to assist employees in coping with occupational stress, which would promote the health and wellbeing of both the individual and the organisation.

Chapter 2 outlines the existing literature on stress and occupational stress.

CHAPTER 2

STRESS AND OCCUPATIONAL STRESS

“It takes a great deal of history to produce a little literature.”

– Henry James

2.1 INTRODUCTION

This chapter serves to contextualise the current study by outlining the meta-theoretical context that forms the definitive boundary of the research. Despite incredible advancements in research, a number of individuals in various professions across the world still seem to experience high degrees of psychological stress (Samdani & Deshmukh, 2014). Academics are no exception, and are thus likely candidates for occupational stress because of the continuously changing landscape in higher education (Rothmann & Barkhuizen, 2008; Rothmann & Jordaan, 2006). The changing nature of higher education appears to have led to a considerable increase in the job demands experienced by academics. Research indicates that academics have too much work and they are required to work under extreme time pressure (Kinman, 2001; Devonport et al., 2008). As a result, they have to work long hours, which interferes with their home and personal lives. Consequently, they experience job dissatisfaction, ill-health and psychological diseases. Research further suggests that the occupational stress that academics experience will continue to increase in the future (Kinman, 2001).

Clearly, higher education institutions and academics should have mechanisms in place to cope with occupational stress. However, to achieve this, a greater understanding of the sources and consequences of occupational stress for academics in higher education institutions is needed. The foregoing trends therefore necessitate an understanding of stress, occupational stress and occupational stress among academics in higher education institutions.

2.2 STRESS

2.2.1 The stress concept defined

The concept of stress has been the source of immense interest over the past six decades, and has steadily evolved over a period of several hundred years (Mostert, 2006). The concept was first introduced in the 17th century by Robert Hooke, who was concerned with how human-made structures, such as bridges, could be designed to withstand heavy loads without

collapsing (Lazarus, 1999). Hooke's engineering perspective of stress resulted in three basic concepts, namely load (the external demand placed on the structure), stress (the area affected by the demand) and strain (the change that takes place as a result of the interaction between the load and strain) (Mostert, 2006). This analysis laid the foundation for stress research in the centuries that followed.

During the 18th century, the focus was on the health and wellbeing of humans (Cooper & Dewe, 2008). The scientists of this century believed that the quickening pace of life was influencing individuals' health, and that all diseases were the result of nervousness and anxiety.

During the 19th century, the concept of stress was greatly advanced by psychologists such as Bernard, Haldane and Pflüer (Lazarus, 1999). Bernard (a French psychologist) noted that the individual's internal environment should remain constant, despite the changes in the external environment, in other words his or her *milieu intérieur* should remain fixed, which will result in a free and independent life (Cooper & Dewe, 2008). This comment provoked a response from Haldane (a Scottish psychologist), who noted that an individual is only alive when he or she is able to adapt to change (Lazarus, 1999). Individuals (or human beings) are thus less independent from their surroundings than lifeless objects. The German psychologist, Pflüer, however, identified a relationship between the adaptive environment and the fixed state when he noted that "the cause of every need of a living being is also the cause of satisfaction of that need" (Lazarus, 1999, p. 23).

According to Cooper and Dewe (2008), the 20th century was seen as the century of science and technology, and new discoveries led to a change in the individual's way of life. Not only was the concept of stress used more often, but it was also used as an analogue in social and biological sciences to describe the possible cause of ill-health and psychological diseases. During this century, the human element was reintroduced into medicine (Cooper & Dewe, 2008). This meant that the individual's thoughts, motives and feelings had to be taken into consideration to understand diseases. This view led to the introduction of psychosomatic medicine, which was interested in the relationship between emotions and diseases. Walter Cannon, an American physiologist, used the psychosomatic approach to introduce his theory on homeostasis and fight or flight reactions.

Cannon developed the concept of homeostasis from the earlier idea of Bernard's *milieu intérieur* (Cooper, 2008). He defined homeostasis as "a fairly constant or steady state,

maintained in many aspects of the bodily economy even when they are beset by conditions tending to disturb them, is a most remarkable characteristic of the living organism” (cited by Wolfe et al., 2000, p. 152 in Cooper, 2008, p. 424). Homeostasis is therefore the human body’s ability to maintain its own consistency (Cooper & Dewe, 2008). Hence, the individual’s environment must remain relatively stable. For the internal environment to remain stable, every change and reaction in the external environment needs to be complemented by a compensatory process in the inner environment of the individual (Cannon, 1929; Cooper, 2008; Cooper & Dewe, 2008). Cannon (1929) further states that the body’s internal conditions are held constant because automatic adjustments within the system are brought into action. The term “equilibrium” might be used to label this condition.

Cannon was also interested in instincts, and the changes that take place in the individual’s body when he or she experiences emotional excitement (Cooper & Dewe, 2008). According to Cannon (1929), there is a relationship between emotions and particular instinctive reactions to survival. He identified fear and anger as the fundamental emotions and instincts that individuals engage in for survival (Cooper & Dewe, 2008). Fear has become associated with the instinct to run, flee or escape, whereas the experience of anger has been associated with feelings of aggressiveness and the instinct to attack (Cooper, 2008). This phenomenon became known as the “fight or flight” response, and Cannon (1929) believed that this response is a general response to any physical or social stress. According to Doublet (2000), cited in Cooper and Dewe (2008), the concept “stress” would not have existed if it had been for Cannon’s theory on homeostasis and the fight or flight response.

It was against this background that Selye (1956) became interested in studying stress as a syndrome. Selye described stress as a non-specific response of the body to any demand made upon it (Cooper & Dewe, 2008; Jones, Bright, & Clow, 2001). Selye described the demands that bring forth stress responses as stressors. Individuals therefore respond differently to different types of stressors. Selye further termed the set of psychological responses as the general adaptive syndrome (GAS) and proposed three stages, namely the alarm reaction, the stage of resistance and the stage of exhaustion (Monat & Lazarus, 1991).

For many years after Selye had developed the GAS theory, he was unable to explain what produced it and to define the concept “stress”. Finally, after many more years of research, Selye produced an operational definition of stress. He defined stress as “the state manifested by a specific syndrome which consists of all the non-specifically induced changes within a biologic system” (Selye, 1956, p. 54). Selye viewed stress as a physiological response or non-

specific response to a demand. He further suggested four variations of stress, namely eustress (good stress), distress (bad stress), hyperstress (overstress), and hypostress (understress) (Cooper & Dewe, 2008).

Another influential contributor to stress research in the 20th century was Richard Lazarus, who began his research on stress in 1957. While working on the Barkley Stress and Coping Project (1957–1988), Lazarus and his colleagues developed the *Ways of Coping Interview-Questionnaire*, and noticed that stress was process oriented and transactional, encompassing appraisals, coping and emotions (Cooper & Dewe, 2008). Further, Lazarus found a relationship between the person and the environment. He defined psychological stress as the “relationship between the person and the environment that is appraised by the person as taxing or exceeding his/her resources and endangering his/her wellbeing” (Lazarus & Folkman, 1984, p. 19). According to Cooper and Dewe (2008), it is the appraisal process that links the person and the environment, and once the transaction has been appraised as stressful, the individual makes use of coping processes to manage the troubled person-environment relationship. The coping processes, in turn, influence the way in which the individual perceives the transaction and the intensity of the stress reaction. This theory became known as the transactional approach to coping and stress, and there are two kinds of appraisal, namely primary and secondary (this approach is discussed in detail in section 2.2.2.3).

Today, the work that Lazarus and his colleagues produced on appraisal, coping and emotions is still at the heart of stress research. It is, however, interesting to note that there is still some debate surrounding the concept of stress (see table 2.1). From the above discussion it is evident that one can distinguish between physical stress (as in engineering), physiological stress or the body’s reaction to a stressor and psychological stress.

Table 2.1
Stress defined

<i>Authors</i>	<i>Definition</i>
Ablanedo-Rosas et al. (2011, p. 554)	“... a mentally or emotionally disruptive or upsetting condition occurring in response to adverse external influences.”
Aldwin (2007, p. 24)	“Stress refers to that quality of experience, produced through a person-environment transaction that, through either over-arousal or under-arousal, results in psychological or physiological distress.”
Blonna (2010, p. 5)	“... a holistic transaction between an individual and a potential stressor resulting in a stress response.”

<i>Authors</i>	<i>Definition</i>
Catano et al. (2010, p. 233)	"... a process whereby environmental factors called <i>stressors</i> may increase the likelihood a person will feel <i>stress</i> , an internal state characterised by arousal and displeasure."
Coetzee, Jansen, and Muller (2008, p. 171)	"... the level of pressure and demands made on the individual."
Colligan and Higgins (2006, p. 90)	"... the change in one's physical or mental state in response to situations (stressors) that pose a challenge or threat."
Contrada and Baum (2011, p. 1)	"... a process in which environmental demands tax or exceed the adaptive capacity of an organism, resulting in psychological and biological changes that may place persons at risk for disease."
Dewe, Cox, and Ferguson (1993) cited in Coetzer and Rothmann (2006, p. 29)	"... stress is not a factor that resides in either the individual or the environment; rather, it is viewed as a dynamic cognitive state where the individual interaction with the environment can be described as an ongoing transaction."
Griffin and Moorhead (2014, p. 181)	"... a person's adaptive response to a stimulus that places excessive psychological or physical demands on him/her."
Kaplan (1983), cited in Baqutayan (2012, p. 20)	"... the subject's inability to forestall diminish perception, recall, anticipation, and imagination of devalued circumstances, those that in reality or fantasy signify great and/or increased distance from desirable (valued) experiential states, and consequently, evoke a need to approximate the valued states."
Kelly and Barrett (2011, p. 31)	"... any force that puts a psychological or physical factor beyond its range of stability producing a strain within the individual."
Luthans (2011, p. 279)	"... an adaptive response, mediated by individual differences and/or psychological processes, that is a consequence of any external (environmental) action, situation or event that places excessive psychological and/or physical demands on a person."
McGrath (1970), cited in Baqutayan (2012, p. 20)	"... a substantial imbalance between environmental demand and the response capability of the focal organism."
Ofoegbu and Nwadiani (2006, p. 66)	"... a process in which environmental events or forces threaten the wellbeing of an individual in society."
Olagunju (2005), cited in Babajide and Akintayo (2011, p. 32)	"... a chronic complex emotional state with apprehension and is characterised by various nervous and mental disorders."
Robbins and Judge (2017, p. 659-660)	"... a dynamic condition in which an individual is confronted with an opportunity, demand, or resource related to what the individual desires and for which the outcome is perceived to be both uncertain and important."
Slocum and Hellriegel (2007, p. 448)	"... the agitation, feeling of anxiety, and/or physical tension that occurs when the demands placed on the individual are believed to exceed that person's ability to cope."

Source: Author's own compilation

From the discussion above and table 2.1 one could conclude that stress is a physiological and psychological state that occurs in response to an external stimulus (stressor). The individual perceives the stressor as a threat or challenge because it exceeds his or her resources. The individual's resources are thus not well matched to the level of the demand (Cope, 2003), and

his or her wellbeing is therefore threatened by the stressor. Although stress threatens the wellbeing of an individual, it is not necessarily always bad. According to Rodríguez, Kozusznik, and Peiró (2013), a view from the positive psychology perspective suggests that positive stress (also known as eustress) might trigger beneficial consequences and might positively relate to wellbeing, organisational commitment and employee engagement. Distress (negative stress), however, is associated with negative emotions and strain. If the individual perceives the stressor as a threat or challenge, or as being harmful, he or she is experiencing distress. The appraisal process therefore plays a vital role in the eustress and/or distress experience (Rodríguez et al., 2013).

For the purpose of this study, Slocum and Hellriegel's (2007, p. 448) definition of stress was used.

"Stress is the agitation, feeling of anxiety, and/or physical tension that occur when the demands placed on the individual are believed to exceed that person's ability to cope."

This definition was deemed applicable to this study because stress is seen as a threat or challenge that is appraised as taxing or exceeding the coping resources of the individual. This definition relates well to the coping theory that is discussed in chapter 3, namely that coping is *an effort to manage a specific internal or external demand, or threatening or harmful situation that is appraised as taxing or exceeding the individual's coping resources* (Lazarus & Folkman, 1984, p. 141). The individual therefore experiences anxiety and distress unless he or she copes with the stressor. Coping and coping resources are discussed in detail in chapter 3.

The definitions discussed in this section originated from various models of stress, which are discussed in the next section.

2.2.2 Theoretical approaches to stress

Various theories have been developed which focus specifically on understanding stress. Theories such as House's Paradigm for Stress Research, the Person-Environment Fit Model, and Lazarus and Folkman's Transactional Theory on Stress and Coping are the best-known theories of stress and are briefly discussed in this section.

2.2.2.1 House's Paradigm for Stress Research

House (1974) developed an operational approach to stress (Cope, 2003). The paradigm (illustrated in figure 2.1) can be used to develop ways to classify, categorise and predict stress, and is composed of variables (such as perceived stress, responses to stress and outcome of stress) that are all interdependent. The paradigm further indicates that social and individual variables have an influence on these relationships.

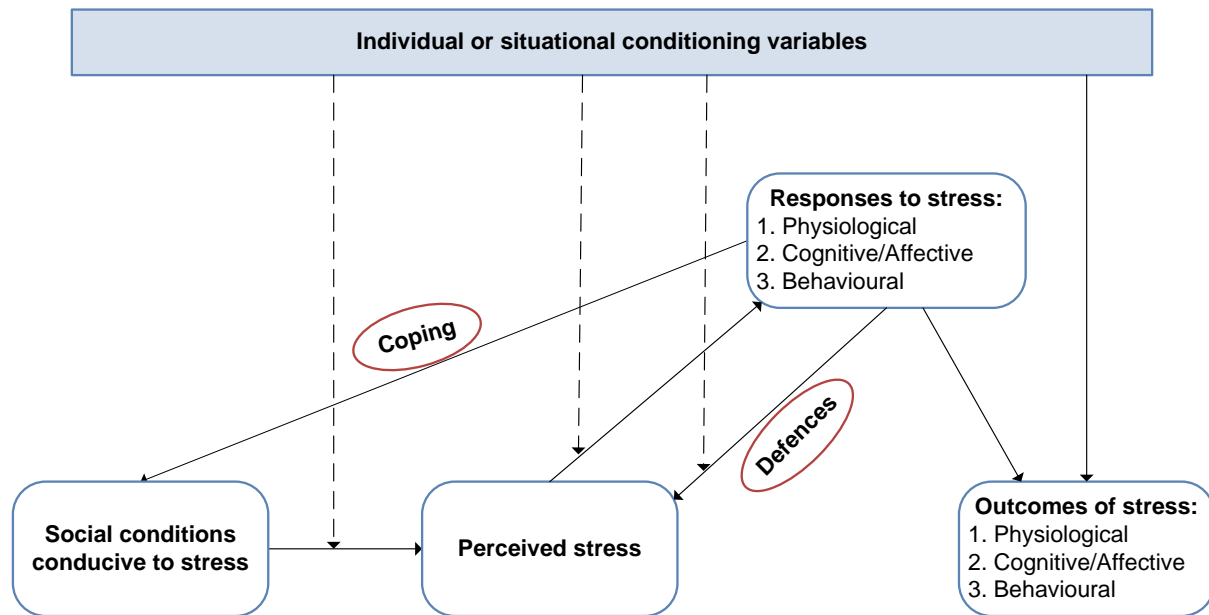


Figure 2.1. House's Paradigm of Stress

Source: Adapted from House (1974, p. 13)

The Person-Environment Fit Model of Stress will be briefly discussed in the next section.

2.2.2.2 The Person-Environment Fit Model

The Person-Environment (P-E) Fit Theory of Stress was developed by French et al. (1974). They regarded stress and strain as a product of the interaction between the individual and the potential sources of stress in the environment (Borman, Ilgen, & Klimoski, 2002; Cope, 2003; Spies, 2005). It is neither the individual nor the situation alone that causes the stress experience, but rather a misfit or incongruence between them. There are two types of incongruity between the individual and the environment (Borman et al., 2002). The first type refers to a fit between the demands of the environment and the capabilities of the individual. The second type refers to a fit between the needs of the individual and the provisions from the environment. Borman et al. (2002) go on to explain that the P-E fit theory differentiates between

the objective and subjective individual and environment. The objective individual and environment refers to the individual's needs and capabilities and to the environmental supplies and demands that are independent of the individual's perceptions. Conversely, the subjective individual and environment refers to the individual's perceptions of his or her own characteristics or the environment (Rogelberg, 2007). A fit can thus occur as a result of congruence between the objective individual and environment, subjective individual and environment, objective and subjective environment, and objective and subjective person. The objective individual and environment therefore affects the subjective individual and environment, and an incongruity between the subjective individual and environment produces psychological, physical and behavioural strain (Borman et al., 2002; Rogelberg, 2007). Strain increases when the demands of the environment exceed the capabilities of the individual. A misfit between the individual and environment thus results in negative consequences that ultimately lead to poor health (Rogelberg, 2007). The P-E Fit Model is illustrated in figure 2.2.

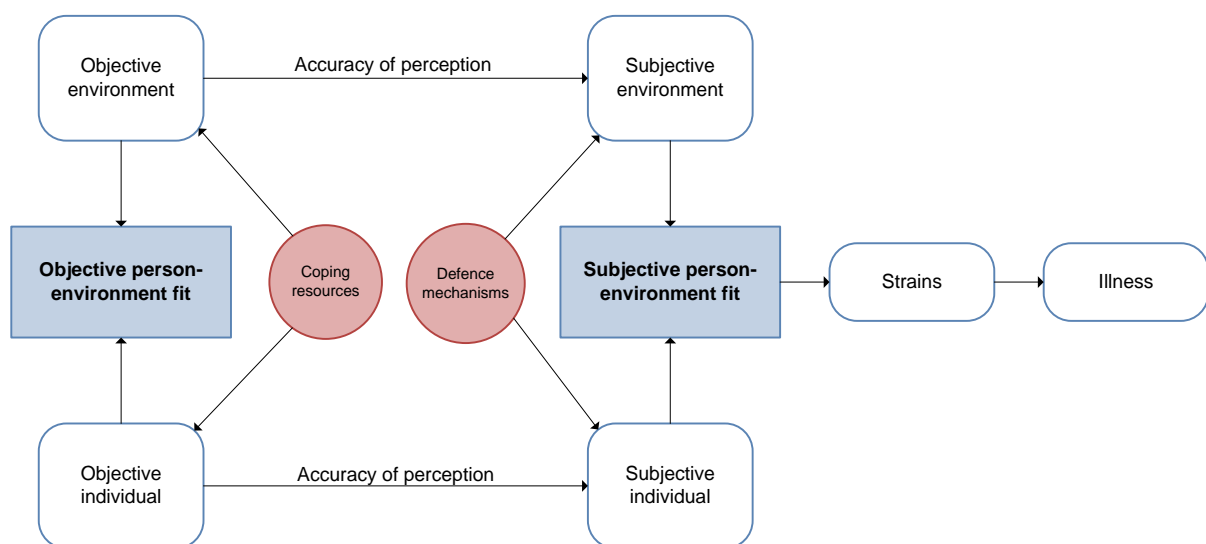


Figure 2.2. The Person-Environment Fit Model of Stress

Source: Adapted from Cope (2003, p. 26)

Lazarus and Folkman's Transactional Theory of Stress is discussed in the next section.

2.2.2.3 Lazarus and Folkman's Transactional Theory

Traditionally, stress has been viewed as a response, a stimulus and a transaction (Lyon, 2000; Matthieu & Ivanoff, 2006; Papathanasiou, Tsaras, Neroliatsiou, & Roupa, 2015). Stress is defined as a transaction when the cognitive focus is on the relationship between the person and the environment (Matthieu & Ivanoff, 2006), or when there is a perceived imbalance

between the demands of the individual's environment and the available resources he or she possesses to respond to them (Miller & McCool, 2010). Consequently, in the transactional model, a stressor is any potential threat in the environment (Monat & Lazarus, 1991). The model thus focuses on the cognitions or perceptions (also known as appraisals) that mediate a response to stressful situations (Lyon, 2000; Matthieu & Ivanoff, 2006). Hence cognitive appraisal is defined as "the process of categorising an encounter, and its various facets, with respect to its significance for wellbeing" (Lazarus & Folkman, 1984, p. 31). Individuals evaluate what is happening to them from the standpoint of significance to their wellbeing (Lazarus & Folkman, 1984). Thus, it is not the event that generates a response, but rather *how* the event is appraised by the individual that causes emotional distress (Jones & Wirtz, 2006).

Three types of appraisals have been identified, namely primary appraisal, secondary appraisal and reappraisal (Lyon, 2000). Primary appraisal is the individual's evaluation of an event (or situation) as potentially hazardous to his or her wellbeing (Matthieu & Ivanoff, 2006), and can be categorised into three types, namely irrelevant (the individual has no interest in the transaction), benign positive (the individual assumes that the situation is positive) and stressful (the individual perceives the situation as negative and the circumstances are detrimental to his or her health) (Lazarus & Folkman, 1984). If the individual perceives the situation as stressful, then it represents a potential harm or loss, threat or challenge (Lazarus & Folkman, 1984; Lyon, 2000). Harm or loss is the belief that the individual has endured a physical or emotional loss. Threat is the anticipation of future harm or loss. Lastly, a challenge is marked by positive events that have a risk of future negative outcomes that are mixed with mastery and risk (Lazarus & Folkman, 1984; Matthieu & Ivanhoff, 2006). A challenge can also be defined as the potential for positive growth by applying coping strategies to mitigate the stressful situation (Folkman & Lazarus, 1984).

According to Lyon (2000), the perception of a threat triggers secondary appraisal, which is defined as the individual's ability to cope with the stressful situation (Lazarus & Folkman, 1984; Lyon, 2000; Matthieu & Ivanoff, 2006). However, according to Matthieu and Ivanoff (2006), secondary appraisal is a purely cognitive process, because coping efforts have not been introduced at this point since the individual still needs to move from thinking about the situation to action. Once the stressful situation has been appraised as being stressful, emotions are elicited which allow the individual to cope. However, the individual continuously re-evaluates and challenges the appraisals as the situation unfolds (Lyon, 2000). This process is known as *reappraisal*, and often results in the cognitive elimination of the perceived threat. The purpose

of reappraisal is not to change the event itself, but rather how the event is perceived (Jones & Wirtz, 2006). The transactional model is illustrated in figure 2.3 below.

In summary, Lazarus and Folkman's (1984) transactional theory examines the process by which emotions are provoked as a result of the individual's evaluation or perception of the situation as stressful. If the individual perceives the situation as stressful he or she attempts to cope with it.

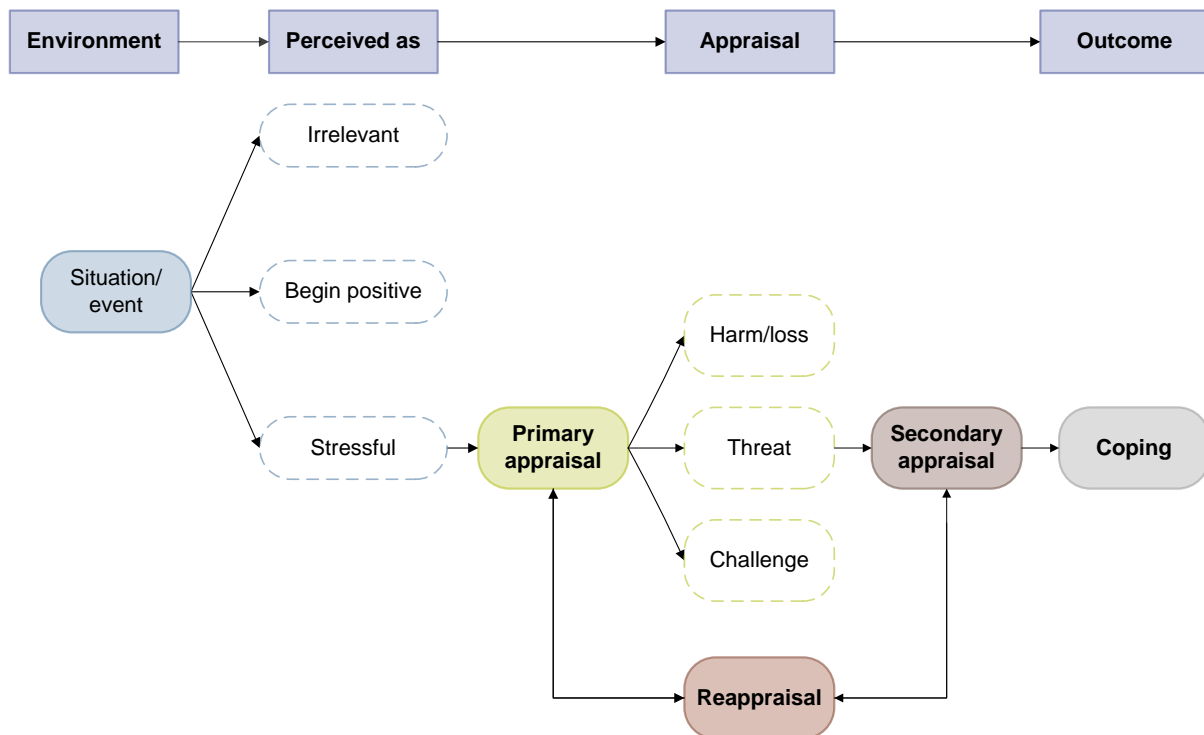


Figure 2.3. Lazarus and Folkman's Transactional Theory to Stress

Source: Adapted from Lazarus and Folkman (1984)

In this section, three models of stress were briefly discussed, namely House's Paradigm for Stress Research, the P-E Fit Model and Lazarus and Folkman's Transactional Theory. The purpose of this section was not to evaluate and/or compare the models, but to draw conclusions that would assist the researcher in contextualising this study. The following conclusions were drawn: Firstly, stress results because of a misfit between the individual and the environment and his or her ability to cope with the situation. Secondly, the individual has to perceive the situation as a threat to his or her health and wellbeing before he or she engages in secondary appraisal. Thirdly, the perception of stress increases until the individual has made a cognitive effort to cope with the stressor. Fourthly, individuals continuously re-evaluate their perceptions of the situation until they perceive it as less stressful or until it is completely eliminated. Lastly, a misfit between the individual and the environment leads to poor health

and wellbeing. One could thus conclude that both the P-E fit and transactional theories are applicable to this study.

The concept and origin, and models of stress were briefly discussed in this section. In the next section the concept of occupational stress is addressed.

2.3 OCCUPATIONAL STRESS

2.3.1 Occupational stress defined

Occupational stress, also known as job or workplace stress, is seen as an increasingly important occupational health problem, not only for the individual, but also for the organisation (Basińska-Zych & Springerk, 2017; Beheshtifar & Nezarian, 2013; Mostert, Rothmann, Mostert, & Nell, 2008; Ongori & Agolla, 2008). For many the workplace is a source of stress, depression and anxiety (Cooper & Dewe, 2008), and has therefore become an important research topic for occupational behaviourists for numerous reasons, as outlined by Beheshtifar and Nezarian (2013, p. 649):

- Stress has harmful psychological and physiological effects on employees.
- Stress results in employee turnover and absenteeism.
- Stress experienced by one employee can affect the safety of other employees.

The effects of stress in the organisation are damaging because they result in lost productivity due to absenteeism, work-related accidents, stress claims, a demotivated workforce and even alcohol and drug abuse (Cooper & Quick, 2017; Van der Colff & Rothmann, 2009; Vogel, 2008).

The aforementioned stress-related discussion has set out the paradigm by means of which managers might understand stress. Stress is not merely a response to a stressful situation – it is an interaction between the individual and the source of the demand in the environment (Colligan & Higgins, 2006). As discussed in section 2.2, it is the condition that arises when individuals experience a demand that exceeds their ability to cope with the demand, resulting in a disturbance in their equilibrium. According to Colligan and Higgins (2006), the word “perceives” plays a vital role in understanding occupational stress, because the employee must first perceive the situation as threatening. Beheshtifar and Nazarian (2013) and Ongori and Agolla (2008) share a similar view, namely that occupational stress is the perception of a discrepancy between demands in the environment (stressors) and the individual’s (or

employee's) ability to cope with these demands. Beheshtifar and Nazarian (2013), and Vokić and Bogdanić (2008) further concur with this finding by confirming that occupational stress is the individuals' inability to cope with the pressures of a job, because of a poor fit between their abilities and their work requirements and conditions. It is a mental and physical condition that affects individuals' productivity, performance, efficiency, health and quality of work (Vokić & Bogdanić, 2008).

For the purpose of this study, occupational stress was defined as the perceived discrepancy between demands in the workplace and the individual's ability to cope with these demands.

It is important to acknowledge that different models of occupational stress have been cited in the literature and these are briefly discussed in the next section. Thereafter, the sources and consequences of stress are outlined.

2.3.2 Theoretical approach to occupational stress

Various theories and models have been developed to conceptualise occupational stress. These include Warr's Vitamin Model, the Social Environment Model, Karasek's Demand-Control Model, the Job-Resources Model, the Spielberger State-Trait (STP) model, and the ASSET model. These theories and models are briefly discussed in this section.

2.3.2.1 The Vitamin Model

Warr (1987) proposed this model to explain the relationship between stressors and the employee's health and wellbeing. The model suggests that certain job characteristics have an effect on the employee's mental health, which is similar to the way in which vitamins work in the human body (Mark & Smith, 2008). In other words, the vitamins improve the individual's health and physical wellbeing. However, beyond a certain required level, a plateau is reached and the level of mental health remains constant. A further increase of job characteristics may either produce a constant effect or may be harmful and impair mental health (Drenth et al., 1998).

Drawing an analogy to the effects of vitamins in the human body, Warr (1987) firstly assumes that there are two types of work characteristics. Firstly, he observed that some features of the work situation have a constant effect on the individual (Borman, Ilgen, & Klimoski, 2003). In other words, the effect that the work situation has on the individual increases up to a certain

point, but then the added increase of the level of that work characteristic does not have any further effect on the individual. Examples are salary, safety and task significance, which Warr (1987) compares to vitamin C (Borman et al., 2003). He (Warr, 1987) is of the opinion that an individual only needs the vitamin of salary up to a certain point. Any additional salary increase has no effect on the individual's wellbeing.

Secondly, Warr (1987) observed that other work features have a curvilinear relationship on the level of work characteristics and individual wellbeing (Borman et al., 2003). He (Warr, 1987) compares this relationship to vitamin D, where moderate levels are beneficial, but too much or too little could have a negative effect on the individual's health and wellbeing (Mark & Smith, 2008). Examples of these work characteristics include job autonomy and social support. Job autonomy, for example, increases individual health and wellbeing, but when individuals' job autonomy is further increased, it becomes negative because they are overwhelmed with their duties and responsibilities (Borman et al., 2003).

In summary, Warr's model indicates that a specific amount of job autonomy, job demands, social support, skill utilisation, skill variety and task feedback are beneficial for the individual, but extremely high levels of these job characteristics create stressful situations. By contrast, high levels of salary, safety and task significance do not have any detrimental effects on the individual's health and wellbeing.

2.3.2.2 The Social Environment Model

This model focuses on employees' perception of their work environment (Beehr, 1995). The model was developed to categorise and describe the main groups of variables that causally interact to produce stress (Furnham, 2005). According to Drenth et al. (1998), the model is based on a combination of conceptual categories, namely the objective and subjective environment.

The objective environment refers to organisational characteristics such as the organisation's size, hierarchical structure and job description, and is independent of the employee's perception of it. The subjective environment, however, is part of the employee's perceptions and is also known as the psychological environment (Drenth et al. 1998). The subjective environment contains phenomena such as role conflict, role ambiguity, lack of participation and role overload, which are also called "stressors". Employees' work environment therefore influences how they perceive stress.

Karasek's Job Demand-Control Model is briefly discussed in the next section.

2.3.2.3 *Karasek's Job Demand-Control Model*

This model is one of the best-known and influential approaches to occupational stress (Cooper, Quick, & Schabracq, 2009; Davey, 2011; Jones et al., 2001). The model suggests that the negative effects of being exposed to stressors can be buffered by having greater control (Cooper et al., 2009). The model differentiates between two core aspects of work, namely job demands and job control. Job demands refer to the heavy workload demands placed on the individual, and job control or job decision latitude, refers to the employee's decision authority and his or her skill discretion (Borman et al., 2003). Karasek (1979) further argued that the demands or stressors induce an energised or motivated state in the individual, whereas, control allows that energy to be directed towards meeting these demands (Cooper et al., 2009). Constraints produced by a lack of control leave the energy unreleased within the individual, thus resulting in distress (Winefield, Boyd, Saebel, & Pignata, 2008). Distress is thus seen as a by-product of the combination of high demands and high control. Terry and Jimmieson (1999), cited in Cooper et al. (2009), further found that control reduces the negative responses to demands because the individual believes that he or she can minimise the maximum aversiveness of those demands. Control is thus seen as a moderator of stress. One can control one's exposure to strain by reducing or eliminating the demand if it induces too much strain.

Karasek (1979) further combined the two dimensions of job demands and control into a two-by-two matrix of jobs (refer to figure 2.4), namely (1) high strain jobs, (2) active jobs, (3) low strain jobs, and (4) passive jobs (Borman et al., 2003; Davey, 2011; Drenth et al., 1998; Leka & Houdmont, 2010).

According to Karasek's model, the strongest aversive job-related strain reaction occurs when the job's demands are high and the employee's control is low. High job demands produce a state of arousal which is usually accompanied by increased heart rate and adrenalin secretion (Drenth et al., 1998). Drenth et al. (1998) further contend that if there is an environmental-based constraint, such as low control, the arousal could be converted into an effective coping mechanism. Such conditions, however, produce long-term effects which could be damaging to individuals' health and wellbeing (Jones et al., 2001; Leka & Houdmont, 2010).

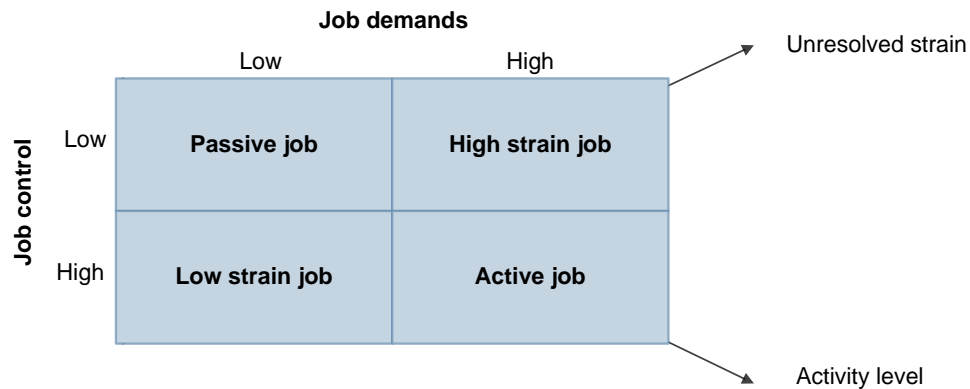


Figure 2.4. Karasek's Demand-Control Model of Stress

Source: Adapted from Karasek (1979, p. 288)

Jobs in which employees' control is high and job demands are low are known as "low strain jobs" (e.g. scientists and architects). In this situation, the model predicts lower than average levels of residual strain (Drenth et al., 1998). High job demands combined with high levels of control result in "active jobs" (e.g. engineers, physicians and teachers) that are not excessively stressful because they allow the individual to develop protective behaviour, such as delegation or an employee might be able to control the timing of his or her work to reduce pressure during busy times (Jones et al., 2001). The opposite of this situation is formed by "passive jobs" (e.g. miners), where jobs with low demands and control tend to result in learned helplessness and reduced activity (Davey, 2011; Drenth et al., 1998; Jones et al., 2001). Active and passive jobs can therefore be regarded as intermediate in terms of strain. The Job Demand-Control Model hypothesises that jobs characterised by high demands and low control threaten the physical and mental health and wellbeing of an individual, while jobs with high demand and high control enhance wellbeing (Leka & Houdmont, 2010; McClenahan, Giles, & Mallett, 2007). McClenahan et al. (2007) further state that the effects of demands on the individual's health and wellbeing vary, depending on the amount of control the employee has over his or her tasks, and his or her motivation increases if demand and control are high.

In an attempt to further understand the relationship between job demands and strain, the Demand-Control Model was expanded to include social support (Drenth et al., 1998; McClenahan et al., 2007). The expansion of the model by including social support came from the realisation that job control is not the only resource available for coping with job demands (Drenth et al., 1998). According to the Job Demand-Control-Support Model of Occupational Stress, employees in jobs characterised by high demands, low control and low social support experience more occupational stress, psychological distress and job dissatisfaction (McClenahan et al., 2007). The availability of social support in an occupational setting reduces

the impact of stressors on a variety of outcomes such as psychological wellbeing and job satisfaction.

In their work, McClenahan et al. (2007) investigated the relationship between job demands, job satisfaction, stress and psychological wellbeing among 166 academic employees in the United Kingdom. Their research found that the job demand-control-support model accounted for 26%, 6% and 8% of the variance in job satisfaction, psychological distress and burnout. The results further revealed that no two- or three-way interactive effects were evident, but additive effects of job demands and control on psychological wellbeing and of job demands and support on both burnout and job satisfaction were found, verifying previous research showing that high job strain is linked to ill health and job dissatisfaction.

In summary, the Demand-Control Model of Occupational Stress suggests that the negative effects of a stressor can be buffered by having high individual control. An individual who is in control of a stressful situation has the ability to control his or her exposure to the strain by reducing the demand if it induces too much strain. Control is therefore seen as a mediator of stress.

2.3.2.4 The Job Demands-Resources Model

This model predicts employee and organisational wellbeing, and assumes that two general factors contribute to occupational stress, namely job demands and job resources (Bakker & Demerouti, 2007; Hakanen, Schaufeli, & Ahola, 2008; Cho Ngan, 2013; Winefield et al., 2008). According to Cho Ngan (2013), the Job Demands-Resources Model is a dual process model that combines the literature on stress and motivation. The first process is initiated by job demands, which illustrates the potential harms that job demands place on the individual's health and wellbeing. The focus of this process is thus on work-related outcomes such as job performance. The second process is initiated by job resources, and depicts the motivational nature of job resources that affect the individual's work-related outcomes (Cho Ngan, 2013). These two processes interact to provide a deeper understanding of the mechanisms of employees' health and wellbeing.

The main features and assumptions of the model are discussed in more detail below.

Firstly, the Job Demands-Resources Model assumes that every occupation has its own specific risk factors associated with job stress and motivation (Cho Ngan, 2013). The model is

therefore an overarching model that may be applied to various occupational settings, regardless of the demands and resources involved (Bakker & Demerouti, 2007). The model categorises job characteristics into two groups, namely job demands and job resources (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

Job demands are defined by Demerouti et al. (2001, p. 501) as “those physical, social, or organisational aspects of the job that require sustained physical or mental effort and are associated with certain physiological and psychological costs”. Job demands are therefore aspects of the job that require continuous effort and are hence related to physiological and/or psychological costs (Cho Ngan, 2013). Examples of job demands are work overload, an unfavourable work environment, interpersonal conflict and job insecurity (Schaufeli & Taris, 2014). According to Bakker and Demerouti (2007), job demands are not negative, but they may become stressors when the individual is unable to cope with the demands.

Conversely, job resources, are defined as “those physical, psychological, social, or organisational aspects of the job that are either/or functional in achieving work goals; reduce job demands and the associated physiological and psychological costs; and stimulate personal growth, learning, and development” (Bakker & Demerouti, 2007, p. 312). Examples of job resources are feedback, job control and social support (Schaufeli & Taris, 2014). In their work, Bakker and Demerouti (2007), and Xanthopoulou, Bakker, Demerouti, and Schaufeli (2007) also briefly discussed the conservation of resources theory, which highlights the importance of resources. The researchers (Bakker & Demerouti, 2007; Xanthopoulou et al., 2007) have found that both the Job Demands-Resources Model and Conservation of Resources Theory assume a moderating role of resources in the relationship between demands and negative outcomes. They have also concluded that the availability of job resources leads to an accumulation of resources, and hence more positive outcomes. Resources are important because they allow the individual to cope with job demands, and they also act as a means to achieve or protect other valued resources (Cho Ngan, 2013).

Secondly, as mentioned earlier, the model is a dual process model that integrates stress and motivation literature (Bakker & Demerouti, 2007). This process is illustrated in figure 2.5.

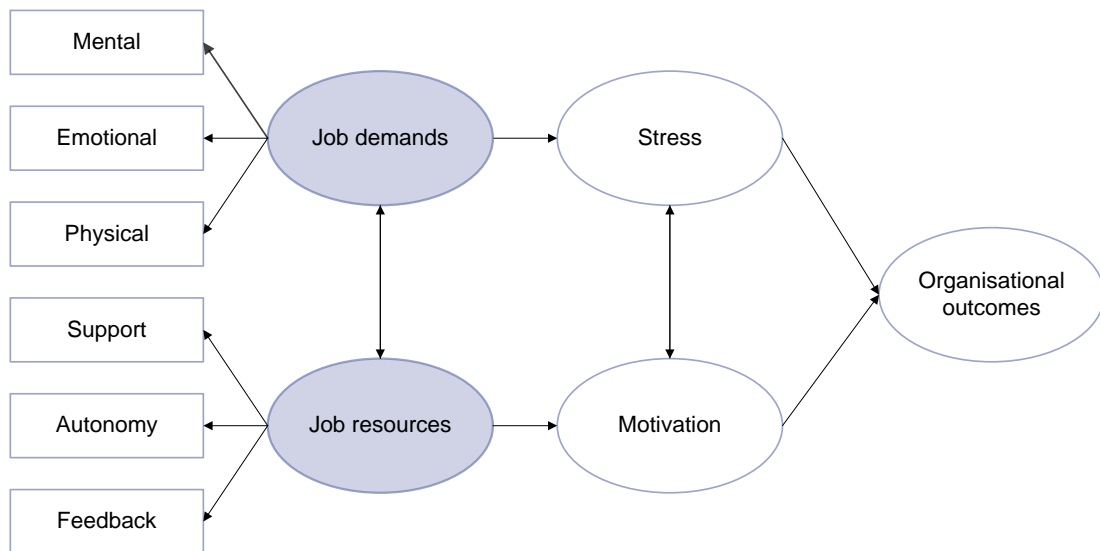


Figure 2.5. *The Job Demand-Resources Model of Occupational Stress*

Source: Bakker and Demerouti (2007, p. 313)

Figure 2.5 illustrates that the first psychological process that plays a decisive role in the development of stress and motivation is the health impairment process (Bakker & Demerouti, 2007). According to this process, poorly designed jobs or chronic job demands exhaust employees' mental, emotional and physical resources, leaving them unable to cope with the demands placed on them. According to Schaufeli and Taris (2014), excessive job demands from which the employee does not recover may lead to exhaustion and eventually poor health. This statement is confirmed by Kinman and Jones (2008), and Tims, Bakker, and Derks (2013), who found that high levels of job demands result in ill health and poor job dissatisfaction.

The second psychological process is motivation. This process assumes that job resources have motivational potential, and a lack thereof has a detrimental effect on the employee's motivation and performance (Bakker & Demerouti, 2007; Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003). Job resources, such as feedback, social support and autonomy, lead to greater commitment and dedication from the employee (Perrewé & Ganster, 2010). Winefield et al. (2008) further concur that stimulating and rewarding work enhances employee motivation, which results in improved performance and engagement, and eventually organisational commitment. Bakker and Leiter (2010) posit that job resources foster extrinsic motivation because they are necessary for dealing with job demands and for achieving organisational goals. Job resources are also intrinsically motivational when the individual's basic needs of autonomy, belongingness and competences are satisfied (Bakker & Leiter, 2010). Irrespective of whether intrinsic or extrinsic needs are satisfied, the outcome for the employee is always positive, leading to engagement. Rothmann and Jordaan (2006)

conducted a study among academics in selected higher education institutions in South Africa to investigate the impact of job demands and job resources on their work engagement. The results confirmed that job resources, such as growth opportunities, organisational support and advancement, predicted work engagement. Job demands, however, impacted positively on commitment when organisational support was low. In another study, Alzyoud, Othman, and Mohd Isa (2015) examined the relationship between job resources and performance feedback and engagement in a sample of public university academics. The results indicated that academics are more likely to engage with their work if they are given autonomy, social support and performance feedback. In both these studies the results revealed that there is a relationship between job demands and job resources and work engagement and employee wellbeing. From the discussion above one could conclude that there is a positive relationship between job resources and employee wellbeing, and an inverse relationship between job demands and job resources (Bakker & Demerouti, 2007; Winefield et al., 2008).

2.3.2.5 *The Spielberger State-Trait (STP) Model*

The STP Model of Occupational Stress, developed by Spielberger, focuses on the perceived severity and frequency of occurrence of two major categories of stressor events, namely job pressures and lack of support (Altmaier & Hansen, 2012) (see figure 2.6). The model further conceptualises stress as a complex process that consists of three components, namely: (1) sources of stress encountered in the organisation, (2) perception and appraisal of a particular stressor by an employee, and (3) the emotional reactions that are evoked when a stressor is appraised as threatening (Mostert, 2006). The model also recognises the importance of individual differences in personality traits in determining how workplace stressors are perceived and appraised (Naudé & Rothmann, 2006). According to Altmaier and Hansen (2012), the model, like Lazarus' Transactional Model, allows for individual differences in the appraisal of threats. That is, if the threat is perceived as severe and occurs frequently, ill-health and negative behaviours follow.

According to the STP model, occupational stress is defined as “the mind-body arousal resulting from the physical and/or psychological demands associated with the job” (Naudé & Rothmann, 2006, p. 66). Spielberger et al. (2003) further explain that the appraisal of a stressor as threatening leads to anxiety and anger which, in turn, activates the automatic nervous system. If the stressor is severe and persistent, the resulting physical and psychological strain may have an adverse effect on the behaviour of the individual. Adverse behavioural consequences include reduced productivity, absenteeism, turnover, burnout and other health problems

(Antoniou & Cooper, 2005). An employee evaluates his or her work environment in terms of the severity and frequency of the specific job demand, as well as the pressure and level of support provided by supervisors, co-workers and organisational policies and procedures (Spielberger et al., 2003).

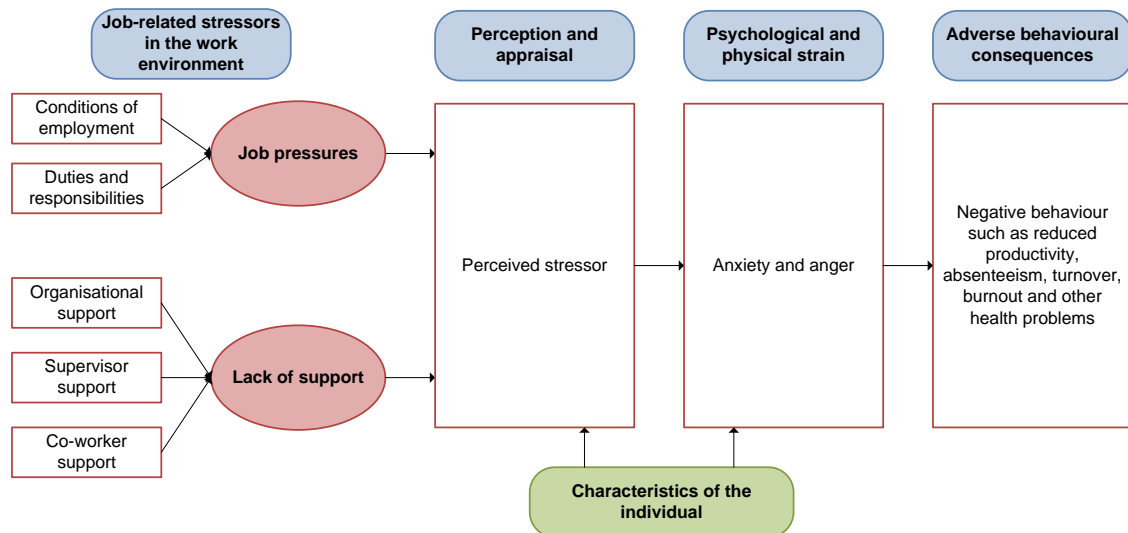


Figure 2.6. The State-Trait Process Model of Occupational Stress

Source: Antoniou and Cooper (2005, p. 449)

2.3.2.6 The ASSET Model

The ASSET Model was designed to measure an employee’s potential exposure to stress and to recognise additional factors, such as job satisfaction and organisational commitment, which serve to either intensify or moderate the stress levels experienced at work (Barkhuizen & Rothmann, 2008; Cartwright & Cooper, 2008). The model is based on and was developed as an occupational stress model, which includes both the potential outcomes of experienced stress at work and work stressors (Johnson, 2008) (see figure 2.7).

According to the model, individuals perceive sources of occupational stress differently. The sources of stress commonly reported in literature can be classified into eight different categories. These include relationships at work, work-life imbalance, work overload, job security, control, resources and communication, remuneration and benefits, and characteristics of the job itself (Barkhuizen & Rothmann, 2008; Johnson, 2008). Commitment, which includes the individual’s commitment to the organisation and the organisation’s commitment to the individual, affects the individual’s perception of the stressor. Poor health and wellbeing are an outcome of occupational stress.

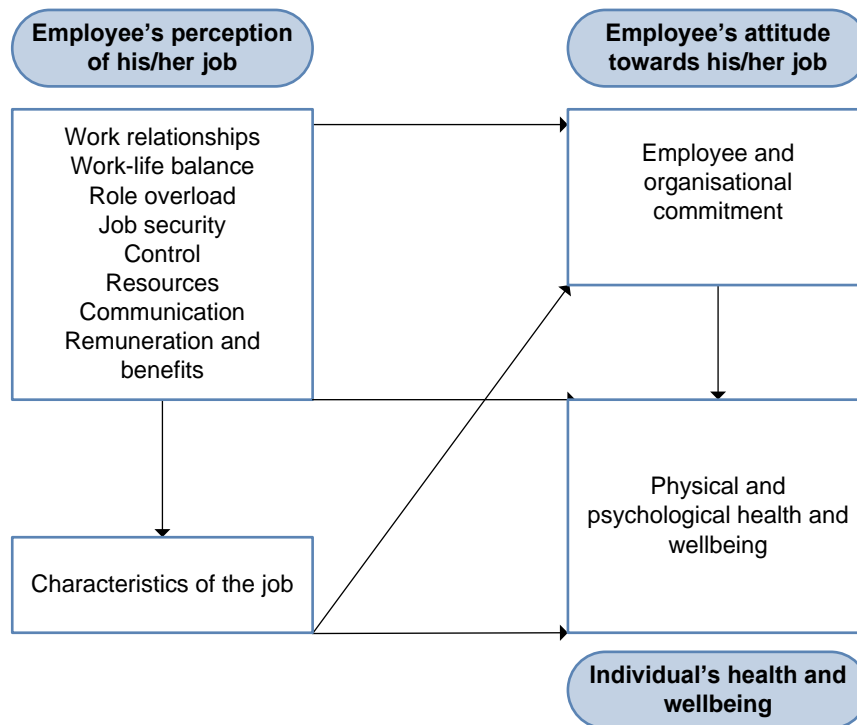


Figure 2.7. The ASSET Model

Source: Johnson (2008, p. 3)

The ASSET Model was applied in two South African studies to investigate the occupational stress, organisational commitment and ill health of academics in higher education institutions. A study by Barkhuizen and Rothmann (2008) revealed that academics experience high levels of stress with regard to remuneration and benefits, overload and work-life imbalance. Overload, work-life imbalance and job security further correlated positively with poor physical and psychological health and wellbeing (Barkhuizen & Rothmann, 2008; Viljoen & Rothmann, 2009). These results concur with Kotzé's (2005) findings in that poor physical and psychological health and wellbeing exist when the academic's job demand are high and when there is a lack of organisational support. The results further revealed that academics view their own levels of commitment as above average, while they see the organisation's commitment as average (Kotzé, 2005). Work overload, job control, resources and communication, and job characteristics also contributed significantly to the commitment of academics to their institution (Barkhuizen & Rothmann, 2008; Viljoen & Rothmann, 2009).

In conclusion, the ASSET Model was designed to assess the risk of stress in the workplace. A range of workplace stressors, such as overload and work-life imbalance, can be measured, as well as the individual's current levels of physical health, psychological wellbeing and organisational commitment. Empirical studies conducted among South African academics

revealed that workplace stressors such as remuneration and benefits, overload, work-life imbalance and job security correlated positively with poor health and wellbeing. The results further revealed that workplace stressors contributed significantly to the commitment of academics.

2.3.2.7 Summary

From the discussion above, various conclusions regarding occupational stress models could be drawn. Firstly, the literature reveals that the majority of occupational stress models focus on the relationship between stress and health and wellbeing, and that certain job characteristics or factors in the work environment elicit a stress response. The models, however, reveal that the negative effects of being exposed to workplace stressors could be buffered or reduced by having high control (or coping). An employee with high control thus has the ability to reduce the negative responses to workplace demands because the individual believes that he or she can minimise the effect of the demands. Control is thus seen as a mediator of stress. Lastly, the availability of job resources, such as feedback and social support, allows the individual to cope with job demands. The individual is therefore more motivated and engaged in his or her work, resulting in improved performance and ultimately organisational commitment.

The Job Demands-Control Model, Job Demands-Resources Model, and the ASSET Model were applied in research involving academics. The results revealed that various job demands or factors in the work environment correlated positively with poor health and wellbeing. The results further revealed that workplace stressors contributed significantly to work engagement and the commitment of academics.

From the discussion above it is evident that there are various sources and consequences of occupational stress.

2.3.3 Sources of occupational stress

According to Beheshtifar and Nazarian (2013) and Vokić and Bogdanić (2008), the workplace is regarded as a potential important source of stress because of the amount of time spent in this setting. As previously stated, stress occurs when the magnitude of the stressor exceeds the coping capability of the individual, and stress in the workplace mainly results from job stressors. Stressors are those “events occurring in the environment or in the body that make

an emotional or task demand on the individual” (Kelly & Barrett, 2011, p. 32). The literature suggests that occupational stressors arise from social arrangements at work and are mediated by perception, appraisal and experience, and include structures and processes in the work environment that provoke a stressful situation (Spies, 2005).

There are four major categories of determinants of stress (as illustrated in figure 2.8), namely extra-organisational sources, organisational sources (also known as job-specific sources), group stressors and individual stressors (Grove, 2004). Extra-organisational sources include stressors outside of the organisation, such as technological change, globalisation, the family, relocation, life changes, social class and so forth (Vogel, 2008). The job-specific sources of stress are further differentiated into six work-related stressors, namely factors intrinsic to the job, one’s role in the organisation, relationships at work, career development, organisational factors and non-work factors (Beheshtifar & Nazarian, 2013; Colligan & Higgans, 2006; Spies, 2005; Steyn & Kamper, 2006). The ASSET model also includes job security, job control and salary and benefits (Barkhuizen & Rothmann, 2008; Mostert, 2006; Vogel, 2008). Group stressors include, for example, lack of group cohesiveness, lack of social support, and intra-individual, interpersonal and inter-group conflict (Akhtar, 2011). According to Vogel (2008), individual characteristics determine the effect that stressors have on the individual. These individual characteristics include type A and B personalities, learned helplessness, self-efficacy, locus of control, self-control, self-esteem, psychological hardiness, optimism and negative affectivity. These sources of occupational stress are discussed briefly in this section. The specific sources of stress that academics experience are discussed in section 2.4.

2.3.3.1 Extra-organisational sources of stress

The important role that the external environment can play in occupational stress is often ignored. However, when the organisation is viewed as an open system, it becomes apparent that forces and events outside of the organisation contribute towards occupational stress (Luthans, 2011). Extra-organisational stressors include societal/technological change, globalisation, family, relocation, economic and financial conditions, race and gender, and community conditions (Akhtar, 2011; Luthans, 2011; Vogel, 2008).



Figure 2.8. Categories of occupational stressors

Source: Luthans (2011, p. 280)

2.3.3.2 Organisational sources of stress

Organisations are continuously changing to meet environmental challenges such as globalisation, economic turbulence and diversity. As a result, employees have to respond quickly to this ever-changing environment by constantly reinventing themselves. As a consequence, these changes lead to more stressors for employees in their jobs. Occupational stressors identified in existing literature include factors intrinsic to the job, organisational roles, work relationships, career development, organisational factors, the home-work interface, job security and control, and pay and benefits (Beheshtifar & Nazarian, 2013; Colligan & Higgans, 2006; Luthans, 2011; Spies, 2005; Steyn & Kamper, 2006) (see figure 2.9 below). These stressors are discussed briefly in this section.

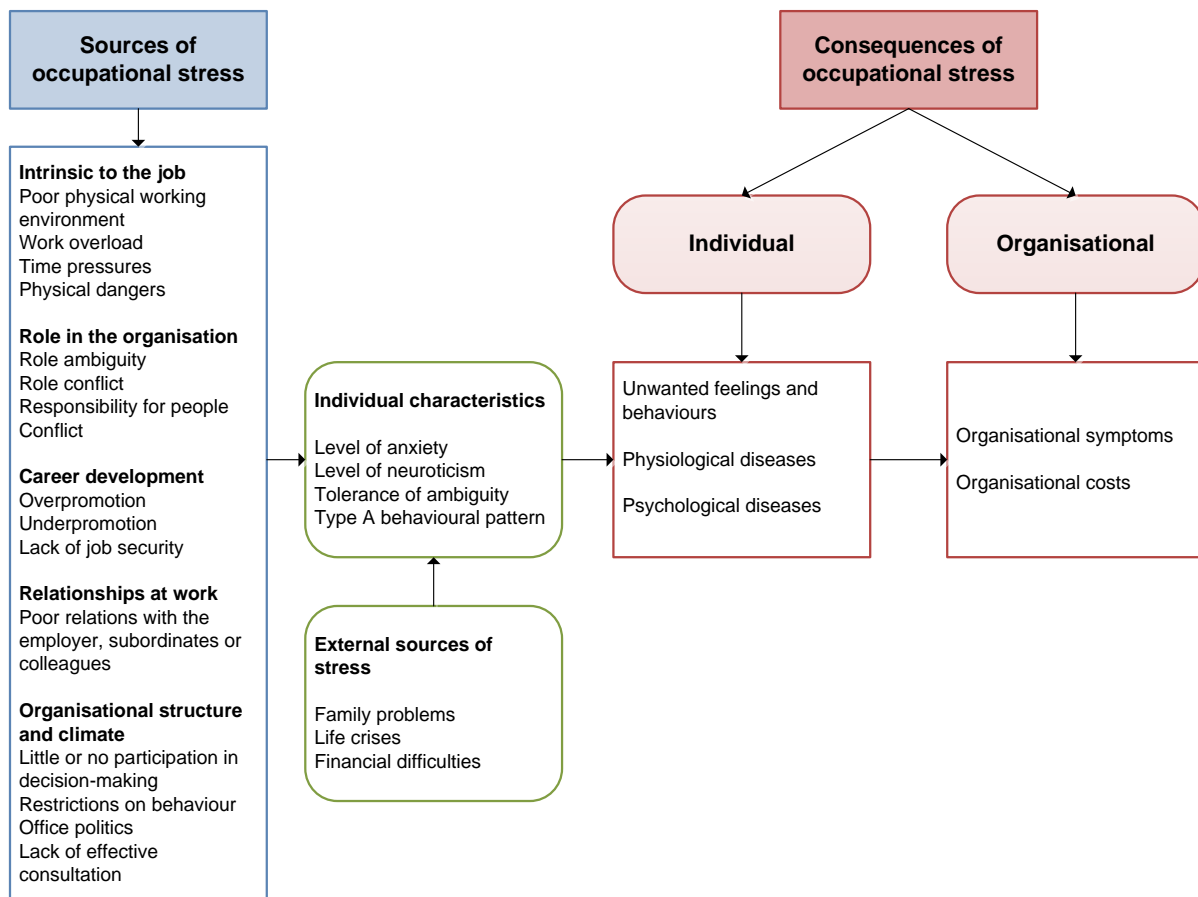


Figure 2.9. A Model of Occupational Stress

Source: Adapted from Vokić and Bogdanić (2008, p. 63)

a Factors intrinsic to the job

Factors intrinsic to the job or physical demands relate to the “factors unique to the job”, and include, say, the level of job complexity, the variety of tasks performed and the amount of discretion and control the employee has over his or her work, and the physical environment in which the work is performed (Colligan & Higgins, 2006, p. 94; Cooper et al., 2009).

The physical environment refers to the employee’s working conditions, which include the physical surroundings and the design or setting of the workplace (Vogel, 2008). Physical surroundings further include factors such as noise, humidity, lighting, smells and temperature (Cooper et al., 2009; Vogel, 2008). Poor working conditions could have a negative impact on the health and wellbeing of the individual, and are associated with higher self-perceptions of stress (Robbins & Judge, 2017; Rusli, Edimansyah, & Naing, 2008). The experience of environmental stressors, however, is subjective because different people have different threshold levels in terms of temperature, noise and lighting (De Bruin & Taylor, 2006).

The design and physical setting of the workplace might be another source of stress (Robbins & Judge, 2017; Vogel, 2008). According to Ulrich (1984) and Kamarulzaman, Saleh, Hashim, Hashim, and Abdul-Ghani (2011), organisations are designed for functional effectiveness and therefore do not take the needs of employees, who interact in this environment, into consideration. Vogel (2008) further contends that a poorly designed work environment could result in too much or little social interaction, which might either distract the employee from the task at hand or could result in boredom or even loneliness. Evans and McCoy (1998) therefore suggest that the needs of the employee should be taken into consideration when the office environment is designed.

Workload is another significant stressor for many employees (Basińska-Zych & Springerk, 2017; Cooper et al., 2009; Dhurup & Mohamed, 2011; Ongori & Agolla, 2008). Work underload refers to monotonous, routine jobs that require little in terms of demonstrating skills or use of knowledge and experience and are as stressful as jobs with high overload that require high levels of responsibility (Vogel, 2008, p. 31). Work underload is often associated with boredom, anxiety, depression and job dissatisfaction (Bruursema, Kessler, & Spector, 2011; Cooper et al., 2009). Work overload occurs when the individual has more work to do than he or she can handle (quantitative overload), or the subjective feeling that the individual may feel incompetent to do the job (qualitative overload). In contrast, quantitative role underload stress occurs where an individual is assigned too little work, and qualitative role underload stress arises where job requirements are too easy. In other words, the job is not challenging enough for the individual and does not require him or her to use his or her full set of skills, knowledge and abilities (Kelly & Barrett, 2011). According to Jahanzeb (2010, p. 6), both overload and underload result in low self-esteem and stress-related symptoms. Underload has also been associated with unresponsiveness and general feelings of apathy. Cooper et al. (2009) further emphasise the importance of distinguishing between perceived and actual demands. As discussed in section 2.2.2.3, the individual's perception of the stressor is important for activating an appropriate coping response.

In summary, factors intrinsic to the job have long been a concern in organisational stress research. Stressors such as the complexity of tasks, resources and the time available to complete the task and the physical work environment have been linked to high levels of strain, anxiety, depression and poor job performance.

b Organisational roles

Organisational roles refer to “the behaviour and actions expected of an individual and the demands placed on that individual in respect of the job that individual performs” (Grove, 2004, p. 21). This category therefore focuses on the employee’s level of responsibility in the workplace (Colligan & Higgans, 2006). Colligan and Higgans (2006) further state that stress poses a significant threat when the individual has to perform several tasks simultaneously. Dysfunction in roles occurs through role ambiguity and role conflict (Cooper et al., 2009; Kelly & Barrett, 2011).

Role ambiguity, one of the earliest researched causes of occupational stress, occurs when management has not clearly defined the roles of employees leading to a lack of clarity about their authority, responsibilities, task demands and performance expectations (De Bruin & Taylor, 2006; Colligan & Higgans, 2006; Jahanzeb, 2010; Kelly & Barrett, 2011). Arnold and Randall (2010) further propose the following three components of role ambiguity:

- (1) performance criteria ambiguity, which encompasses uncertainty about the standards used to evaluate an employee’s performance
- (2) work method ambiguity, which involves uncertainty about the methods or procedures which are appropriate to the successful performance of the job
- (3) scheduling ambiguity, which consists of uncertainty about the timing or sequencing of work

Dhurup and Mohamed (2011) further point out that having multiple roles to perform and not having access to sufficient information lead to occupational stress. This may result from having poor job descriptions, obtaining unclear instructions from management or unclear cues from colleagues (Vogel, 2008). Studies have further found that role ambiguity leads to harmful results, such as low confidence, a sense of helplessness, anxiety, depression, job dissatisfaction and high turnover (Jahanzeb, 2010; Vogel, 2008).

Role conflict, according to Cooper et al. (2009), is defined as the incompatible demands placed on the individual, which results in negative reactions due to the individual’s perceived inability to perform the job. An employee thus experiences role conflict when he or she is expected to conduct one task over another which results in anxiousness about the situation. The following three types of role conflict are often experienced by employees (Luthans, 2011; Vogel, 2008; Cooper et al., 2009):

- *Interrole conflict* occurs when a person experiences conflict between two or more roles that must be executed at the same time. Work roles and non-work roles are often found in this category.
- *Intrarole conflict* arises when contradictory expectations are communicated to the employee – for example, when a supervisor or manager communicates expectations that are mutually incompatible.
- *Person-role conflict* occurs when the individual perceives conflict between his or her expectations and values and those of the organisation or key people in the work environment. There is thus incongruence between the individual and the expectations of the role.

Role conflict is a major cause of occupational stress and has negative consequences for both the individual and the organisation. Consequences include, for example, low self-esteem, depression, life and job dissatisfaction, low motivation and high job turnover (Vogel, 2008). Employees in the modern organisation also experience at least one or all three types of role conflict. One could thus conclude that organisational roles are a major source of occupational stress for individuals.

c Work relationships

“People at work can be a major source of stress or support” (Spies, 2005, p. 14; Steyn & Kamper, 2006). It is imperative to have good relationships with one’s supervisors and colleagues, because of the amount of time spent in this setting. According to Mostert (2006) and Vogel (2008), it has been well documented that poor interpersonal relationships at work and the absence of support from supervisors and colleagues contribute greatly to an individual’s experience of occupational stress. Characteristics of poor work relationships include poor or unsupportive relationships with colleagues and/or supervisors, isolation and unfair treatment (Mostert, 2006). Additional stressors in this category include harassment, discrimination, threats of violence and bullying (Colligan & Higgans, 2006).

Another aspect of work relationships is the interpersonal demands placed on the individual by others in the organisation (De Bruin & Taylor, 2006; Vogel, 2008). Quick and Quick (1984), as cited in Grove (2004), and De Bruin and Taylor (2006), proposed five types of interpersonal demands in the workplace, namely status congruence, social density, abrasive personalities, leadership style and group pressure.

Status congruence occurs when the individual believes or perceives that his or her status is not what it should be, especially when it is lower than the individual's expectations (Grove, 2004). Status congruence is therefore a basic component of social confidence which contributes to the development of stable behaviour expectations, a prerequisite for smooth interpersonal interaction (Brandon, 1965). Status incongruence prevents the individual from attaining social confidence because conflicting expectations are introduced. The ease with which interpersonal harmony may be reached is decreased (Brandon, 1965). The individual experiences frustration and stress as a result.

Social density refers to the crowding or lack of adequate personal workspace (Grove, 2004). Ayers et al. (2007, p. 23) define density as "the ratio of the number of individuals within a space to the actual size of that space and is thus an expression of physical properties of the setting". A high social density reflects the subjective experience of frequent or unwanted interaction and is often not easy to change. A high social density environment may threaten the control an individual tries to maintain over privacy and regulation of social interaction. If density increases because the amount of space available decreases, stresses that are associated with exposure to high social density environments where there is little privacy or control over social interactions, can lead to negative health outcomes.

According to Cooper et al. (2009) and Grove (2004), individuals who disregard the feelings and emotions of others in the organisation are referred to as *abrasive personalities*. People with abrasive personalities are compulsive employees with a strong need for perfection. They are often driven to achieve self-set unrealistic expectations which, in turn, result in aggressive feelings. Furthermore, a person with an abrasive personality is intelligent, possesses excellent problem-solving skills, is quick to grasp situations and is adept at finding workable solutions. These employees are usually found in senior executive positions, and because of their intelligence, are often rivalrous, create feelings of inadequacy that destroy self-confidence and suppress initiative and creativity among their co-workers. Individuals with abrasive personalities view themselves as special and feel that they deserve to be treated differently than others (De Vries, 2011).

Autocratic and authoritarian leadership styles have been observed as a potential source of stress at work for employees (Cooper et al., 2009). Authoritarian or task-oriented leaders tend to ignore employee needs, attitudes, motivations and the need for feedback on performance, praise and recognition (Grove, 2004). While reactions to authoritarian styles of leadership differ between individuals, some prefer to have a clear sense of direction and some type of input into

work decisions that affect them (Cooper et al., 2009). The importance of authority should not be discreet. Some individuals appreciate some degree of control or discretion in the workplace. This lack of discretion, as demonstrated in Karasek's Demand-Control Model of Occupational Stress, significantly contributes to psychological stress for most employees.

Lastly, Vogel (2008) indicates that *group pressures* and relationships at work create demands on the individual, which result in increased stress levels. Group pressure includes, for example, pressure to conform to the group's norms and values. If the individual does not conform to the expectations of the group, he or she is seen as an outsider and is isolated from the group's activities. Social isolation increases the individual's stress levels and eventually leads to depression.

In summary, working relationships are a major source of stress, and when poor working relationships exist between colleagues, this could lead to irritation, social isolation and emotional problems, resulting in a decrease in self-esteem and an increase in anxiety.

d Career development or progression

For some individuals, work is the most significant part of their lives. They are totally committed to their jobs and derive a great deal of personal pride and satisfaction from their work. Being promoted, gaining increased status, receiving higher salaries and finding better opportunities have been associated with career development/progression (Vogel, 2008). However, lack of job security, the threat of unemployment and obsolescence or retirement are common features of working life. According to Cooper et al. (2009) career development has been conceptualised as a source of work stress in terms of job insecurity, underpromotion, overpromotion and hindered ambition or career development opportunities.

According to De Bruin and Taylor (2006, p. 750), *job insecurity* is "best described as a fear of job loss or redundancy, which manifests itself in times of high unemployment, market instability, and new policy implementations". Reisel, Probst, Chia, Maloles, and König (2010), however, define job insecurity as the perceived instability and continuance of an individual's employment in an organisation. Reisel et al. (2010) further contend that job insecurity is negatively related to job and organisational attitudes, to mental and physical health and wellbeing, and job satisfaction and performance.

Issues relating to the *advancement* in an individual's career and promotion in the organisation may also be a major source of dissatisfaction and occupational stress (Bakotić, 2016; Cooper et al., 2001). Although occupational stress is caused by a lack of advancement (or underpromotion), in some instances, the reverse may apply where employees are promoted to higher positions for which they are not suitably qualified. Both under and overpromotion have a serious effect on the employee's health and wellbeing and job satisfaction.

Another stressor relating to advancement is the issue of *career plateauing*. Owing to slow economic growth and the restructuring of many organisations, rapid promotions have come to an end. Career plateauing occurs when employees have reached the highest position they could possibly attain within the organisation and have no future prospects of being promoted (Wärnich, Carrell, Elbert, & Hatfield, 2015). Employees therefore become dissatisfied in their careers, leading to frustration, low self-esteem and the stigma of failure. Uncertainty about future career prospects is also another source of occupational stress.

Stressors found throughout a career therefore cause the individual to become frustrated and disheartened because his or her career (or advancement) goals are not satisfied. A lack of career development consequently leads to a lack of confidence, low self-esteem, conflict, job dissatisfaction, poor performance and eventually physical and psychological strain, which affect the employee's health and wellbeing.

e *Organisational factors*

Organisational factors such as the organisation's culture and management style, organisational structure and office politics have a higher impact on job-related stress than factors intrinsic to the job (Grove, 2004; Kheirandish, Farhani, & Nikkhoo, 2016; Maré, 2014). Hierarchical, bureaucratic organisational structures allow for little participation and decision making in the individual's job, and exclusion from office communication may result in poor health and wellbeing, substance abuse, depression, low self-esteem and absenteeism (Spies, 2005). Opportunities to participate in the planning and execution of tasks and decision-making processes have been associated with increased job satisfaction, higher levels of commitment and an increased sense of wellbeing (Cooper et al., 2009). Spies (2005) further asserts that participation in decision-making processes creates a sense of belonging, and improved communication creates a sense of control that seems to be essential for the individual's health and wellbeing.

According to Hsiao and Mor Barak (2013), much of the research on work and family issues has been conducted within the occupational stress perspective. Work-family conflict, also known as the home-work interface, is defined as “a mutual incompatibility between the demands of the work role and demand of the family role” (Jamadin, Mohamad, Syarkawi, & Noordin, 2015, p. 309). An individual thus experiences work-family conflict when he or she needs to juggle work and family responsibilities at the same time. Having both work and family roles can have a positive effect on the individual’s health and wellbeing, until he or she is unable to balance the responsibilities associated with the roles. The potential for conflict between the roles thus increases. The support and comfort that one should experience at home is also threatened (Grove, 2004). Work-family conflict often results in low job satisfaction and it decreases an individual’s organisational commitment.

Greenhaus and Beutell (1985) identified three fundamental forms of work-family conflict, namely time-based, behaviour-based and strain-based conflict.

Time-based conflict arises when multiple roles compete for an individual’s time. Time spent on activities within one’s role cannot be devoted to activities within another role. Conflict is thus experienced when time pressures are incompatible with the demands of the other role domain. For instance, intensive demands from their jobs may require individuals to reduce their input into family life.

Strain-based conflict results when strain in one role affects one’s performance in another role. Thus, strain created by one role makes it difficult for the individual to comply with the demands of another. Occupational stressors, such as work overload, poor interpersonal relationships, job insecurity and a lack of opportunity to exercise control and self-direction, produce negative reactions, such as reduced self-esteem and feelings of uncertainty, that affect interactions with family members negatively. These negative reactions, which are caused in the workplace, lead to expressions of irritability towards family members or withdrawal from family interactions.

Behaviour-based conflict occurs when attitudes, behaviours and values required in one role are incompatible with expectations regarding behaviour in another role. For example, employees are expected to be ambitious, hard-working, driven and task oriented at work, but at home they are expected to be loving, caring, supportive and relationship oriented. These

behavioural expectations may therefore create tension within the individual if he or she is unable to adjust his or her behaviour to comply with the expectations of the different roles.

Figure 2.10 is a model of the sources of work-family conflict. The model proposes that any role characteristic that affects an individual's time involvement, strain or behaviour within the role can produce conflict between the one role and the other. The model also proposes that role pressures are intensified when there is non-compliance between the role demands.

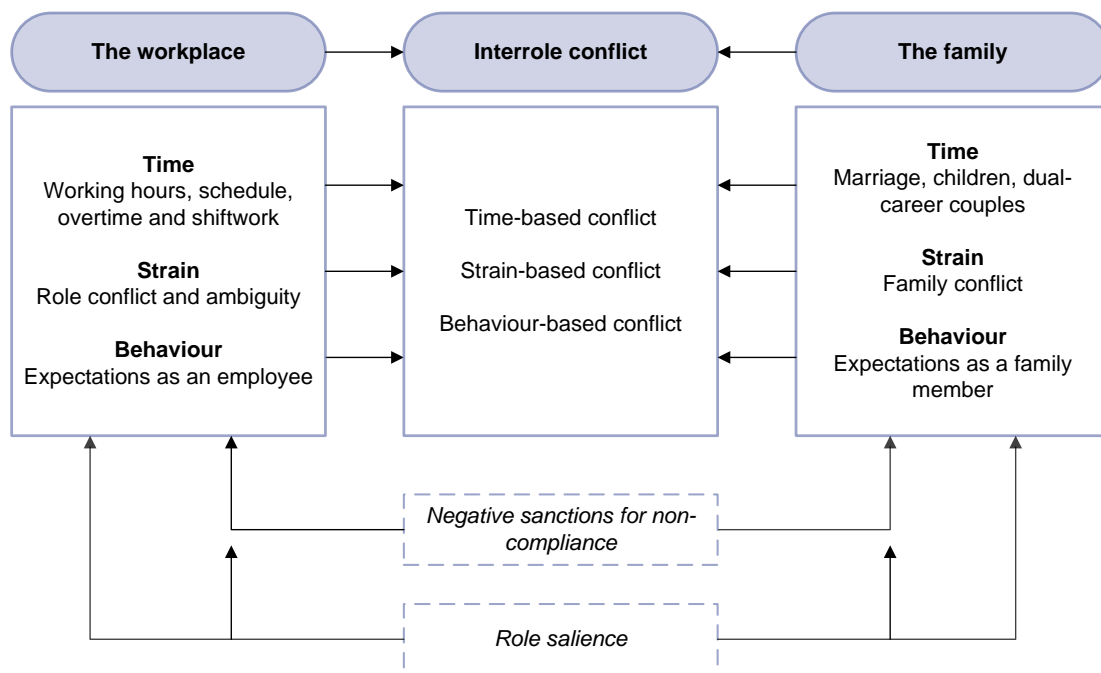


Figure 2.10. Greenhaus and Beutell's Adapted Model of Work-Family Role Conflict

Source: Adapted Greenhaus and Beutell (1985, p. 78)

In summary, work-family conflict exists when the pressure from work and family roles is mutually incompatible and may include time-based, strain-based and behaviour-based conflict. Work-family conflict is therefore seen as a potential source of stress which has adverse effects on the health and wellbeing of individuals. Work-family conflict is further related to stress-related outcomes such as burnout, psychological strain and physical consequences such as headache, backache and fatigue.

One could thus conclude that the workplace (or organisation) is a potentially important source of stress, not only because the individual spends two-thirds of his or her life in this setting, but also because of the ever-changing conditions that he or she needs to adapt to. Over the years a number of organisational sources of stress have been identified, namely factors intrinsic to

the job, organisational roles, work relationships, career development, organisational factors, the home-work interface, job security and control, and pay and benefits. The first six categories were briefly discussed in this section, and the literature review revealed that a number of stressors exist within the organisation. These stressors are briefly summarised in the table below.

Table 2.2
Sources of occupational stress

<i>Organisational sources of stress</i>	
<i>Organisation specific</i>	<i>Job specific</i>
<ul style="list-style-type: none"> • Job security • Leadership style • Office politics • Organisational change • Organisational climate and diversity • Organisational structure • Physical environment and working conditions • Policies and procedures • Restructuring • Social density 	<ul style="list-style-type: none"> • Abrasive personalities • Autonomy • Bullying • Career plateauing • Harassment • Isolation • Job characteristics and requirements • Lack of information • Meaningfulness of work • Poor fit between the individual's abilities and the skills needed to perform the job • Promotion (over- and underpromotion) • Relationships with co-workers and subordinates (interpersonal relationships) • Resource availability • Responsibility • Role ambiguity • Role conflict • Routine jobs • Status congruence • Task complexity • Time pressure • Unclear instructions from management • Unclear job expectations • Unfair treatment and/or discrimination • Unsupportive relationships • Work-family conflict • Workload (underload and overload) • Workplace violence

Source: Author's own compilation

In conclusion, organisational stress has become a major health issue with a negative effect on both the physiological and mental health and wellbeing of the individual. Organisational stress

has furthermore been associated with many symptoms of depression, including insomnia, reduced concentration, fatigue, energy loss and feelings of worthlessness.

2.3.3.3 *Group stressors*

The group can also be a source of stress and group stress is categorised into three areas, namely lack of group cohesiveness, lack of social support and intraindividual, interpersonal and intergroup conflict (Luthans, 2011; Reddy, 2015; Vogel, 2008).

Group cohesiveness is defined as “the extent to which a group is committed to staying together” (Griffin & Moorhead, 2014, p. 248). Forces, such as attraction to the group, resistance to leaving the group and motivation to remain a member of the group, attract members to either remain in or leave the group. Cohesiveness or togetherness is crucial for the group’s performance and the individual’s need to belong. However, when the “togetherness” of the group diminishes or when the employee is denied the opportunity for cohesiveness, the resulting lack of cohesiveness can be experienced as extremely stressful.

Employees are greatly affected by the *support* they receive from their co-workers. They are satisfied when they are able to satisfy their social needs. However, when the employee’s need for social support is not met, he or she becomes lonely and feels stressed. There is thus a relationship between social support and health – for example, socially isolated individuals are less healthy both physically and psychologically (Vogel, 2008).

Conflict, be it interpersonal conflict, among the group members or intergroup conflict, that arises out of group interactions, may be experienced as stressful (Reddy, 2015). According to Luthans (2011), conflict with co-workers and supervisors and social dislikes or ill will of all kinds can lead to depressive symptoms for the employees involved.

2.3.3.4 *Individual stressors*

The stressors discussed thus far (extra-organisational, organisational and group) eventually lead to stressors on the individual level. According to Luthans (2011), there are a number of situational dimensions and individual dispositions that may affect stress outcomes. These dispositions include, for example, type A personality patterns, personal control, learned helplessness, organisation-based self-esteem, and psychological hardiness and optimism.

The *type A personality* profile describes people who are extremely competitive, devoted to work or work oriented and have a strong sense of urgency (Griffin & Moorhead, 2014). Moreover, the individual is likely to be aggressive and impatient, but is highly motivated and driven and wants to accomplish as much as possible in a short time period. Type B personalities, by contrast, are less competitive and devoted to work, and have a weaker sense of time urgency. Type B individuals also have a more balanced and relaxed approach to life, because they feel less conflicted by people or time. They are more self-confident and able to work at a constant, relaxed pace.

According to Griffin and Moorhead (2014), the type A profile is more likely to experience stress than the type B profile, because type A's tend to work long hours under constant pressure and conditions for overload, often take work home, are constantly competing with themselves, setting high standards that they are driven to obtain, tend to become frustrated and irritated by the work situation, and are often misunderstood by their supervisors and peers. Despite their tendency to experience considerable stress, type A's are better able to cope with stress.

Personal control is the individual's ability to control his or her situation and is important in determining the level of stress (Luthans, 2011). If employees, for example, feel that they have little control over their work environment and over their job, they will experience stress. However, if individuals are in control of their work environment, such as being afforded the opportunity to be involved in the decision-making process that affects them, their experience of stress decreases. Individuals who are in control of their work experience more job satisfaction, are more committed to and involved in their work, and are more productive and loyal to the organisation (Lu, Wu, & Cooper, 1999).

Learned helplessness is behaviour where the individual becomes unable to or unwilling to avoid unpleasant encounters with a stressor even when he or she has the ability to escape. The individual has learnt that he or she cannot control the situation and therefore does not take action to avoid the negative situation. The individual has merely given up and accepted his or her situation. According to Luthans (2011), people are more prone to experience helplessness when they perceive that the lack of control is related to something about their own personal characteristics. Regardless of its origin, learned helplessness results in poor mental and physical health, depression, decreased motivation, job dissatisfaction and poor performance. Learned helplessness also correlates negatively with stress (Roth, 1980; Salomons et al., 2012; Worthman & Brehm, 1975; Yee, Edmondson, Santoro, Begg, & Hunter, 1996).

Self-esteem, also known as self-efficacy, refers to how individuals feel about themselves (Arnold & Randall, 2010). Individuals with high self-esteem have a high sense of personal adequacy and view themselves as important, effective and worthy members of an organisation. These individuals are thus affected less by occupational stress. Individuals with low self-esteem are more likely to experience occupational stress, because they perceive their work environment as uncontrollable and are therefore more susceptible to the effects of role conflict and poor support from their supervisors. According to Lee, Joo, and Choi (2013), occupational stress has also been shown to reduce an individual's self-esteem, which subsequently increases symptoms of depression.

Hardiness is an individual's ability to cope with stress. According to Griffin and Moorhead (2014), individuals with hardy personalities have an internal locus of control, are committed to activities in their lives, and view change as an opportunity for growth and advancement. According to Lo Bue, Taverniers, Mulle, and Euwema (2013), and Eschleman, Bowling, and Alarcon (2010), hardy individuals are more prone to experiencing stress, because they are more aware of their own pessimistic attitude and/or of their developing emotional exhaustion than non-hardy individuals. Hardy individuals, however, cope with stressful situations better because they are task oriented.

Optimism is the extent to which people view life as positive (optimism) or negative (pessimism) (Griffin & Moorhead, 2014). According to Vogel (2008), people use these styles to predict whether future outcomes are good or bad. Optimistic people tend to handle stress better because they are able to view the positive characteristics in a situation and believe that the situation will eventually improve. By contrast, pessimistic people focus more on the negative aspects of the situation and expect things to worsen. In a study conducted by Brydon, Walker, Wawrzyniak, Chart, and Steptoe (2009), the researchers concluded that optimistic individuals had smaller increases in negative moods, thus, optimism promoted health and wellbeing and the adjuvant effects of stress.

In this section, four determinants of occupational stress were discussed, namely extra-organisational sources, organisational sources, group stressors and individual stressors. The literature reveals that although various sources contribute to occupational stress, the major source for the individual is the organisation itself. For the purposes of this study, it was deemed essential to discuss these sources of occupational stress, since the coping strategy individuals adopt depends on their perception of the stressor. As discussed previously, individuals perceive the stressor as a threat or challenge if they are unable to cope with it. If the stressor

is perceived as harmful and/or difficult to cope with, individuals' inability to do so has dire consequences for their physiological and psychological health and wellbeing. The consequences of occupational stress are discussed in the next section.

2.3.4 Consequences of occupational stress

Several studies have revealed that occupational stress can lead to various undesirable, expensive and devastating consequences for both the individual and the organisation (Beheshtifar & Nazarian 2013; Sen, 2012; Vokić & Bogdanić, 2008). Occupational stress is thus a major contributor to the health and performance problems of an individual and unwanted occurrences and costs for the organisation. The consequences of occupational stress are grouped into individual and organisational consequences, as illustrated in figure 2.11. The consequences of stress are briefly discussed in this section.

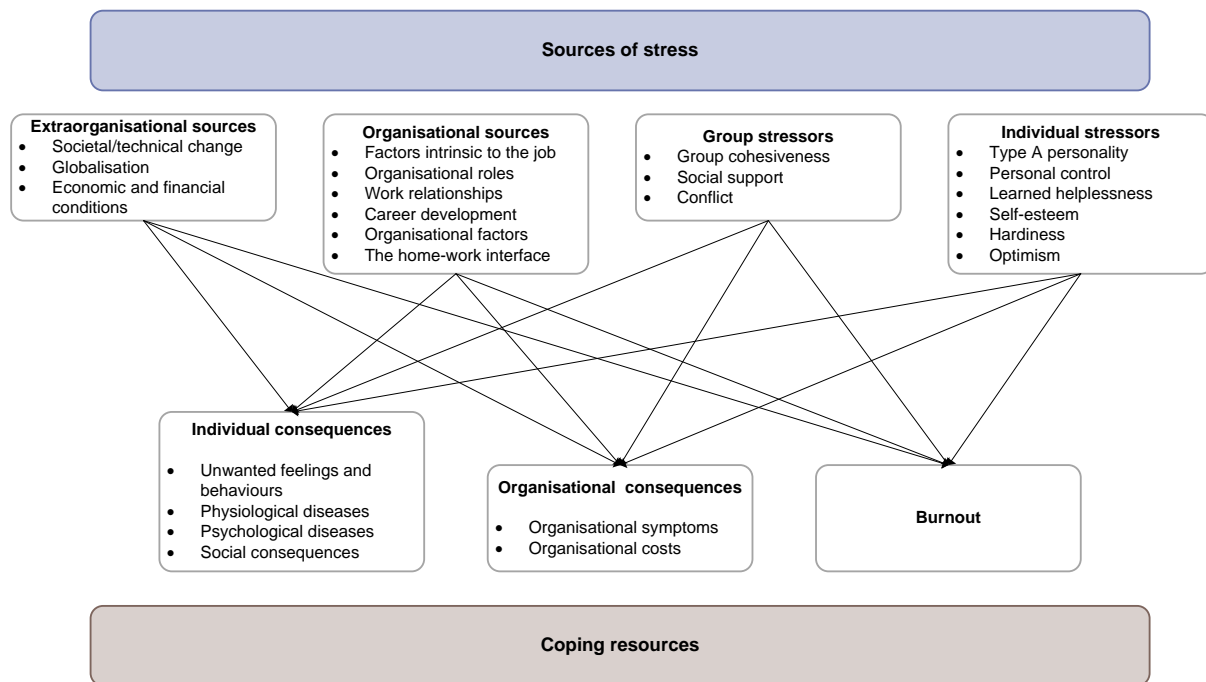


Figure 2.11. Sources and consequences of occupational stress

Source: Adapted from Griffin and Moorhead (2014, p. 185)

2.3.4.1 Individual consequences

Individual consequences of stress are categorised into five subgroups, namely unwanted feelings or behaviours (behavioural consequences), physiological diseases, psychological diseases and social consequences (Bamber, 2006; Beheshtifar & Nazarian 2013; Griffin &

Moorhead, 2014; Sisley, Henning, Hawken, & Moir, 2010; Tshabalala, 2011; Vokić & Bogdanić, 2008).

Unwanted feelings and behaviours include, for example, job dissatisfaction, decreased motivation, productivity and employee morale, reduced organisational commitment, lowered quality of work life, intention to leave, increased absenteeism and turnover. The employee's ability to make sound decisions is further diminished, which leads to decreased quality products and services, more theft, and work stoppage and sabotage. The employee also experiences alienation from the group and aggression towards fellow colleagues, which might result in more smoking and alcohol and substance abuse. Other possible behavioural consequences include accident proneness, aggression and violence.

Physiological consequences occur because of the physiological changes in the individual's body which cause overactivation of the sympathetic nervous system (Tshabalala, 2011). During stress, adrenaline released from the adrenal glands, increases certain bodily functions such as one's blood pressure and heart rate. Physiological consequences further include cardiovascular diseases, high cholesterol and blood sugar, insomnia, headaches and migraines, infections, skin problems, suppressed immune system, injuries and fatigue. Hence physiological problems result in illness, injury, stigmatisation and isolation (Beheshtifar & Nazarian, 2013). Too much exposure to stress and prolonged activation of these bodily functions may have severe long-term consequences for the individual.

Psychological consequences include, for example, psychological diseases such as psychological distress, feelings of unhappiness, worrying more than usual, depression, anxiety, aggression, hyperirritability, boredom, loss of self-confidence and self-esteem, loss of concentration, feelings of futility, impulsiveness, disregard for social norms and values, disturbed interpersonal relationships, dissatisfaction with one's job and life, losing contact with reality and emotional fatigue. Psychological consequences of stress are therefore related to the emotional and cognitive problems that occur under conditions of job stress (Tshabalala, 2011).

2.3.4.2 *Organisational consequences*

As mentioned in section 2.3.4, occupational stress can lead to various negative consequences for the organisation. Organisational consequences are grouped into two major subgroups,

namely organisational symptoms and organisational costs (Beheshtifar & Nazarian 2013; Griffin & Moorhead, 2014; Sisley et al., 2010; Tshabalala, 2011; Vokić & Bogdanić, 2008).

Occupational symptoms include negative effects such as the following: impaired performance or a reduction in productivity; job dissatisfaction; diminishing levels of customer service; low employee morale; absenteeism; turnover; accidents and mistakes; low-quality products and services; poor relationships with clients, colleagues and superiors; bad publicity; damage to the organisation's brand and reputation; missed business opportunities; production disruptions; increased sick leave; premature retirement; diminished cooperation; poor internal communication; avoiding responsibility; withdrawal; more conflict and violence; and a dysfunctional organisational culture and climate. Occupational stress also impairs an employee's ability to solve organisational problems (Sen, 2012).

Regarding *organisational cost*, occupational stress carries costs for the organisation because it leads to reduced performance and productivity, high replacement costs which include recruitment, training and retaining costs, increased sick pay and healthcare costs and disability payments, higher grievance and legal costs and the costs of equipment damage.

In conclusion, occupational stress is a major contributor to health and performance problems for individuals, and unwanted occurrences and costs for the organisation. However, if managed correctly, moderate levels of stress can enhance the performance and health of the individual. One could thus argue that occupational stress is not always dysfunctional and stress is not inherently bad. Vokić and Bogdanić (2008), conclude that although occupational stress leads to various negative consequences for both the individual and the organisation, it should not be completely eliminated in the organisation.

2.4 STRESS AND OCCUPATIONAL STRESS AMONG ACADEMICS

Stress, and more specifically occupational stress, has been researched in various professions across the globe, including teaching and academia. Academia has traditionally been perceived as a stress-free occupation by outsiders, and academics have been envied for their tenure, light workloads, flexibility, "perks" such as overseas trips for study or conference purposes, and the freedom to pursue their own research (Barkhuizen & Rothmann, 2008; Gillespie et al., 2001). However, with many of these attractions and advantages having been eroded over the past two decades, it has come as no surprise that higher education institutions are now commonly labelled as "stress factories" (Barkhuizen & Rothmann, 2008). Research on stress

among academics has revealed that academia is a highly stressful occupation (Ablanedo-Rosas et al., 2011; Barkhuizen & Rothmann, 2008; Bezuidenhout, 2015; Devonport et al., 2008; Mostert et al., 2008; Oosthuizen & Berndt, 2008; Steyn & Kamper, 2006).

2.4.1 Literature trends in occupational stress among academics

A considerable body of research is available on stress in teaching and academia, dating back to the 1930s. Research conducted in the United Kingdom (UK), United States of America (USA), Australia and New Zealand have identified various stressors that are commonly associated with occupational stress among academics (Barkhuizen & Rothmann, 2008; Kinman, 2001). Furthermore, these researchers have investigated themes (objectives), such as the prevalence of self-reported occupational stress, the features of academic work that is potentially stressful and the impact of these stressors, and explored the differences between individuals from different demographic backgrounds (such as age, gender, tenure, etc.). The majority of the research that is available, is based on the results of small-scale projects that were conducted in a single institution (e.g. Abouserie, 1996; Biron et al., 2008). However, recently, researchers have investigated the effects of occupational stress among academics in more than one university and in different countries (Catano et al., 2010; Gillespie et al., 2001; Paduraru, 2014; Shin & Jung, 2013; Winefield et al., 2003). Researchers, such as Bezuidenhout (2015) and Sammons and Ruth (2007), have also directed their research focus towards distance and online educators. The main findings of these studies are discussed in the section below.

2.4.2 Sources and consequences of occupational stress among academics

As mentioned in the previous section, a career in academia was once viewed as offering low stress, secure, safe employment and high social standing, with opportunities to do autonomous work. However, over the past 20 years, the academic environment and perceptions about academia have changed significantly. These changes are ascribed mainly to the substantial growth in student numbers and higher education institutions, increased emphasis on research, adapting to an ever-changing curriculum, implementing newly introduced quality assurance procedures, keeping abreast of rapid technology advances, and concerns for equity and social benefits of education (Barkhuizen, 2005; Catano et al., 2010; Slišković & Maslic Seršič, 2011). These changes are coupled with constraints imposed by economic pressure, legislation, globalisation and social shifts in countries (Catano et al., 2010; Rothmann & Jordaan, 2006). Factors that have contributed to the problems in higher education systems are inequalities and

distortions of the system, underprepared students from poorly resourced socioeconomic and academic contexts, declining state subsidies and unequal distribution of resources, unintelligible and poor articulation between various higher education institutions, and increased competition from international and private higher education institutions (Rothmann & Barkhuizen, 2008; Rothmann & Jordaan, 2006). These higher education institutions are therefore developing a concerning imbalance with their environments, which is an indication that higher education institutions have lost the characteristics of a traditionally viewed stress-free environment (Slišković & Maslic Seršič, 2011).

Reported stress in academia now exceeds levels found in normative data from the general population because a number of stressors have emerged. Several studies have shown that university employees are subject to various organisational stressors. Workload, more specifically work overload, has been observed by many researchers as the major source of occupational stress among academics (Ablanedo-Rosas et al., 2011; Biron et al., 2008; Devonport et al., 2008; Gillespie et al., 2001), owing to the huge amount of work and time constraints placed on them (Barkhuizen & Rothmann, 2008; Kinman, 2008; Van den Berg, Manias, & Burger, 2008). The participants in Devonport et al.'s (2008) study indicated that matters such as inappropriate deadlines, other activities interrupting task completion, such as meetings and unplanned student consultations, lack of time for planning and having to take work home, were a major source of stress for them. Academics further feel that they do not perform their tasks as well as they would like to, because of the time constraints placed on them (Barkhuizen & Rothmann, 2008). The participations in Devonport et al.'s (2008) study further believed that their roles were becoming more diverse and abstruse.

In a study conducted by Bezuidenhout (2015), the researcher found that academics have approximately 40 work roles to fulfil. These include, for example, being a subject specialist, researcher, lifelong learner, tutor, organiser, counsellor and assessor, to name a few. These roles are further divided into four distinct categories, namely teaching and learning, research, community engagement and academic citizenship (Bezuidenhout, 2015; Pienaar & Bester, 2008), which on their own infer a unique set of duties, responsibilities, processes and procedures. For example, in the research domain, academics are required to possess entrepreneurial skills to obtain funding (Slišković & Maslic Seršič, 2011), and increased pressure is placed on them to publish research in accredited journals (Abouserie, 1996). Further, academics are required to supervise postgraduate students, create new knowledge, peer review theses and publications, and act as mentors (Bezuidenhout, 2015). The increasing number of students per academic, the number of courses they have to design and teach,

changing curricula and technology, and new quality assurance measures are also placing more demands on academics (Martins & Ungerer, 2014; Mostert et al., 2008; Gillespie et al., 2001, Slišković & Maslic Seršič, 2011). In a study conducted by Archibong et al. (2010), the researchers found that the greatest source of occupational stress for academics is their students. Students are becoming more demanding of the academic's attention, availability for consultation and support services (Gillespie et al., 2001). More time and skills are thus required to deal with the increasing demands and diversity of students. The lack of resources (such as lack of equipment, teaching aids and computers) and support services, has further left a substantial amount of administrative work (e.g. capturing examination marks and paperwork) for academics to do (Devonport et al., 2008; Gillespie et al., 2001).

Research has also revealed that factors such as job insecurity (Gillespie et al., 2001; Safaria, Othman, & Wahab, 2010) and lack of promotion opportunities (Archibong et al., 2010; Winefield et al., 2003), poor interpersonal relationships and unfavourable social recognition (Archibong et al., 2010; Slišković & Maslic Seršič, 2011), poor leadership and management practices (Kinman, 2001; Winefield et al., 2003), and a feeling that their work is not adequately recognised and their salaries are inadequate (Gillespie et al., 2001; Van den Berg et al., 2008; Winefield et al., 2003), lower the morale of academics. Academics also experience frustration when they are unable to control or make decisions regarding conditions in the department or faculty and organisational issues (Biron et al., 2008; Devonport et al., 2008). The academic's commitment towards the institution is affected as a result. According to Barkhuizen and Rothmann (2008), academics' commitment to the institution is reduced when they experience occupational stress, because of a lack of autonomy in their jobs, if they lack the appropriate training, equipment and resources, and if they find the inherent characteristics of their jobs stressful. Academics are also dissatisfied with the degree to which their work interferes with their home and personal life (Barkhuizen & Rothmann, 2008; Kinman & Jones, 2008; Slišković & Maslic Seršič, 2011; Steyn & Kamper, 2006; Van den Berg et al., 2008). Owing to an increase in work demands, they are forced to work long hours, in the evenings and over weekends, which results in an imbalance between their work and family life. Irritability with and withdrawal from family and friends were reported in Kinman and Jones' (2008) study.

One could thus conclude that occupational stress has a devastating effect on both the individual and the organisation. Steyn and Kamper (2006) and Kinman (2001) classified the consequences of occupational stress among academics into the following four categories: physiological, psychological, behavioural and organisational. Physiological consequences include headaches and migraines, digestive disorders, cardiovascular diseases and physical

fatigue. Sleep disorders, back and neck pain, constant muscle tension, weight loss or gain, lowered immunity to colds, and skin disorders were also reported in Gillespie et al.'s (2001) study. Some psychological consequences include anxiety, inability to concentrate, depression, burnout, anger, irritability, helplessness, and low self-esteem (Abouserie, 1996; Bezuidenhout & Cilliers, 2010; Rothmann & Barkhuizen, 2008). Two thirds of the participants in Gillespie et al.'s (2001) study indicated that occupational stress had a psychological impact on them. Behavioural reactions include increased smoking and alcohol abuse, overeating or undereating, aggression, vandalism and poor interpersonal relationships. Organisational effects include impaired work performance, missing deadlines, forgetting appointments, making unnecessary mistakes, absenteeism, intention to leave the profession and high staff turnover (Barkhuizen & Rothmann, 2008; Biron et al., 2008; Catano et al., 2010; Mostert et al., 2008). As previously discussed, occupational stress also has a negative impact on the quality of the academic's family life.

2.5 CONCLUSION AND CHAPTER SUMMARY

This chapter outlined the meta-theoretical context that formed the definitive boundary of the research. In this chapter, a definition of stress, which was applicable to this study, was identified, and it was concluded that both the P-E fit and transactional theories were applicable to this study because of its connection to the coping theory that is discussed in chapter 3.

Furthermore, a definition of occupational stress was identified and various occupational stress theories or models were discussed, namely Warr's Vitamin Model, the Social Environment Model, Karasek's Demands-Control Model, the Job-Resources Model, the Spielberger State-Trait Model and the ASSET Model. The literature revealed that: (1) there is a relationship between stress and health and wellbeing; (2) job characteristics or factors in the work environment elicit a stress response; and (3) workplace stressors could be buffered or reduced by having greater control and job resources (such as feedback and social support). Sources of occupational stress were discussed, and it was concluded that the organisation is the major source of occupational stress for individuals. Consequently, occupational stress is a major contributor to health and performance problems for individuals, and unwanted occurrences and costs for the organisation.

It is therefore evident that stress and occupational stress are still a major concern for both individuals and organisations across the globe, and academia is no exception. Evidence suggests that academics experience high levels of stress in their workplace which are

attributed to the continuously changing landscape in higher education. Mergers, increasing job demands, ever-changing class sizes and role conflict contribute to the manifestation of stress and burnout among academics. The changing nature of higher education appears to have led to a considerable increase in the job demands of academics. Research indicates that academics have too much work and they are required to work under extreme time pressure (Devonport et al., 2008). As a result, they have to work long hours, which interferes with their home and personal life. Hence academics experience job dissatisfaction and extreme levels of psychological ill-health.

A number of stressors that academics encounter were highlighted in this chapter. The major stressors include work overload, inappropriate deadlines, increasing demands from students and management, lack of resources and difficulty in maintaining an effective work-life balance. Other sources such as job insecurity, lack of promotion opportunities, poor interpersonal relationships, and poor leadership and management practices have been identified in a few studies. Consequently, academics have reported that they seriously consider leaving the profession, because their jobs have become too stressful, their family and personal life and health and wellbeing are negatively affected, and they are uncertain about their future in the institutions where they work (Kinman, 2001; Pienaar & Bester, 2008).

One could thus conclude that occupational stress has a devastating effect on both the individual and the organisation. In the academic context, occupational stress has been associated with job dissatisfaction, poor work performance, ill-health and poor psychological wellbeing, increased smoking and alcohol abuse, poor interpersonal relationships, costly errors, absenteeism, intention to leave and high staff turnover. Occupational stress has also been negatively associated with the quality of the academic's family life.

Despite the negative effects of occupational stress, some academics still feel valued and trusted by their institutions, and have a sense of pride in and commitment to their institutions (Van den Berg et al., 2008). Pienaar and Bester (2008), however, warn that institutions should make it a priority to retain academic staff, since the occupational stress that academics experience will only continue to increase in the future (Kinman, 2001). Higher education institutions and academics should thus have mechanisms in place to cope with occupational stress.

The following literature research objectives were achieved in this chapter:

- Research objective 1:** To conceptualise the constructs of stress and occupational stress by means of a comprehensive literature review
- Research objective 2:** To determine which stressors academics are confronted with in their institutions
- Research objective 3:** To explore the consequences of occupational stress on academics and their institutions

The next chapter discusses the existing literature on coping and emotion regulation.

CHAPTER 3

EMOTION REGULATION AND COPING WITH OCCUPATIONAL STRESS

“The answers you get from literature depend on the questions you pose.”

– Margaret Atwood

3.1 INTRODUCTION

This chapter serves to further contextualise the current study by outlining the meta-theoretical context of coping and emotion regulation that formed the definitive boundary of the research. The aim of this chapter, through a thorough literature review, is to gain an understanding of the constructs under investigation and their theoretical context so that dimensions could be identified and items generated to determine which coping strategies academics adopt in response to occupational stress. To achieve this objective, a number of existing coping and emotion regulation questionnaires are reviewed and discussed to outline their composition, discuss their psychometric properties and the dimensions and subdimensions that categorise coping and emotion regulation strategies. This chapter also aims to address the fourth research objective of this study, namely to determine which coping strategies academics adopt in response to occupational stress.

3.2 CONCEPTUALISATION

The most commonly cited definition of coping is that of Lazarus and Folkman (1984). They defined coping as the “constantly changing cognitive and behavioural efforts to manage specific internal and/or external demands that are appraised as taxing or exceeding the resources of the person” (Lazarus & Folkman, 1984, p. 141). This definition mentions various characteristics of coping, including the role of both cognitive and behavioural processes, and focuses on responses to environmental demands that are appraised as taxing or exceeding the individual’s coping resources. Coping is further perceived as a continuous process that changes in response to the demands of the stressful situation (Compas et al., 2001). In addition, coping has two primary functions, namely (1) the regulation of distressing emotions, and (2) doing something to change the situation that is causing the distress (Folkman & Lazarus, 1985, p. 152). In a nutshell, coping is a continuous, goal-directed effort or process in which individuals adjust their thoughts and behaviours towards resolving the source of stress and managing their emotional reactions to stress (Lazarus, 1993).

Skinner and Wellborn (1994, p. 112) conceptualised coping as “regulation under stress”, and defined it as “how people regulate their behaviour, emotion, and orientation under conditions of psychological stress”. Coping directed at behaviour regulation includes, the following for example: looking for information and problem-solving; emotion regulation, which includes maintaining an optimistic outlook; and orientation regulation which includes avoidance (Compas et al., 2001). Similarly, according to Compas et al. (2001, p. 89), coping is defined as “conscious volitional efforts to regulate emotion, cognition, behaviour, physiology, and the environment in response to stressful events or circumstances”. Coping efforts therefore fall under the broad definition of self-regulation, because individuals are involved in the regulation of their behaviour and emotions on an ongoing basis (Compas et al., 2001; Koole et al., 2010). Coping refers specifically to self-regulation when one is confronted by a stressful situation (Eisenberg, Fabes, & Furthrie, 1997). Eisenberg et al. (1997) further distinguish between three aspects of self-regulation, namely (1) attempts to regulate emotion (also known as emotion regulation), (2) attempts to regulate the situation, and (3) attempts to regulate emotionally driven behaviour (also known as behaviour regulation).

Gross (1998, p. 275) defines emotion regulation as “the process by which individuals influence which emotions they have, when they have them, and how they experience and express these emotions”, and more recently, as the process by which individuals influence the incidence, timing, nature, experience and expression of their emotions (Gross, 2015). Emotion regulation is thus conceptualised as a control process through which individuals modulate and/or divert their emotions and/or attention consciously and unconsciously to respond to environmental demands (Aldao et al., 2010; Koole et al., 2010). Individuals therefore engage in regulatory strategies to exert control over their behaviour and modify the magnitude of their emotional experience. Emotion regulation focuses primarily on the modulation of internal emotional changes to meet external needs (Wang & Saudino, 2011).

From the discussion above it is evident that coping is closely linked to emotion and the regulation thereof to respond to environmental demands (Garnefski, Kraaij, & Spinhoven, 2001; Folkman & Lazarus, 1988; Wang & Saudino, 2011; Zimmer-Gembeck et al., 2014). Not only are both constructs conceptualised as a process of regulation, but both include controlled, purposeful events to regulate emotional experiences. Consequently, Compas et al. (2014) define coping as regulating emotional experiences by changing one’s response to a stressful event or by changing the situation that elicits an emotion. Secondary appraisal, discussed in chapter 2, is thus driven by emotion regulation (Koole et al., 2010), and emotion regulation therefore overlaps with coping (Gross, 2015). Emotion regulation, however, is a broader

concept than coping for a number of reasons, as outlined by Compas et al. (2014). Firstly, emotion regulation includes both conscious and unconscious processes, whereas coping includes only controlled, conscious processes. Secondly, where coping refers only to responses to stress, emotion regulation includes efforts to manage emotions under a wider range of situations and in reaction to a wider range of stimuli. Lastly, emotion regulation includes both intrinsic and extrinsic processes, while coping is only carried out by the person who experiences the stressful situation.

In light of the discussion above, coping was conceptualised as “emotion regulation under stress” and defined by the researcher as conscious efforts that individuals adopt to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources. The rationale behind this definition is summarised and verified in table 3.1.

Table 3.1
Theoretical verification of the coping construct

<i>Definition</i>	<i>Theoretical verification</i>
Coping is defined as conscious efforts ...	Coping was first conceptualised by Lazarus and Folkman (1984, p. 141) as cognitive and behavioural efforts to manage internal and external demands. Similarly, Friedman (2011) defined coping as efforts to deal with threatening or harmful situations. Coping therefore requires some form of effort (action, energy or response) from the individual in an attempt to respond to an environmental demand or stressful situation. Secondly, coping is a conscious process or behaviours and cognitions that individuals use to cope with stressful situations (Aldwin, 2007; Martz & Livneh, 2007).
... that individuals adopt to regulate heightened emotions to respond to environmental demands ...	Coping efforts, according to Garnefski et al. (2001), fall under the broad definition of emotion regulation which relates to processes and characteristics involved in coping with heightened levels of positive and negative emotions (Zimmer-Gembeck et al., 2014). Through emotion regulation, individuals are able to control their emotions to respond to environmental demands (Aldao et al., 2010). Coping efforts therefore allow individuals to regulate (or control) their heightened emotions to respond to environmental demands or stressful situations.
... that are perceived as taxing or exceeding the individual's coping resources.	Individuals experience stress because the demand or stressor exceeds their resources. Individuals thus employ coping efforts to cope (or deal) with environmental demands or stressors that are perceived (or appraised) as taxing or exceeding the resources of the person (Lazarus & Folkman, 1984, p. 141).

Source: Author's own compilation

The next section addresses the theoretical approaches to coping and emotion regulation.

3.3 THEORETICAL APPROACHES

Various theoretical approaches to coping and emotion regulation have been discussed in literature and are reviewed as the background to the present study. The following approaches are discussed: the psychoanalytic approach to coping; coping as a personality trait or style; the contextual approach to coping; the Integrative Conceptual Framework; the Appraisal Theory of Coping and Emotion; and the Process Model of Emotion Regulation.

3.3.1 Psychoanalytical approach to coping

The psychoanalytic or dispositional approach views coping as a defence mechanism and includes techniques that individuals adopt to adjust the meaning of the stressful event. Psychoanalysts further assume that individuals have stable preferences for a particular defence or coping style when dealing with conflict and that these styles vary in their maturity. Carver and Scheier (Carver et al., 1989), however, introduced the dispositional-situational approach to coping. These researchers conjectured that enduring dispositions might predispose an individual to engaging in one or another type of coping, but the situation would ultimately determine the specific coping strategy/ies the individual adopts. Carver and colleagues consequently developed a dispositional measure, namely the Coping Orientations to the Problem Experienced (COPE) Inventory, to measure coping by asking individuals to indicate the extent to which they had engaged in each coping response during a particular time, with regard to a particular stressor. The Multidimensional Coping Inventory (MCI), developed by Endler and Parker (1990), also asks individuals to indicate how they generally cope when they encounter a difficult or stressful situation. Other dispositionally oriented conceptualisations include cognitively seeking out or avoiding threat-related information and everyday thoughts that reflect common destructive ways of thinking (Zeidner & Endler, 1996).

3.3.2 Coping as a personal trait or style

Researchers adopting this approach view coping as a trait, as the manifestation of a trait or as a classifiable disposition (Folkman, 2010). Existing literature outlines four conceptualisations of this approach. The first approach assumes that an individual's personality traits influence how he or she appraises stress and consequently determines which coping strategy is used in a stressful situation (Aldwin, 2007). Individuals with certain personality traits (or

predispositions) therefore cope better with stress. The second approach assumes that individuals adopt the same coping strategy to cope with different stressors. The third approach focuses on the nature of the stressor itself as a determinant of coping (Folkman, 2010). Individuals, for example, adopt maladaptive coping strategies when confronted with repeated stressors that are uncontrollable. The fourth approach explores the relationship between personality traits and coping responses, and its impact on the health and wellbeing of individuals when confronted with different stressors. Roohafza et al. (2016) found that individuals' personality traits and coping strategies influence their psychological wellbeing. The researchers further found that personality traits fulfil a key role as the basis for coping. In conclusion, personality traits influence how individuals respond to stress.

3.3.3 The contextual approach to coping

Central to the contextual approach to coping is Lazarus's appraisal-based model of coping (discussed in chapter 2). Lazarus and Folkman (1984) viewed coping as a response to a *specific stressful situation* rather than a stable personality feature. In this approach, coping is viewed as a dynamic process that changes over time in response to the changing demands and appraisals of the situation. The emotional response that an individual elicits thus depends on his or her appraisal of the situation.

3.3.4 The Integrative Conceptual Framework

This framework, as outlined in figure 3.1, was conceptualised by Zeidner and Endler (1996). This framework emphasises the fact that both the dispositional and contextual approach shape the individual's coping efforts.

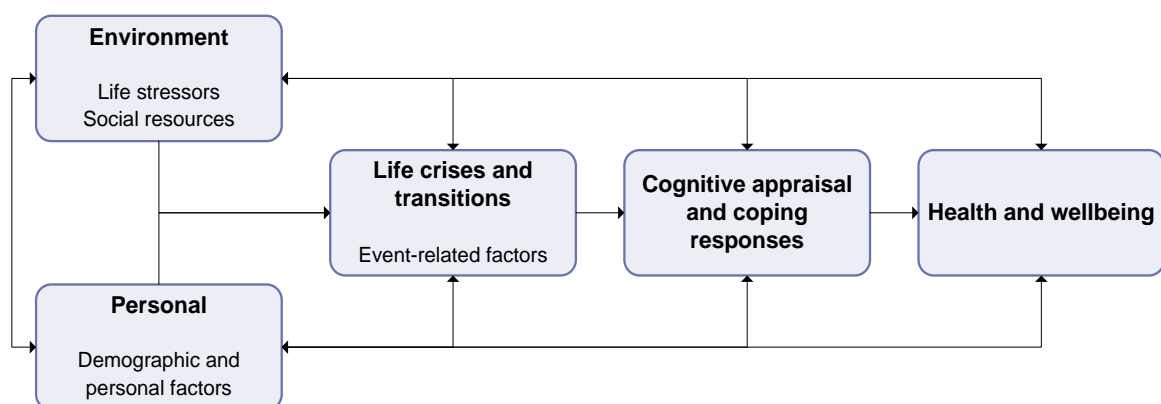


Figure 3.1. The Integrative Conceptual Framework of Coping

Source: Adapted from Zeidner and Endler (1996, p. 27)

The environment is composed of ongoing life stressors (e.g. chronic illness) and social resources (e.g. social support from family and friends). By contrast, the personal system includes the individual's demographic characteristics and personal coping resources (e.g. self-confidence). These environmental and personal factors, in turn, influence the individual's circumstances and health and wellbeing directly and indirectly through cognitive appraisal and coping responses. This framework, according to Zeidner and Endler (1996), emphasises the central mediating role of cognitive appraisal and coping responses in the stress response.

3.3.5 The Appraisal Theory of Coping and Emotion

As outlined in section 3.2, the coping effort is closely linked to emotion and the regulation thereof to respond to environmental demands. Consequently, how individuals cope depends on how they feel emotionally (Folkman & Lazarus, 1988). For the purposes of this study, it was deemed necessary to discuss the relationship between coping and emotion, because coping was conceptualised from an emotion regulation perspective and defined as an effort to regulate emotions to respond to environmental demands.

Appraisal theorists, such as Folkman and Lazarus (1988), believed that individuals elicit an emotion when a situation is *perceived* as stressful and is important for their wellbeing. The emotion that individuals elicit depends on the cognitive appraisal of the significance of the person-environment relationship for the individuals' wellbeing and available coping options (Folkman & Lazarus, 1988). Appraisal is necessary to determine different emotional reactions towards a specific situation (Siemer, Mauss, & Gross, 2007).

As discussed in chapter 2, emotions result from a transaction between the individual and his or her environment in a stressful situation. When an individual perceives (appraises) the situation as stressful, he or she determines whether it is harmful, beneficial, threatening or irrelevant to his or her wellbeing. This process is known as primary appraisal and an emotion is elicited (Folkman & Lazarus, 1988). Once the appraisal process generates an emotion, coping strategies (such as problem-focused and emotion-focused strategies) are adopted to influence the felt emotion and change the person-environment relationship (Schmidt, Tinti, Levine, & Testa, 2010). The altered person-environment relationship is reappraised, and the reappraisal leads to a change in emotion quality and intensity (Folkman & Lazarus, 1988). Consequently, both coping and emotion regulation involve affect modulation and appraisal processes (Wang & Saudino, 2011). From this perspective, coping is thus viewed as a

mediator of the emotional response, and resembles the concept of “emotion regulation” (Folkman & Lazarus, 1988; Schmidt et al., 2010). This process is summarised in figure 3.2.

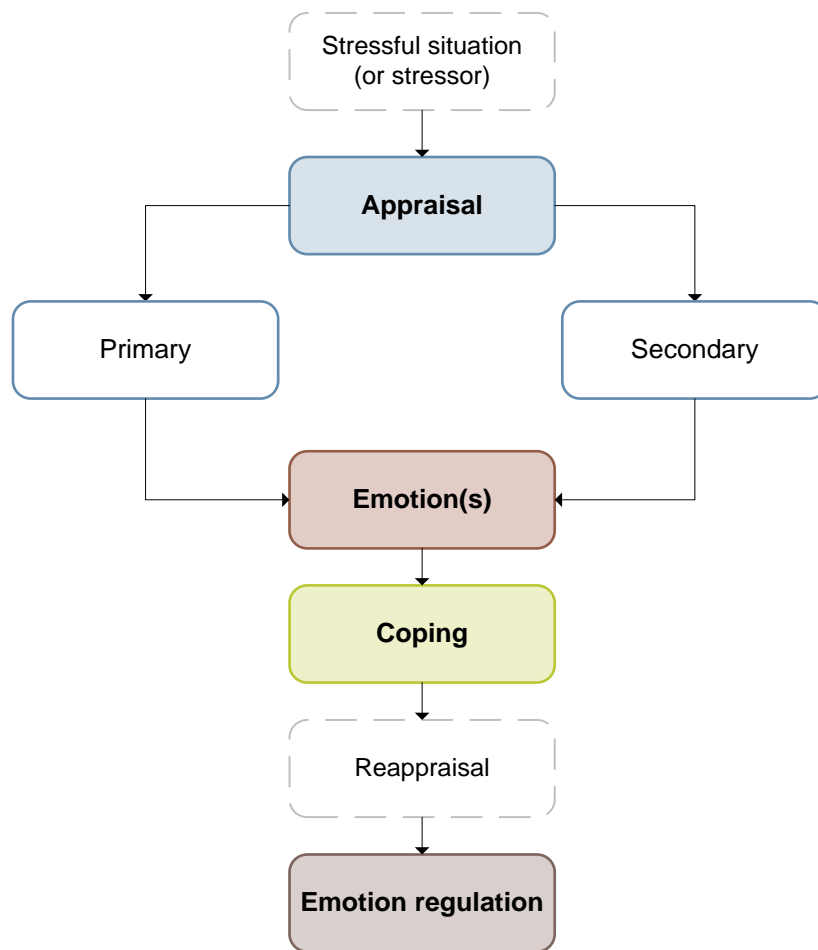


Figure 3.2. Coping as a mediator of emotion

Source: Adapted from Folkman and Lazarus (1988, p. 467)

3.3.6 The Process Model of Emotion Regulation

Emotion regulation, as defined in section 3.2, is a term that describes an individual’s ability to effectively manage and respond to an emotional experience. Individuals adopt regulatory strategies to change the intensity and/or type of emotional experience or the emotion-eliciting situation (Aldao et al., 2010). Individuals who are thus unable to effectively regulate their emotional responses to environmental demands, experience longer and more severe periods of distress. The process model of emotion regulation, proposed by Gross (1998, 2002, 2015), highlights the significant role of modulating emotional experiences. A description of the model is included because (1) coping was conceptualised as “emotion regulation under stress”; (2) coping is viewed as a mediator of the emotion response; and (3) the emotion regulation theory

and strategies were considered in outlining the conceptual model with proposed dimensions and constructing the instrument.

The “modal model” of emotion forms the foundation of the Process Model of Emotion Regulation and illustrates that emotion arises in the context of a person-environment transaction that requires a coping response (as discussed in section 3.3.5). According to the modal model, emotions arise in a sequence of the following four steps: (1) an emotional situation; (2) attention that is directed towards the emotional situation; (3) appraisal of the situation; and (4) an emotional response to the situation. The modal model further suggests a feedback loop from the emotional response to the situation.

The Process Model of Emotion Regulation (henceforth termed “the model”) treats each step in the modal model as a potential target for regulation, and distinguishes between two overarching control strategies that modulate an emotional experience, namely antecedent-focused regulation and response-focused regulation (Gross, 2015; Webb, Miles, & Sheeran, 2012) (see figure 3.3).

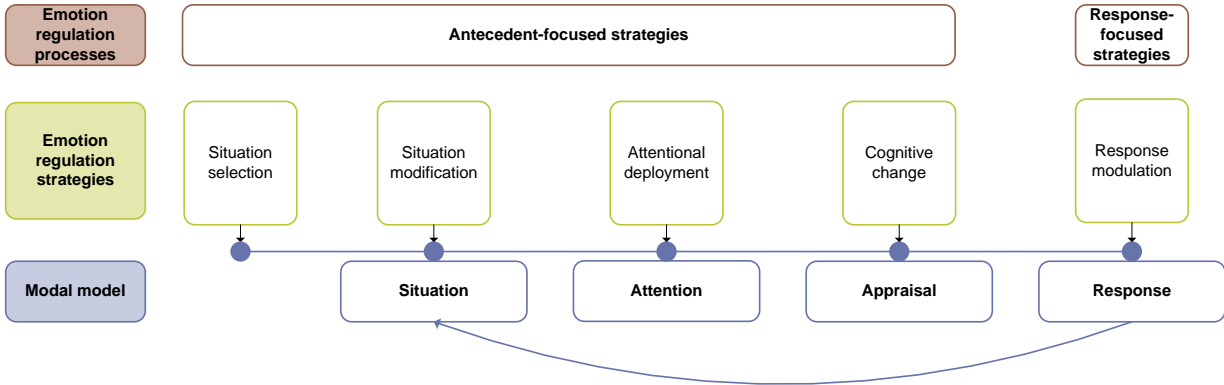


Figure 3.3. Process Model of Emotion Regulation

Source: Adapted from Gross (2015, p. 4), and Webb, Miles, and Sheeran (2012, p. 776)

Antecedent-focused regulation occurs at an early stage in the modulation of an emotional response and before the emotional and behavioural response system is activated (Aldao et al., 2010). Antecedent-focused regulation comprises emotion regulation strategies such as situation selection, situation modification, attentional deployment and cognitive change (Compare, Zarbo, Shonin, Van Gordon, & Marconi, 2014; Gross, 1998, 2002, 2015; Webb et al., 2012).

- *Situation selection* involves approaching or avoiding people or situations in an effort to regulate emotion. With this strategy, individuals move to a different situation that is less likely to give rise to unwanted emotions.
- *Situation modification*, or changing the situation, allows the individual to transform the environment to modify the emotional impact. Situation modification has also been referred to as problem-focused coping or primary control.
- *Attentional deployment* allows individuals to focus their attention towards or away from situational circumstances. Individuals are thus able to select which of the many aspects of the situation they focus on. Examples of attentional deployment include concentrating on a particular topic or problem, ruminating about the problem and/or distracting oneself.
- *Cognitive change* involves reinterpreting the situation to modify its emotional significance. An example of cognitive change is reappraisal, which targets the meaning of a potentially emotion-eliciting situation of the self-relevance of a potentially emotion-eliciting situation. The individual is thus able to select which of the many possible meanings he or she will attach to the situation.

Response-focused regulation, however, occurs at a later stage and is focused on modifying the emotional response (Aldao et al., 2010). Response modulation is thus an example of a response-focused regulation strategy.

- *Response modulation* allows individuals to directly manipulate the physiological, experiential, or behavioural expression of their emotions. Examples of response modulation include emotional expression and suppression (or expression suppression), and using alcohol and drugs to modify one's emotions.

Antecedent-focused regulation occurs before the emotion is generated. Antecedent-focused regulation determines whether an emotional experience happens and attempts to modulate the likelihood or experience of a stressor to prevent or reduce the distress it generates. Response-focused regulation, however, attempts to modulate one's emotional response to a stressor once it has occurred. Response-focused regulation therefore manages the emotional impulses when emotions are generated.

3.3.7 Summary

Six theoretical approaches were discussed in this section. Firstly, the psychoanalytic or dispositional approach focuses on generalisable, preferred coping styles that transcend particular situational influences. Researchers who have adopted this approach developed

dispositional coping instruments that require individuals to indicate how they have coped in specific stressful situations. Secondly, the personality trait approach views coping as a trait, manifestation of a trait or classifiable disposition. This approach therefore assumes that personality traits influence how individuals respond to stress. Thirdly, the contextual approach reflects how individuals cope with a particular type of stressful event and is responsive to changes in the coping effort during a stressful episode. This approach is therefore based on Lazarus's Appraisal-based Model of Coping, which states that an event is appraised in a certain way, and an emotion is associated with the appraisal of an event. Fourthly, the Integrative Conceptual Framework assumes that the dispositional and contextual approaches shape the individual's coping effort. Lastly, coping is perceived as a mediator that transforms the original appraisal and accompanying emotion in some way. The Process Model of Emotion Regulation distinguishes five emotion regulation processes that encompass specific strategies (discussed in section 3.5) that individuals adopt to gain control over their emotions.

The contextual approach to coping, the Appraisal Theory of Coping and Emotion, and the Process Model of Emotion Regulation formed the foundation on which this study was conceptualised. Firstly, coping is viewed as a dynamic, ongoing process or continuous effort that changes over time in response to the changing environmental demands and appraisals of a specific stressful situation (contextual approach and appraisal theory). Secondly, an emotion is elicited when a situation is appraised as taxing or exceeding the individual's coping resources. Primary appraisal is thus essential to determine how individuals respond to a stressful situation (appraisal theory). An emotional response is experienced because of the individual's inability to regulate emotions (process model of emotion regulation). Thirdly, coping is linked to emotion and the regulation thereof to respond to environmental demands (appraisal theory and the Process Model of Emotion Regulation). Coping and regulation strategies are adopted to influence the felt emotion and change the person-environment relationship. Coping is thus viewed as a mediator of the emotional response and resembles the concept of emotion regulation.

3.4 MEASUREMENT OF COPING

Coping is an important explanatory variable, but there is no clear consensus on how it should be measured (Dewe et al., 2010). The construct, according to Monat and Lazarus (1991), is measured in a number of different ways, and as stated by Dewe et al. (2010), there is no correct approach to follow when measuring coping. Consequently, for the purposes of this study, a number of existing coping questionnaires were reviewed and are briefly discussed.

The intention of this discussion is not only to outline the questionnaires' basic composition, but also to discuss their psychometric properties and the critique they received from other coping researchers. Secondly, from this discussion, the dimensions and subdimensions identified in these questionnaires are outlined and briefly discussed. Thirdly, a distinction is drawn between coping resources and coping strategies. Lastly, the coping strategies that academics adopt in response to occupational stress are discussed briefly.

3.4.1 Coping questionnaires

A number of questionnaires have been developed to assess different aspects of coping. Questionnaires such as the Ways of Coping Questionnaire (WCQ), the Coping Orientations to the Problem Experienced (COPE) Inventory, and other existing coping questionnaires are reviewed in this section.

3.4.1.1 Ways of Coping Questionnaire (WCQ)

The first version of the *Ways of Coping Checklist (WCCL)* was derived from Lazarus's transactional model of stress. The checklist consists of 68 binary items, which describe a broad range of cognitive and behavioural coping strategies that individuals adopt when they have to deal with stress during a specific situation (Dewe, Leiter, & Cox, 2000; Oakland & Ostell, 1996). Participants are required to describe their coping response to a situation by indicating how often each coping strategy is used on a four-point Likert scale (*0 = not used/not applicable; 3 = used a great deal*). The items are divided into eight subscales reflecting different coping strategies, namely (1) confrontive coping, (2) distancing, (3) self-controlling, (4) seeking social support, (5) accepting responsibility, (6) escape-avoidance, (7) planful problem-solving, and (8) positive reappraisal (Jones et al., 2001; Rimstad, 2004). The items were further classified into problem-focused and emotion-focused coping strategies, and the average reliability estimate for the scale was 0.77, ranging between 0.56 and 0.91.

The checklist was revised and factor analysis of the revised item pool yielded eight factors, namely: (1) problem-focused coping (11 items); (2) emotion-focused coping comprising of wishful thinking (5 items); distancing (6 items); emphasising the positive (4 items); self-blame (3 items); tension-reduction (3 items) and self-isolation (3 items); and (3) missed problem and emotion-focused coping, such as seeking social support (7 items) (Stemmet, 2013).

The WCCL was revised to form the current *Ways of Coping Questionnaire (WCQ)* (Lazarus & Folkman, 1984). Amendments made to the scale included the following: (1) deleting/rewording some of the items that were unclear; (2) adding new items that were suggested by respondents; and (3) changing the binary response (yes/no) format to a four-point Likert scale, which ranged from “does not apply” to “used a great deal”. Participants are required to indicate to what extent they use each of the strategies in dealing with a specific situation. Participants are asked to think of the most stressful situation experienced during a certain period, give a written description of the situation, and then indicate which strategies were used in each situation (Stone, Kennedy-Moore, Newman, Greenberg, & Neale, 1992). Factor analysis resulted in the following eight factors: (1) confrontive coping; (2) distancing; (3) self-control; (4) seeking social support; (5) accepting responsibility; (6) escape/avoidance; (7) planful problem-solving; and (8) positive reappraisal (Lazarus, 1991).

During its construction phase, the WCQ was at the forefront of coping theory and research, because of its conceptualisation of coping as the cognitive and behavioural efforts to manage stress and the use of factor analysis in developing the questionnaire. The questionnaire has, however, been the subject of wide criticism, including the format of the response items and its factor structure (Stemmet, 2013).

3.4.1.2 *The Coping Orientations to the Problem Experienced (COPE) Inventory*

According to Carver et al. (1989), a distinction between problem- and emotion-focused coping is important, but it is too simple. From a theoretical perspective, the researchers argued that none of the existing questionnaires they reviewed sampled all of the specific domains they had identified theoretically. Consequently, to assess a broader variety of useful coping strategies, as well as less useful strategies, they developed the *Coping Orientations to the Problem Experienced (COPE) Inventory* (Carver et al., 1989; Litman, 2006).

The COPE inventory describes 13 different coping strategies (summarised in table 3.2) and makes several distinctions within the overall categories of problem- and emotion-focused coping (Bezuidenhout, 2006).

Table 3.2
The COPE Inventory

<i>Developed areas</i>	<i>Scale</i>	<i>Typified by</i>	<i>Example</i>
Problem-focused	Active coping	Taking steps to eliminate the problem	I take additional action to try and get rid of the problem.
	Planning	Thinking about dealing with the problem	I try to come up with a strategy about what to do.
	Suppression of competing activities	Focusing only on the problem	I put aside other activities in order to concentrate on this.
	Restraint coping	Waiting for the right moment to set	I force myself to wait for the right time to do something.
	Instrumental social support	Seeking advice from others	I ask people who have had similar experiences what they did.
Emotion-focused	Positive reinterpretation	Reframing the stressor in positive terms	I look for something good in what is happening.
	Acceptance	Learning to accept the problem	I learn to live with it.
	Denial	Refusing to believe the problem is real	I refuse to believe that it has happened.
	Turning to religion	Using faith for support	I seek God's help.
	Emotional social support	Seeking sympathy from others	I talk to someone about how I feel.
	Positive reinterpretation and growth		I look for something good in what is happening.
"Less useful"	Focus on and venting emotions	Wanting to express feelings	I get upset and let my emotions out.
	Behavioural disengagement	Giving up trying to deal with the problem	I give up the attempt to get what I want.
Recently developed	Substance abuse	Using alcohol or drugs to reduce distress	I drink alcohol or take drugs, in order to think about it less.
	Humour	Making light of the problem	

Source: Carver, Scheier, and Weintraub (1989) and Litman (2006, p. 275)

The inventory was administered and readministered to revise and refine the items with weak factor loadings and to add additional items. Factor analysis of the final item pool resulted in the following 11 factors: (1) active coping and planning; (2) suppression of competing activities; (3) restraint coping; (4) seeking social support for instrumental reasons and seeking social

support for emotional reasons; (5) positive reinterpretation and growth; (6) acceptance; (7) turning to religion and humour; (8) focus on and venting of emotions; (9) denial; (10) behavioural and mental disengagement; and (11) alcohol-drug disengagement (Carver et al., 1989).

Concerning its psychometric properties, the COPE has been extensively criticised, especially for the extraction of too many factors with poor reliability (Lyne & Roger, 2000; Krägeloh, 2011). As mentioned above, the COPE went through various developmental phases to ensure that the factor structure of each subscale was within an acceptable range. Nonetheless, the Kaiser-Guttman rule for factor extraction was questioned since this method led to an over-extraction of factors comprising too few items (Stemmet, 2013). Consequently, the scale had alpha coefficients and test-retest reliabilities below 0.70. Zuckerman and Gagné (2003) further contend that the COPE and existing coping scales do not include all the possible coping strategies. Consequently, the COPE was revised to address these shortcomings.

In refining the COPE, Zuckerman and Gagné (2003) followed a theoretically driven approach to constructing the *Revised COPE (R-COPE)*. The factor analysis of the new questionnaire revealed the following five dimensions: (1) self-help, (2) approach, (3) accommodation, (4) avoidance, and (5) self-punishment (Zuckerman & Gagné, 2003). It was further found that the subscales of self-help, approach and accommodation correlate with adaptive forms of coping, while those of avoidance and self-punishment represent maladaptive coping (Kirby, Shakespeare-Finch, & Palk, 2011). Concerning its psychometric properties, the R-COPE has a strong theoretical base and sound evidence of reliability, ranging from 0.81 to 0.92. When compared to other coping scales the R-COPE demonstrates high discriminant and convergent validity (Zuckerman & Gagné, 2003).

3.4.1.3 *Coping Resource Inventory (CRI)*

The 60-item *CRI* is a self-report inventory that was developed to measure an individual's coping resources on a four-point Likert scale in the following five domains: (1) cognitive, (2) social, (3) emotional, (4) spiritual/philosophical, and (5) physical (see table 3.3). The domains are represented by five different corresponding scales, which, when summarised, result in a total resource score (TOT) (Goodheart, Clopton, & Robert-McComb, 2000).

Table 3.3
Domains of the CRI

<i>Domain</i>	<i>Description</i>
Cognitive (COG)	The degree to which the individual maintains a positive self-concept and optimism about life.
Social (SOC)	The amount of social support that the individual has available.
Emotional (EMO)	The level of acceptable emotion and freedom of expression of emotions.
Spiritual/philosophical (S/P)	The degree to which personal philosophies, religious, family and cultural values guide the individual.
Physical (PHY)	The physical scale measures how frequently the respondent engages in health-promoting behaviour.

Source: Goodheart et al. (2000, p. 157)

A high TOT score indicates that the individual has many resources that he or she uses to cope with stress. Further, individuals experience fewer symptoms of stress and also recover faster from exposure to the stressor (Coetzee & Esterhuizen, 2010). Lower TOT scores, however, indicate areas for improvement and potential symptoms of stress.

In general, the psychometric properties of the CRI seem acceptable. First, the underlying constructs of the five subscales were justified in previous validation studies (Coetzee & Esterhuizen, 2010). Secondly, the Cronbach alpha coefficients and test-retest reliability estimates varied from 0.71 (physical) to 0.84 (emotional) (Hammer & Marting, 1988). A study conducted among a South African population further provided evidence of acceptable validity and reliability estimates of the CRI for South African samples. The Cronbach alpha coefficients ranged from 0.68 (cognitive) to 0.83 (emotional) (Coetzee et al., 2008). Lastly, lower internal consistency coefficients for the physical and spiritual/philosophical domains were recorded.

3.4.1.4 Coping Strategy Indicator (CSI)

The *CSI* is a 33-item self-report inventory designed to assess the degree to which individuals use three specific coping strategies, namely problem solving, social support seeking and avoidance (see table 3.4), to deal with a recent stressful event. The *CSI* is scored on a three-point Likert scale, varying from 1 (*a lot*) to 3 (*not at all*).

Table 3.4
Dimensions of the CSI

<i>Dimension</i>	<i>Example</i>
Problem solving	<ol style="list-style-type: none"> 1. Rearranged things so your problem could be solved. 2. Thought of many ideas before deciding what to do. 3. Set some goals for yourself to deal with the situations. 4. Thought about what needs to be done to straighten things up.
Social support seeking	<ol style="list-style-type: none"> 5. Described your feelings to a friend. 6. Accepted sympathy and understanding from someone. 7. Talked about fears and worries to a relative or friend.
Avoidance	<ol style="list-style-type: none"> 8. Tried to distract yourself from the problem. 9. Watched television more than usual. 10. Avoided being with people in general. 11. Slept more than usual.

Source: Desmond, Shevlin, and MacLachlan (2006, p. 253)

The CSI was developed in a rational way and continued in an empirical way through factor analysis over three stages. In each stage, the participants were required to describe how they dealt with an assortment of stressors (Mostert & Oosthuizen, 2006). Amirkhan (1990) found high internal reliability coefficients for all the CSI domains, namely 0.90 for seeking social support, 0.80 for problem solving and 0.80 for avoidance. Amirkhan (1990) further reported that the instrument shows significant correlations with other coping instruments, such as the WCQ (Li & Yang, 2009). Schwarzer and Schwarzer (1996), however, found that the “seeking social support” domain of the WCQ was more closely associated with the CSI’s “problem-solving” domain rather than with seeking social support. Another critique is that the CSI only measures a select number of possible coping strategies (Stemmet, 2013).

3.4.1.5 *The Coping Strategies Inventory (CSI)*

The *CSI*, adapted from Lazarus’s Ways of Coping Checklist, is a 72-item self-report questionnaire designed to assess coping thoughts and behaviours in response to a specific stressor (Tobin, Holroyd, Reynolds, & Wigal, 1989). Respondents are asked to generate a description of a specific stressful event that occurred in the previous month and then to indicate the extent to which they used the specific coping responses, using a five-point Likert scale ranging from *a (none)* to *e (very much)* (Tobin et al., 1989).

In developing the instrument, Tobin et al. (1989) began with an initial pool of 109 items which were obtained from the existing WCCL (49 items) (Folkman & Lazarus, 1980) and 60 items from structured interviews, open-ended questionnaires and brainstorming sessions with

psychology graduates. Eighty-eight (88) items that were theoretically proven to measure seven coping strategies were selected from the initial item pool. These strategies included the following: (1) problem solving; (2) wishful thinking; (3) problem avoidance; (4) social support; (5) cognitive restructuring; (6) self-criticism; and (7) expressing emotions (Skinner et al., 2003). Exploratory hierarchical factor analysis with varimax rotation was used to test the seven-factor model among a sample of graduate students. A possible eighth factor, namely social withdrawal, was found. Two additional studies were conducted to replicate the factor structure. The results revealed a three-level model with eight dimensions (summarised in table 3.5)

Table 3.5
Dimensions and subdimension of the CSI

<i>Dimension</i>	<i>Subdimension and description</i>	<i>Sample factor item</i>
Primary	Problem solving <i>This subscale includes items that refer to both behavioural and cognitive strategies which are used to eliminate the source of stress by changing the situation.</i>	I worked on solving the problems in the situation.
	Cognitive restructuring <i>This subscale includes cognitive strategies that change the meaning of the stressful transaction as it is less threatening, is examined for its positive aspects, and is viewed from a new perspective.</i>	I convinced myself that things aren't quite as bad as they seem.
	Social support <i>This subscale includes items that refer to seeking emotional support from other individuals.</i>	I found somebody who was a good listener.
	Emotional expression <i>This subscale includes items referring to releasing and expressing emotions.</i>	I let my emotions out.
	Problem avoidance <i>This subscale includes items referring to the denial of problems and the avoidance of thoughts or actions about the stressful event.</i>	I went along as if nothing were happening.
	Wishful thinking <i>This subscale refers to cognitive strategies that reflect an inability or reluctance to reframe or symbolically alter the situation. The items include for example hoping and wishing that things could be better.</i>	I wished that the situation would go away or somehow be over with.
	Social withdrawal <i>The subscale includes items that reflect blaming oneself for the situation and criticising oneself.</i>	I spent more time alone.
Secondary	Problem-focused engagement <i>This subscale includes the problem-solving and cognitive restructuring subscales. These subscales involve cognitive and behavioural strategies to change the situation or to change the meaning of the situation for the individual. These coping efforts are focused on the situation itself.</i>	I reorganised the way I looked at the situation, so things didn't look so bad.

<i>Dimension</i>	<i>Subdimension and description</i>	<i>Sample factor item</i>
	<p>Emotion-focused engagement <i>This subscale includes social support and expressing emotions. The items reflect open communication of feelings to others and increased social involvement. These coping efforts are focused on the individual's emotional reaction to the stressful situation.</i></p>	I let my emotions out.
	<p>Problem-focused disengagement <i>This subscale includes problem avoidance and wishful thinking. The items reflect denial, avoidance, and an inability or reluctance to look at the situation differently. They reflect cognitive and behavioural strategies to avoid the situation.</i></p>	I went along as if nothing was happening.
	<p>Emotion-focused disengagement <i>This subscale includes social withdrawal and self-criticism. The subscale involves withdrawing oneself and one's emotions from others, and criticising or blaming oneself for what happened.</i></p>	I criticised myself for what happened.
Tertiary	<p>Engagement <i>This subscale includes problem solving, cognitive restructuring, social support and expressing emotions. The subscale reflects attempts by the individual to engage in efforts to manage the stressful person/ environment transaction. Through these coping strategies individuals engage in an active and ongoing negotiation with the stressful environment.</i></p>	I worked on solving the problems in the situation.
	<p>Disengagement <i>This subscale includes problem avoidance, wishful thinking, social withdrawal and self-criticism. The subscale includes strategies that are likely to result in disengaging the individual from the person/environment transaction. Feelings are not shared, thoughts about situations are avoided, and behaviours that might change the situation are not initiated.</i></p>	I avoided thinking of doing anything about the situation.

Source: Tobin (2001, pp. 2–4)

Concerning the psychometric properties of the CSI, both alpha coefficients ($\alpha = 0.83$) and Pearson correlation coefficients ($r = 0.73$) indicate that the instrument measures what it was intended to measure. The factor structure of the CSI ranges from 0.85 to 0.98, and supports a hierarchical relationship between the proposed subdimensions (Tobin et al., 1989). Concerning the validity of the instrument, Cook and Heppner (1997) reported that the CSI's criterion and construct validity scores have successfully discriminated between depressed and non-depressed samples, and between neurotic and normal samples. One could thus conclude that the CSI measure what is was designed to measure.

3.4.1.6 The Multidimensional Coping Inventory (MCI)

In response to the psychometric weaknesses of existing coping measures, Endler and Parker (1990) developed the *MCI*, which is a 44-item, self-report measure designed to measure dispositional coping on a five-point Likert scale. Factor analysis yielded the following three coping strategies: (1) task-oriented (19 items), (2) emotion-oriented (13 items), and (3) avoidance-oriented coping (12 items) (see table 3.6).

Table 3.6
Dimensions of the MCI

<i>Subscale</i>	<i>Examples of items</i>
Task-oriented coping subscale	15. Outline my priorities 36. Work to understand the situation 39. Think about the event and learn from my mistakes 51. Analyse the problem before reacting 54. Adjust my priorities
Emotion-oriented coping subscale	6. Blame myself for procrastinating 22. Become very tense 26. Blame myself for being too emotional 37. Daydream about a better time or place 64. Fantasise about how things might turn out
Avoidance-oriented coping subscale	17. Treat myself to a favourite food or snack 41. Visit a friend 44. Spend time with a special person 58. See a movie 59. Take time off and get away from the situation

Source: Endler and Parker (1990, p. 854)

In a study conducted among male and female undergraduate students, Endler and Parker (1990) obtained alpha coefficients ranging from 0.76 for men on the emotion subscale to 0.91 for females on the task subscale, indicating substantial internal consistency. The MCI was then administered to a group of 64 undergraduates again, eight weeks apart. The test-retest correlations for the task, emotion and avoidance subscales were 0.74, 0.66 and 0.68, respectively. These correlations indicate that the subscales were relatively stable over time.

In another study, Endler and Parker (1990) investigated the construct validity of the MCI by having 130 (33 men and 97 women) respondents complete the MCI and the WCQ. The results indicated a pattern of correlations between the MCI and the WCQ. Stemmet (2013), however, advised that these results should be interpreted with caution, because (1) the instrument was administered to undergraduate students, which brings the issue of generalisation into question;

and (2) there seemed to be an overlap between the factors that impact negatively on the ability to distinguish between the different factors of the MCI.

Following from the MCI, Endler and Parker (1990) proposed an amended scale called the *Coping Inventory for Stressful Situations (CISS)*, which is discussed in the next section.

3.4.1.7 *The Coping Inventory for Stressful Situations (CISS)*

The *CISS* is a 48-item instrument that is used to measure both general trait coping styles and situational-specific coping responses on a five-point Likert scale (varying from 1 [*not at all*] to 5 [*very much*]). Like the MCI, the *CISS* assesses the following three basic coping strategies: (1) task-oriented coping, (2) emotion-oriented coping, and (3) avoidance-oriented coping (Ballesteros, 2003; Endler & Parker, 1999). Factor analysis of the avoidance scale further yielded two distinct subscales for distraction (8 items) and social diversion (5 items) (Endler & Parker, 1999).

Strong support exists for the psychometric properties of the *CISS*. According to McWilliams, Cox, and Enns (2003), the *CISS* has a stable factor structure, excellent internal consistency (Cronbach's alpha coefficient is greater than 0.80), adequate test-retest reliability (six-week test-retest correlations are above 0.50) and support for construct validity. Although the *CISS* is psychometrically sound and an attractive instrument to use, some concerns have been raised. Firstly, because the *CISS* only measures three coping strategies, its use is often limited if one's intention is to investigate a broader range of coping behaviours (Wong et al., 2006). Secondly, the avoidance scale appears to measure general behaviours (such as "watching a movie") rather than coping strategies (Stemmet, 2013). Thirdly, 15 of the 16 avoidance items are regarded as behavioural avoidance (Steed, 1998). Lastly, because the instrument is disposition oriented, only one facet of coping is addressed. A more situation-specific version of the questionnaire is thus required (Zeidner & Endler, 1996).

3.4.1.8 *The Coping Styles Questionnaire (CSQ)*

Roger, Jarvis, and Najarian (1993) developed a new scale for measuring coping strategies, entitled the *CSQ*. The construction of the questionnaire is based on a sample of 201 Open University students, who completed the early version of the 78 items using a four-point Likert scale, ranging from "*never*" to "*always*". The first factor analysis yielded the following three factors: (1) task-oriented, (2) emotion oriented, and (3) an avoidance factor. The final factor,

which was composed of the five highest-loading items, all described a feeling of being detached from the event (Roger et al., 1993).

A revised questionnaire was developed by adding 12 detachment items, bringing the total number of items to 90 (Elklit, 1996). The revised questionnaire was then administered to a sample of 311 undergraduate students, using the same Likert scale format. A scree test yielded four factors with 60 items to form the final scale. The four factors of the final CSQ (see table 3.7) are rational coping (or task) (16 items), detached coping (15 items), emotional coping (16 items) and avoidance coping (13 items).

Table 3.7

Selected items from the CSQ

<i>Dimension</i>	<i>Example of items</i>
Rational Coping	Work out a plan for dealing with what has happened.
Emotional Coping	Feel overpowered and at the mercy of the situation.
Avoidance Coping	Daydream about times when things were better.
Detached Coping	Feel independent of the circumstances.

Source: Roger et al. (1993, p. 625-626)

According to Roger et al. (1993), the test-retest reliability coefficient for the CSQ was 0.70 and the scales were also internally consistent, with alpha coefficients in excess of 0.80 for both of the adaptive strategies. The dimensions of the CSQ are similar to those of the WCQ (i.e. problem focused [rational], emotion focused [emotional] and avoidance coping), and the questionnaire was administered to undergraduate students, which brings generalisation into question.

3.4.1.9 *The Proactive Coping Inventory (PCI)*

The *PCI* was developed to measure different dimensions of a proactive approach to coping, and consequently assesses coping skills, as well as those skills that promote wellbeing and life satisfaction (Stemmet, 2013). The proactive approach to coping is future oriented in that individuals are seen as being able to take preliminary steps in advance of a potentially stressful situation to prevent/modify it before it actually occurs (Greenglass, Schwarzer, Jakubiec, Fiksenbaum, & Taubert, 1999) The inventory consists of the following seven subscales: (1) proactive coping, (2) preventive coping, (3) reflective coping, (4) strategic planning, (5) instrumental support seeking, (6) emotional support seeking, and (7) avoidance coping. All

seven items are assessed on a four-point Likert scale (1 = not at all true; 4 = completely true) (Greenglass et al., 1999) (see table 3.8).

Table 3.8
Subscales of the Proactive Coping Inventory (PCI)

<i>Dimension</i>	<i>Example of items</i>
Proactive coping <i>Combines autonomous goal setting with self-regulatory goal attainment cognitions and behaviour.</i>	I am a “take charge” person.
Preventive coping <i>Deals with anticipation of potential stressors and the initiation of preparation before these stressors develop fully.</i>	I plan for future eventualities.
Reflective coping <i>Describes simulation and contemplation about a variety of possible behavioural alternatives by comparing their imagined effectiveness.</i>	I imagine myself solving difficult problems.
Strategic planning <i>Focuses on the process of generating a goal-oriented schedule of action in which extensive tasks are broken down into manageable components.</i>	I often find ways to break down difficult problems into manageable components.
Instrumental support seeking <i>Focuses on obtaining advice, information and feedback from people in one’s social network.</i>	When solving my own problems other people’s advice can be helpful.
Emotional support seeking <i>Temporary emotional distress is regulated by disclosing feelings, evoking empathy and seeking companionship from others.</i>	If I am depressed I know who I can call to help me feel better.
Avoidance coping <i>Escapes action in a demanding situation by delaying.</i>	When I have a problem I like to sleep on it.

Source: Greenglass et al. (1999, p. 1-18)

Greenglass and Fiksenbaum (2009) reported acceptable psychometric properties for the subscales. First, the PCI has high internal consistency, ranging from 0.71 to 0.85, for all the subscales. Secondly, good item-total correlations and acceptable skewness are indicators of symmetry around the mean. Thirdly, a principal component analysis has confirmed the inventory’s factorial validity and homogeneity. Lastly, the PCI has good cross-cultural validity (Greenglass & Fiksenbaum, 2009). The PCI, however, assesses whether individuals have the necessary coping skills to take precautionary steps in advance of a stressful situation. It does not assess the individual’s coping response in response to a specific stressful situation.

3.4.1.10 *The Emotional Approach Coping Scale (EACS)*

One of the most commonly known categorisations of coping is the differentiation of strategies that are primarily problem focused from those that are more emotion focused (Lazarus & Folkman, 1984). Emotion-focused coping is defined to include responses that serve the purpose of managing emotional reactions to stress, such as social withdrawal, distraction and venting (Zimmer-Gembeck & Skinner, 2016), or is directed towards changing one's own emotional reaction. Research conducted by Stanton et al. (2000), however, concluded that many of the earlier emotion-focused coping measures were flawed for a number of reasons (Folkman, 2010). Consequently, Stanton et al. (2000) conceptualised emotional approach coping (EAC) and developed a valid and reliable dispositional coping scale.

The emotional approach to coping involves active movement towards rather than away from a stressor (Snyder, Lopez, & Pedrotti, 2011), and is defined as the effortful attempt to approach one's emotions in response to stressful encounters that are appraised as taxing or exceeding an individual's coping resources (Stanton, Parsa, & Austenfeld, 2005). The latter approach entails coping through acknowledging, understanding and expressing emotions (Snyder & Lopez, 2005). Emotional approach coping is different from emotion-focused coping in that it does not involve maladaptive coping strategies, such as avoiding or dismissing a stressor (Stanton et al, 2005). Based on this definition Stanton et al. (2000) theoretically identified the following three emotion approach dimensions: (1) emotion identification, that is, maintaining self-awareness and active acknowledgment of one's emotional states; (2) emotional processing, which involves actively attempting to explore meanings and coming to an understanding of one's emotions; and (3) emotional expression, which involves intentional verbal or non-verbal display of feelings.

The *EACS* is a self-report scale that measures emotional coping on a four-point Likert scale (1 = *I usually don't do this at all*; 4 = *I usually do this a lot*). The scale consists of two empirically validated subscales, namely emotional processing and emotional expression (see table 3.9). The instrument demonstrates high internal consistency reliability with alpha coefficients between 0.72 and 0.94, and a four-week test-retest reliability of 0.72 to 0.78. The developers further found that the subscales are interrelated, and related to other adaptive coping strategies, such as positive reappraisal, seeking social support and problem-focused coping.

Table 3.9

The Emotional Approach Coping Scale (EACS)

<i>Dimension</i>	<i>Examples of items</i>
Emotional processing (EP) <i>EP assesses one's active effort to acknowledge and validate emotions.</i>	1. I take time to figure out what I'm feeling. 2. I delve into my feelings to get a thorough understanding of them. 3. I realise that my feelings are valid and important. 4. I acknowledge my emotions.
Emotional expression (EE) <i>EE measures outward emotional expressions.</i>	5. I take time to express my emotion. 6. I let my feelings come out freely. 7. I allow myself to express my emotions. 8. I feel free to express my emotions.

Source: Seo (2012, p. 116) and Stanton et al. (2000, p. 1165)

3.4.1.11 The Acceptance and Action Questionnaire (AAQ)

The AAQ is a nine-item dispositional, self-regulation measure of experiential avoidance (EA) (Hayes et al., 2004) (see table 3.10). The questionnaire was designed to measure individuals' willingness to accept their emotions and thoughts, as well as the ability to behave in desired ways even when they experience intense emotions (Moore, Brody, & Dierberger, 2009). Participants are required to respond to items by using a seven-point Likert scale (1 = *Never true*; 7 = *Always true*) (Kashdan, Barrios, Forsyth, & Steger, 2006).

Table 3.10

The Acceptance and Action Questionnaire (AAQ)

<i>Items</i>
1. I am able to take action on a problem even if I am uncertain what is the right thing to do.
2. I often catch myself daydreaming about things I've done and what I would do differently next time.
3. When I feel depressed or anxious, I am unable to take care of my responsibilities.
4. I rarely worry about getting my anxieties, worries and feelings under control.
5. I'm not afraid of my feelings.
6. When I evaluate something negatively, I usually recognise that this is just a reaction, not an objective fact.
7. When I compare myself to other people, it seems that most of them are handling their lives better than I do.
8. Anxiety is bad.
9. If I could magically remove all the painful experiences I've had in my life, I would do so.

Source: Hayes et al. (2004, p. 562)

According to Hayes et al. (2004), the psychometric properties of the scale have been well-established in clinical and non-clinical samples. Gámez, Chmielewski, Kotov, Ruggero, and Watson (2011), however, outlined various limitations of the questionnaire. First, the AAQ was designed to only measure two aspects of EA, namely non-acceptance of distress and interference with values. It is therefore unclear whether the AAQ is a comprehensive measure that captures all aspects of the EA construct. Secondly, internal coefficients for the AAQ are 0.70 or lower, suggesting that the AAQ is somewhat heterogeneous. Lastly, Boelen and Reijntjes (2008), and Kashdan and Breen (2007), for example, found that the AAQ displays evidence of poor discriminant validity relative to trait negative affect or neuroticism. Hayes et al. (2004), however, reported significant correlations with measures of depression, anxiety, psychopathology and thought suppression.

In summary, the AAQ was the first self-report measure to measure EA, but has since been re-conceptualised as a measure of psychological flexibility (Hayes et al., 2004). The multidimensional experiential avoidance questionnaire (MEAQ), discussed in the next section, was developed to measure different aspects of EA.

3.4.1.12 *The Multidimensional Experiential Avoidance Questionnaire (MEAQ)*

As discussed above, the psychometric properties of existing EA scales have been questioned. Gámez et al. (2011), for example, noticed that existing EA measures have either been too narrowly defined or demonstrated unsatisfactory internal consistency and/or evidence of poor discriminant validity – hence the development of the *MEAQ*.

For the purpose of developing the new scale, Gámez et al. (2011, p. 694), defined EA as “the tendency to avoid the experience of negative affective states”. EA was examined in six domains of (1) behaviours, (2) emotions, (3) thoughts, (4) memories, (5) autonomic sensations, and (6) pain. Within each domain, several items were included to measure (1) non-acceptance of negative experiences; (2) interference with values and/or goals; (3) avoidance strategies that do not require explicit awareness; and (4) attitudes or beliefs regarding negative experiences (Gámez et al., 2011). Guided by the definition and principles, 170 preliminary items were developed by six psychological experts and tentatively grouped into 14 clusters. The initial pool of 170 items was administered to a sample of psychology undergraduate students to evaluate the items and establish a structure via exploratory factor analysis. A revised set of 124 items was then administered to another sample of undergraduates (N = 314) and a sample of psychiatric outpatients (N = 201). The participants were further required to

complete a number of instruments to determine convergent and discriminant validity. A second round of item evaluation was performed, resulting in a final 62-item measure consisting of the following six subscales: (1) behavioural avoidance, (2) distress aversion, (3) procrastination, (4) distraction/suppression, (5) repression/denial, and (6) distress endurance (see table 3.11). Items are rated on a six-point Likert scale (1 = *strongly disagree*; 6 = *strongly agree*).

Table 3.11

The Multidimensional Experiential Avoidance Questionnaire (MEAQ)

<i>Dimension</i>	<i>Examples of items</i>
Behavioural avoidance <i>Situational avoidance of physical discomfort and distress.</i>	I go out of my way to avoid uncomfortable situations.
Distress aversion <i>Negative evaluations or attitudes toward distress, non-acceptance of distress.</i>	The key to a good life is never feeling pain again.
Procrastination <i>Delaying anticipated distress.</i>	I try to put off unpleasant tasks for as long as possible.
Distraction/Suppression <i>Attempts to ignore or suppress distress.</i>	When something upsetting comes up, I try very hard to stop thinking about it.
Repression/Denial <i>Distancing and dissociating from distress, lack of distress awareness.</i>	I am able to turn off my emotions when I don't want to feel.
Distress endurance <i>Willingness to behave effectively in the face of distress.</i>	I am willing to suffer for the things that matter to me.

Source: Gámez et al. (2011, p. 695)

Concerning its psychometric properties, the MEAQ demonstrates good internal consistencies with alphas averaging 0.83 across both samples and the average inter-item correlations (AICs) ranging from 0.25 to 0.42 (Gámez et al., 2011). None of AIC scores, however, were high enough to suggest that the subscales contain redundant content. The coefficient alpha for the total questionnaire is excellent (0.91 to 0.92). Stemmet (2013), however, outlined a number of shortcomings. First, exploratory factor analysis was repeated until a preferred solution was arrived at. Confirmatory factor analysis was not used to confirm the factor structure. Secondly, the criterion for selecting the number of factors is not mentioned. Lastly, the developers did not report any re-test statistics and the samples are gender-biased and drawn primarily from undergraduate student populations.

3.4.1.13 The RCOPE and Brief RCOPE

Religiousness, according to Amjad and Bokharey (2014), is difficult to measure because it is a subjective experience. Pargament and colleagues (Pargament, Koenig, & Perez, 2000), however, developed and validated comprehensive instruments that measure religious coping. These instruments are briefly discussed in this section.

a The RCOPE

The RCOPE was designed to measure religious coping. Items for the RCOPE were drawn from previous empirical studies, existing religious coping scales and from interviews with individuals who were accessing their religious and spiritual resources to cope with stressors. An inductive approach was utilised to identify the following five factors: (1) meaning, (2) control, (3) comfort/spirituality, (4) intimacy/spirituality, and (5) life transformation (Pargament & Raiya, 2007). These five factors were further subdivided into 21 dimensions (or subscales), each comprising five items. The RCOPE subscales with examples are summarised in table 3.12.

Table 3.12

The RCOPE subscales

<i>Factor</i>	<i>Subscale</i>	<i>Example item</i>
Meaning	Benevolent religious reappraisal	Saw my situation as part of God's plan.
	Punishing God reappraisal	Wondered what I did for God to punish me.
	Demonic reappraisal	Believed the devil was responsible for my situation.
	Reappraisal of God's powers	Questioned the power of God.
Control	Collaborative religious coping	Tried to put my plans into action together with God.
	Active religious surrender	Did my best and then turned the situation over to God.
	Passive religious deferral	Didn't do much, just expected God to solve my problems for me.
	Pleading for direct intercession	Pleaded with God to make things turn out okay.
	Self-directing religious coping	Tried to deal with my feelings without God's help.
Comfort/spirituality	Seeking spiritual support	Sought God's love and care.
	Religious focus	Prayed to get my mind off my problems.
	Religious purification	Confessed my sins.
	Spiritual connection	Looked for a stronger connection with God.
	Spiritual discontent	Wondered whether God had abandoned me.

<i>Factor</i>	<i>Subscale</i>	<i>Example item</i>
	Making religious boundaries	Avoided people who weren't of my faith.
Intimacy/spirituality	Seeking support from clergy or members	Looked for spiritual support from clergy.
	Religious helping	Prayed for the well-being of others.
	Interpersonal religious discontent	Disagreed with what the church wanted me to believe.
Life transformation	Seeking religious direction	Asked for God to help me find a new purpose in life.
	Religious conversion	Tried to find a completely new life through religion.
	Religious forgiving	Sought help from God in letting go of my anger.

Source: Pargament et al. (2000, p. 524) and Pargament, Feuille, and Burdzy (2011, p. 56)

Participants are required to indicate the extent to which they use specific methods of religious coping in dealing with a critical life event using a four-point Likert scale ranging from 0 (*not at all*) to 3 (*a great deal*) (Pargament et al., 2011). Validation studies confirmed discriminant and incremental validity, and all but two of the scales had alpha values of 0.80 and greater.

While the RCOPE is a valuable instrument for measuring religious coping, its length limits its use (Pargament et al., 2011) – hence the development of the Brief RCOPE.

b The Brief RCOPE

In the development of the Brief RCOPE, the researchers retained the theoretical and functional foundation of the RCOPE. Through factor analysis, the 105 items of the original RCOPE were constrained into two factors (accounting for 33% of the variance), namely positive and negative religious coping methods (see table 3.13). The instrument has 14 items (each scale with seven items) and is scored on a five-point Likert scale (*1 = not at all; 5 = a great deal*). Internal consistencies were high for positive religious coping ($\alpha = 0.93$) and moderate for negative religious coping ($\alpha = 0.77$) (Carpenter, Laney, & Mezulis 2011).

Table 3.13

Dimensions of the Brief RCOPE

<i>Religious coping method</i>	<i>Items from the Brief RCOPE</i>
<i>Positive religious coping subscale</i>	
Spiritual connection	Looked for a stronger connection with God.
Seeking spiritual support	Sought God's love and care.

<i>Religious coping method</i>	<i>Items from the Brief RCOPE</i>
Religious forgiving	Sought help from God in letting go of my anger.
Collaborative religious coping	Tried to put my plans into action together with God.
Benevolent religious reappraisal	Tried to see how God might be trying to strengthen me in this situation.
Religious purification	Asked for forgiveness for my sins.
Religious focus	Focused on religion to stop worrying about my problems.
<i>Negative religious coping subscale</i>	
Spiritual discontent	Wondered whether God had abandoned me.
Punishing God reappraisal	Felt punished by God for my lack of devotion.
Interpersonal religious discontent	Wondered whether my church had abandoned me.
Demonic reappraisal	Decided the devil made this happen.
Reappraisal of God's powers	Questioned the power of God.

Source: Pargament et al. (2011, p. 57)

3.4.1.14 *The General and Specific Avoidance Questionnaire (GSAQ)*

The GSAQ, which comprises general avoidance, emotional avoidance and conflict avoidance, was developed by Stemmet (2013), to measure the dimensions of avoidance coping, based on items generated by a unique scenario and life-domain technique. With this technique, items were generated from unbiased responses to a set of scenarios. Respondents were instructed to indicate how they feel, what their thoughts were and what they would generally do in each scenario. In developing the GSAQ, 35 work and personal scenarios (that individuals may have to cope with) and nine life domains were presented to 30 volunteer participants. The participants were instructed to indicate how they would think, act and feel in each scenario and describe a significant event in each life domain (e.g. work, family, friends, etc.) and explain how they would have dealt with it (Stemmet, 2013). Consequently, from the responses obtained, 61 items were selected. A further 10 items were obtained from the CSQ (Roger et al., 1993). The item pool was refined and duplications were deleted, resulting in the final 67-item draft avoidance scale. These items were cast into a dichotomised true-false response format and administered to a voluntary sample of 264 participants.

Exploratory factor analysis and a scree test suggested a three-factor solution, and rotation to an orthogonal (varimax) terminal solution indicated a 48-item scale (Stemmet, 2013) (see table 3.14).

Table 3.14

Factor structure of the GSAQ

<i>Dimension</i>	<i>Examples of items</i>
General avoidance (27 items)	1. I think to myself that I have to deal with the situation, but don't do anything about it. 2. I try to avoid having to deal with the situation. 3. I usually just ignore things and hope that time will somehow sort them out.
Emotional avoidance (11 items)	4. I try not to think about previous bad experiences 5. I try to forget about unpleasant things I have experienced. 6. I try to ignore memories of difficult situations.
Conflict avoidance (10 items)	7. I deal with tension between me and other people because it won't go away by itself. 8. I deal with conflict between me and other people rather than ignoring it. 9. Unpleasant circumstances have to be dealt with, they don't just go away.

Source: Stemmet (2013, p. 219-221)

Confirmatory factor analysis, performed on a new sample (N = 205), further endorsed the three-factor structure, and the alpha coefficients ranged up to 0.71. Test-retest coefficients for the overall sample ranged from 0.78 to 0.84. The coefficient alphas calculated for each factor ranged from 0.81 to 0.91. From the discussion above it is evident that the GSAQ measures dimensions of avoidance coping. The factor structure of the instrument was confirmed through CFA, and the instrument has evidence of reliability and validity. A dichotomous scale, however, was used to capture the responses. Byrne (2006) maintains that EFA and CFA techniques do not apply to dichotomous data. Instead, special estimation procedures, such as the polychoric correlation matrix, are required to determine and confirm the factor structure (Wirth & Edwards, 2007). Lastly, 10 items were obtained from the CSQ which has been critiqued for measuring the same dimensions as the WCQ (see section 3.4.1.1). Also, the generalisability of the instrument was questioned because it was administered to undergraduate students.

3.4.1.15 *The Maladaptive and Adaptive Coping Styles (MAX) Questionnaire*

The *MAX Questionnaire* measures adaptive and maladaptive coping styles on a four-point Likert scale (1 = not true; 4 = true) (Moritz et al., 2016). The questionnaire consists of 21 items, of which 11 styles are considered helpful and 10 styles unhelpful (see table 3.15).

Table 3.15

Dimensions and example items from the MAX

<i>Dimension</i>	<i>Examples of items</i>
Adaptive coping	<ol style="list-style-type: none"> 1. I actively address a problem and try to resolve it. 2. I accept a situation and try to make the best of it. 3. I strive to view problems as an opportunity and to grow with the challenge.
Maladaptive coping	<ol style="list-style-type: none"> 1. I am prone to rumination. 2. I emotionally overreact quickly. 3. I quickly imagine the worst.
Avoidance	<ol style="list-style-type: none"> 1. I always keep my problems to myself and do not share them with others. 2. I put on "a good face" and hide my true feelings. 3. I avoid problems.

Source: Moritz et al. (2016, p. 303)

The principal component analysis resulted in the extraction of three factors with eigenvalues greater than 1. The factors were labelled adaptive coping, maladaptive coping and avoidance (Moritz et al., 2016). The adaptive and maladaptive coping subscale showed high internal consistency (0.87 and 0.85, respectively). The avoidance subscale, however, was less consistent (0.65). The inter-item correlations ranged between 0.30 and 0.57 for the adaptive coping subscale, 0.25 and 0.61 for the maladaptive coping subscale, and 0.30 to 0.48 for the avoidance subscale. The test-retest reliabilities were satisfactory. Although the MAX is psychometrically sound, some concerns should be outlined. First, the developers failed to conduct or report the results of the confirmatory factor analysis. Secondly, the internal consistency of the avoidance scale was less consistent. One might thus question the factor structure of the questionnaire, since avoidance was originally labelled as a maladaptive coping strategy (Aldao et al., 2010). Lastly, even though the psychometric properties of the questionnaire are adequate, developers should take care when items are developed. Double-barrelled items, such as in this questionnaire, might result in inaccuracies in the construct being measured.

3.4.1.16 Summary

Various instruments have been developed to assess different aspects of coping. In the preceding sections, a number of coping instruments that have drawn the attention of coping researchers and instrument developers were briefly discussed (see table 3.16 for a summary of the questionnaires). From the above discussion it is evident that there are a number of conceptual and methodological concerns regarding these instruments (Carver et al., 1989;

Compas et al., 2001; Folkman, 2010; Folkman & Moskowitz, 2004; Schwarzer & Schwarzer, 1996; Stemmet, 2013).

The concerns raised include the construction of items based on theory, experience and judgements of face validity by content experts, the clarity and specificity of items, and the purpose of the instrument. Various researchers have also highlighted other issues such as the following: instruments with too few items to reliably assess specific coping strategies; items with ambiguous meaning (e.g. double-barrelled items); ambiguous response formats; extracting too many factors; failing to conduct or report the results of the confirmatory factor analysis; failing to report on the empirical validation of the instrument; and including items that are too situation specific or are inappropriate for the population under investigation. Lastly, according to Stemmet (2013), the majority of coping scales have been developed and validated among student samples rather than samples from the general population, and a great deal of emphasis has been placed on clinical implications.

In conclusion, for the purposes of this study, it was deemed important to outline the basic composition and discuss the psychometric properties of existing coping questionnaires. Not only did this discussion assist the researcher in developing a psychometrically sound instrument, but the current conceptual and methodological issues could also be avoided.

Table 3.16

Coping questionnaires

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
Ways of Coping Questionnaire (WCQ) (Lazarus & Folkman, 1984)						
Which coping strategies are used in a specific stressful situation.	Inductive approach	Undergraduate students	8 dimensions	50 items, 4-point Likert scale	Exploratory factor analysis	Reliability estimate: 0.73, ranging from 0.56 to 0.85.
Conceptual and methodological issues of the WCQ: <ul style="list-style-type: none"> • Poor reliability and validity estimates. • The format of the response items and the factor structure were criticised by various researchers (Stemmet, 2013). Confirmatory factor analysis was not used to confirm the factor structure. • Some coping dimensions from the theory are not evident in the questionnaire. 						
The Coping Orientations to the Problem Experienced (COPE) Inventory (Carver et al., 1989)						
Which coping strategies are used when stressful events are experienced.	Inductive approach	Undergraduate students	11 dimensions (outlined in table 3.2)	52 items, 4-point Likert scale	Exploratory factor analysis	Reliability estimate ranged from 0.45 to 0.92.
Conceptual and methodological issues of the COPE: <ul style="list-style-type: none"> • The Cronbach alpha for the inventory ranged between 0.45 and 0.92. • The structure of the scale has been questioned. Stemmet (2013) points out that the developers used the Kaiser-Guttman rule for factor extraction, which leads to an over extraction of factors comprising too few items. 						
Coping Resource Inventory (CRI) (Hammer & Marting, 1988)						
An assessment of coping resources available to the participants for managing stress.	Inductive approach	Undergraduate students	5 dimensions (outlined in table 3.3)	60 items, 4-point Likert scale	Exploratory factor analysis	Cronbach alpha coefficients and test-retest reliability estimates varied between 0.71 and 0.84.

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
Coping Strategy Indicator (CSI) (Amirkhan, 1990)						
The CSI assesses specific responses to real-world stressors.	Deductive and inductive approach	General public	3 dimensions (outlined in table 3.4)	Likert scale	Factor analysis and confirmatory factor analysis	Coefficients ranged from 0.80 to 0.90.
Conceptual and methodological issues of the CSI:						
<ul style="list-style-type: none"> The CSI measures event-specific coping strategies and therefore only measures a selected number of possible coping items. Results from the confirmatory factor analysis indicated inadequate goodness of fit indices. 						
Coping Strategy Inventory (CSI) (Tobin et al., 1989)						
The CSI was designed to assess coping thoughts and behaviours in response to a specific stressor.	Deductive and inductive approach	Psychology students	7 dimensions (outlined in table 3.5)	72 items, 5-point Likert scale	Exploratory factor analysis	Alpha coefficient: 0.83; Pearson correlation coefficient: 0.73.
Conceptual and methodological issues of the CSI:						
<ul style="list-style-type: none"> The CSI was administered to psychology students, which brings its generalisation into question. 						
The Multidimensional Coping Inventory (MCI) (Endler & Parker, 1990)						
The MCI assesses specific responses to a difficult, stressful or upsetting situation.	Inductive approach	Undergraduate students	3 dimensions (outlined in table 3.6)	44 items, 5-point Likert scale	Factor analysis	Alpha coefficients ranged from 0.76 to 0.91. Test-retest correlations ranged between 0.66 and 0.74.
Conceptual and methodological issues of the MCI:						
<ul style="list-style-type: none"> The MCI was administered to undergraduate psychology students, which brings its generalisation into question. 						

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
<ul style="list-style-type: none"> According to Stemmet (2013), there is not report of a more robust confirmatory factor analysis to validate the structure obtained by means of principal component analysis. There appears to be an overlap between the factors that impact negatively on the ability to distinguish between the different factors of the MCI. 						
The Coping Inventory for Stressful Situations (CISS) (Endler & Parker, 1990, 1999)						
The CISS measures both general trait coping styles and situation-specific coping responses.	Inductive approach	Undergraduate students	3 dimensions	48 items, 5-point Likert scale	Exploratory factor analysis	Excellent internal consistency (Cronbach alpha coefficient is greater than 0.80). CISS has a stable factor structure. Adequate test-retest reliability (six-week test-retest correlations are above 0.50). Support for construct validity.
Conceptual and methodological issues of the CISS: <ul style="list-style-type: none"> According to Stemmet (2013), the CISS cannot be generalised to other populations. The instrument is mainly used to measure general traits, coping styles and situational-specific coping responses. Some of the avoidant scale items may also represent ordinary behaviours rather than coping strategies. According to Zeidner and Endler (1996) the CISS is based on the dispositional-approach which only focuses on one aspect of coping. The avoidance scale seems to measure general behaviours, rather than coping strategies. 						
Coping Styles Questionnaire (CSQ) (Roger et al., 1993)						
The CSQ assesses how one reacts to stress.	Inductive approach	Undergraduate students	4 dimensions	60 items, 4-point Likert scale	Exploratory factor analysis	Test-retest reliability coefficient was 0.70.

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
			(outlined in table 3.7)			Alpha coefficients were 0.80 or higher.
Conceptual and methodological issues of the CSQ: <ul style="list-style-type: none"> The CSQ measures the same dimensions as the WCQ, which has been extensively criticised in previous coping literature. The CSQ was administered to undergraduate students, which brings its generalisation into question. 						
Proactive Coping Inventory (PCI) (Greenglass et al., 1999)						
The PCI assesses different dimensions of a proactive approach to coping.	Inductive approach	Undergraduate students	7 dimensions (outlined in table 3.8)	55 items, 4-point Likert scale	Confirmatory factor analysis Principal component analysis	Internal consistency ranged from 0.71 to 0.85. Good item-total correlations and acceptable skewness.
Conceptual and methodological issues of the PCI: <ul style="list-style-type: none"> The PCI measures coping skills and not coping responses. The PCI was administered to undergraduate students, which brings its generalisation into question. 						
Emotional Approach Coping Scale (EACS) (Stanton et al., 2000)						
The EACS asks participants to indicate what they generally do, feel and think when they experience stressful situations.	Inductive approach	Undergraduate students	2 dimensions (outlined in table 3.9)	8 items, 4-point Likert scale	Exploratory and confirmatory factor analysis	Internal consistency ranged between 0.72 and 0.94. Test-retest reliability ranged between 0.72 and 0.78.
Conceptual and methodological issues of the EACS: <ul style="list-style-type: none"> It only measures one dimension of coping, namely emotional coping. 						
Acceptance and Action Questionnaire (AAQ) (Hayes et al., 2004)						

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
The AAQ measures individuals' willingness to accept their emotions and thoughts, and ability to behave in a desired way even when they experience intense emotions.	Inductive approach	Clinical and non-clinical samples, and undergraduate students.	1 dimension (outlined in table 3.10)	9 items, 7-point Likert scale	Exploratory factor analysis, structural equation modelling and confirmatory factor analysis	Alpha coefficients for the questionnaire are 0.70 or lower.
Conceptual and methodological issues of the AAQ: <ul style="list-style-type: none"> • It is unclear whether the AAQ is a comprehensive measure, because it was designed to measure only two aspects of EA. • Internal coefficients for the AAQ are 0.70 and lower, suggesting that it is somewhat heterogeneous. • The AAQ displays evidence of poor discriminant validity. 						
Multidimensional Experiential Avoidance Questionnaire (MEAQ) (Gámez et al., 2011)						
The MEAQ assesses a broad range of EA content.	Inductive approach	Undergraduate students and psychiatric outpatients	6 dimensions (outlined in table 3.11)	62 items, 6-point Likert scale	Exploratory factor analysis	Good internal consistencies. The average inter-item correlations between the scales ranged from 0.25 to 0.42. Alpha coefficients for the total questionnaire ranged between 0.91 and 0.92.
Conceptual and methodological issues of the MEAQ <ul style="list-style-type: none"> • Exploratory factor analysis was repeated until the preferred solution was obtained. • Confirmatory factor analysis was not used to confirm the factor structure. • The criterion for selecting the factors was not reported. 						

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
<ul style="list-style-type: none"> The test-retest statistics were not reported. The samples were gender-biased and drawn primarily from undergraduate students. 						
RCOPE (Pargament et al., 2000)						
The RCOPE was designed to measure religious coping.	Inductive approach	General public	5 dimensions (outlined in Table 3.12)	105 items, 4-point Likert scale	Exploratory factor analysis	Alpha coefficients of 0.80 and higher.
Brief RCOPE (Pargament et al., 2011)						
The brief RCOPE was designed to measure religious coping.	Inductive approach	General public	2 dimensions (outlined in table 3.13)	14 items, 4-point Likert scale	Exploratory and confirmatory factor analysis	Alphas for positive and negative religious coping were 0.83 and 0.79, respectively.
General and Specific Avoidance Questionnaire (GSAQ) (Stemmet, 2013)						
The GSAQ measures the dimensions of avoidance coping.	Inductive approach	General public	3 dimensions (outlined in table 3.14)	48 items, dichotomised true-false response format	Exploratory and confirmatory factor analysis	Alpha coefficients ranged up to 0.71. Test-retest coefficients ranged from 0.78 to 0.84. Internal consistency alpha coefficients ranged from 0.81 to 0.91.
Conceptual and methodological issues of the GSAQ: <ul style="list-style-type: none"> EFA and CFA techniques to not apply to dichotomous data. Items were taken from the CSQ which has been critiqued for measuring the same dimensions as the WCQ. 						

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
Maladaptive and Adaptive Coping Styles (MAX) Questionnaire (Moritz et al., 2016)						
The MAX measures adaptive and maladaptive coping styles.	Inductive approach	General public	3 dimensions (outlined in table 3.15)	21 items, 4-point Likert scale	Exploratory factor analysis	High internal consistency. Test-retest reliabilities were satisfactory.
Conceptual and methodological issues of the MAX: <ul style="list-style-type: none"> • Confirmatory factor analysis was not used to confirm the factor structure. • The questionnaire contains some double-barrelled items (e.g. I actively address a problem and try to resolve it). 						

Source: Author's own compilation

3.4.2 Coping instruments in South Africa

From the preceding section it can be concluded that there are various international coping instruments. However, this is not the case in the South African context. According to Van Wyk (2010), hardly any coping instruments have been developed and validated in the South African and African contexts. Examples of validated coping instruments for a multicultural South Africa and instruments developed for a South African context are briefly discussed in this section.

3.4.2.1 Validated coping instruments

Validation is the process of proving the *validity* of an assessment measure (Moerdyk, 2009). In this section, the coping instruments that have been validated for the South African and African contexts are outlined and briefly discussed.

In 1999, Stapelberg and Wissing (1999) translated the COPE into Setswana and validated it for African Setswana-speaking groups. The S-COPE's validity and reliability were tested among a group of Setswana Africans in the North West Province. A factor pattern was extracted from the original COPE through exploratory factor analysis. Three clear reliable factors, namely active out-reach to others, surrender and resignation and overt expression of distress, with loadings of higher than 0.30 and eigenvalues of more than 1.0 emerged. The S-COPE had construct validity, but the convergent and discriminant validity was not determined at the time.

Visser (2005) validated the COPE among 229 police personnel from the North West Province. The dispositional version of the COPE was used, which consisted of 53-items. Eight additional items measuring emotional processing and emotional expression were also used. Initial analysis revealed unreliable results. Subsequent analysis indicated that two coping mechanisms reflecting emotionality in broad terms were employed by police members. These factors were termed "active emotional expression" and "emotional reappraisal". Cronbach alpha coefficients and Tucker's phi coefficients were acceptable, indicating equivalence for both the Afrikaans and "other" language groups. No significant differences were evident between the created language categories or gender.

Van der Walt, Potgieter, Wissing, and Temane (2008) developed and validated a multidimensional coping measure by taking African-centred coping behaviour into consideration. In a pilot study, the S-COPE and the Agricultural Coping Systems Inventory

(ACSI) were administered to 274 Setswana-speaking participants. Selected items from these measures were combined into a 35-item measure, the N-COPE. The N-COPE, together with a number of measures of psychological wellbeing, was administered to another group of Setswana-speaking participants. The N-COPE obtained a reliability coefficient of 0.74, and criterion validity was determined by correlating it with other measures of psychological wellbeing. The N-COPE indicated promising results for use in this context, but according to these authors, further refinement and validation are required.

According to Foxcroft and Roodt (2009), the suitability of the CRI (Hammer & Marting, 1988) in the South African context is promising, but it has not yet been standardised for the South African population.

Van Wyk (2010) validated the Coping Self-Efficiency Scale (CSE) among a multicultural convenience sample of 2 214. The participants were required to complete the CSE and other measures that were closely related to coping, self-efficiency and psychological wellbeing. The results of the study revealed a reliability coefficient of 0.87 and a low inter-item correlation ranging from 0.19 to 0.21. Construct validity was supported by confirmatory factor analysis and three factors were extracted, namely using problem-focused coping, stopping unpleasant emotions and thoughts and getting support from friends and family. The English version of the CSE therefore has good reliability and validity in a South African multicultural context.

From the discussion above it can be concluded that the COPE (S-COPE and N-COPE) and CSE have been validated in a South African and African context, and that the CRI (if standardised) seems to be promising for the South African context. It is interesting to note that questionnaires such as the WCQ, CSI, CISS and CSQ, were not validated in the South African context even though they are well-known international coping instruments.

In the next section, coping instruments that have been developed and standardised for a South African population are discussed.

3.4.2.2 Coping instruments developed and standardised in South Africa

De Beer and Korf (2005) developed a coping and resilience questionnaire for the South African Police Service to aid in its selection of entry-level constables. The aims of the study were threefold, namely to (1) develop two parallel new questionnaires with a focus on coping and resilience, (2) use the existing instruments that measure coping in various ways to provide

initial construct validity information, and (3) explore the use of a new question format to simplify answering and to attempt to address social desirability.

The instrument was administered to two populations, one in 2003 (N = 1 815) and the other in 2004 (N = 1 990), respectively. The final questionnaire would have been constructed based on the initial item analysis, after which analysis of reliability and construct validity would have been investigated. The theoretical dimensions that showed the most statistically significant correlations were cognitive (decision making), intrapersonal (sense of self, personal control and perseverance), interpersonal (social skills), physical and values (meaningfulness).

At a SIOPSA conference in 2004, the developers (De Beer & Korf, 2005) indicated that the final version of the questionnaire still needed to be compiled, a scoring system for both the global coping score as well as scores on important subdimensions needed to be compiled, the reliability and validity of the instruments needed to be determined, and the manuals for administration, scoring and interpretation needed to be finalised.

From the discussion above, it can be concluded that a coping instrument has been developed in a South African context, but that the instrument has not yet been finalised and standardised for a South African population.

The dimensions and subdimensions identified in the questionnaires discussed in section 3.4.1 are outlined and briefly discussed in the next section.

3.4.3 Dimensions and subdimensions of coping

Coping researchers have used various classification themes to categorise the coping process, but the most widely used dimensions of coping are as follows: problem versus emotion-focused coping (Lazarus & Folkman, 1984), primary versus secondary control coping (Aldwin, Skinner, Zimmer-Gembeck, & Taylor, 2010; Compas et al., 2001; Zimmer-Gembeck & Skinner, 2016), engagement versus disengagement coping (Carver & Connor-Smith, 2010), adaptive versus maladaptive coping (Aldoa et al., 2010), and avoidance coping (Carver et al., 1989).

Other dimensions that have been proposed include proactive coping (Aspinwall & Taylor, 1997; Greenglass & Fiksenbaum, 2009), cognitive and behavioural coping (Legerstee, Garnefski, Verhulst, & Utens, 2011), and active and passive coping (Compas et al., 2001). These dimensions are often discussed in the literature and measured in research, but they are

not the only dimensions by which coping strategies can be classified (Skinner et al., 2003). Existing literature indicates that a wide range of biological, behavioural, emotional and cognitive (conscious and unconscious) processes (Compare et al., 2014; Garnefski et al., 2001; Gross, 1998) regulate emotions. Researchers have also found that individuals adopt more positive dimensions (Folkman, 2010) such as religious coping (Ano & Vasconcelles, 2005; Corsini, 2009; Pargament & Raiya, 2007; Sharp, 2010), and leisure coping (Kim & McKenzie, 2014; Wike, 2015) to respond to environmental demands. Hobfoll (2001) further posits that coping does not occur in a vacuum and that one's social context, friends and family also influence one's appraisal of the situation and which coping strategies one adopts to deal with the situation.

These dimensions are discussed briefly in this section.

3.4.3.1 *Problem versus emotion-focused coping*

The problem and emotion-focused dimension reflects the function of coping responses to either act on a source of stress in the environment (problem focused) or modulate negative emotions that arise from the stressful situation (emotion focused) (Lazarus & Folkman, 1984). *Problem-focused coping* is similar to problem-solving (Lazarus & Folkman, 1984), but, whereas problem-solving strategies are objective, analytical processes that are mainly focused on the environment, problem-focused coping includes more intrapersonal strategies that reduce the problem through motivational and cognitive changes (Contrada & Baum, 2011; Lazarus & Folkman, 1984). Individuals who employ problem-focused coping therefore attempt to reduce stress by dealing directly with the stressor (Blum, Brow, & Silver, 2012; Carver & Connor-Smith, 2010; Rothmann, Jorgensen, & Hill, 2011). Problem-focused coping is generally action oriented with the aim of reducing or eliminating the stressor (Baqutayan, 2012). Examples of problem-focused coping include revising a plan, setting an agenda for a busy day, seeking information and taking action to change the circumstances that are creating stress.

Emotion-focused coping, by contrast, is defined to include responses that serve the purpose of managing emotional reactions to stress, such as social withdrawal, distraction and expressing one's emotions (Zimmer-Gembeck & Skinner, 2016). Emotion-focused coping strategies are generally associated with internalising and externalising emotions (Zimmer-Gembeck & Skinner, 2016), which involves releasing suppressed emotions, distracting oneself and managing hostile feelings, to name a few. The purpose of this coping strategy is to change

the meaning of a stressor or transfer attention away from it (Folkman & Lazarus, 1988). These emotions are not uniform across studies and therefore depend on the type of stressor or features of the stressor (Zimmer-Gembeck & Skinner, 2016).

Although this dimension has been widely used in research on coping, criticism of it is also widespread. Firstly, emotion-focused coping, for example, is a broad concept in that it involves behaviours directed towards both approach and avoidance coping and associated emotions (Compas et al., 2001; Folkman, 2010). Secondly, the manner in which emotion-focused coping was operationalised in coping measures was found to be associated with distress and dysfunction (Stanton, Danoff-Burg, Cameorn, & Ellis, 1994; Stanton et al., 2000). Lastly, measurement items contained expressions of distress and self-depreciation, which emphasised its disorganising qualities and were associated with maladaptive coping (Stanton et al., 2000). Based on these findings, Stanton et al. (2000) studied the conceptualisation of emotion from a more functionalist approach (i.e. emotions are adaptive, organising elements of an individual's experience) which is more adaptive in nature. Stanton et al. (2000) theorised the *emotional approach* to coping (discussed in section 3.4.3.8).

3.4.3.2 *Primary versus secondary control*

The primary-secondary control model of coping distinguishes between primary control and secondary control (Skinner et al., 2003). *Primary control* refers to attempts directed towards changing the stressful situation through problem-focused, active and approach coping (Compas et al., 2001; Zimmer-Gembeck & Skinner, 2016). Skinner et al. (2003, p. 229) defined primary control as “coping designed to influence objective events or conditions”. The individual, according to Rudolph, Denning, and Weisz (1995), is thus oriented to achieving a sense of control over the environment and his or her reactions to it. Individuals who have a high sense of control, cope constructively (Aldwin et al., 2010). Self-regulation, according to Aldwin et al. (2010), is thus action oriented and focused on creating strategies, exerting effort and using outcomes as information to develop subsequent strategies. Consequently, self-regulation and coping lead to solving problems, and if problems are not solvable, valuable knowledge and skills are obtained, which decreases the probability of future stressful encounters. The individual's sense of control is reinforced (Schmitz & Skinner, 1993).

Secondary control, however, refers to control strategies (such as cognitive appraisal or cognitive restructuring, a focus on the positive, distraction and acceptance) that alter the self to accommodate the environment (Folkman, 2010). Secondary control strategies are aimed at

maximising one's fit to current conditions (Skinner et al., 2003). The primary aim of secondary control efforts is to maintain and increase existing levels of primary control (Aldwin et al., 2010). When individuals are confronted with stressful events, they not only want to change the stressful situation (primary control), but also control facets of the self that might assist them in accomplishing primary control. Similar to primary control, secondary control strategies increase the probability that future attempts to exercise control are successful. Primary control therefore involves controlling the environment itself, whereas secondary control involves changing oneself and one's reactions to the stressful situation (Allen & Leary, 2010).

3.4.3.3 *Engagement versus disengagement coping*

Carver and Connor-Smith (2010) distinguish between engagement coping and disengagement coping. *Engagement coping* is regarded as a more adaptive form of coping because it is aimed at dealing with the stressor or resulting distress emotion (Carver & Connor-Smith, 2010; Magnuson & Barnett, 2013; Muhonen & Torkelson, 2011). Engagement coping includes problem-focused coping and some forms of emotion-focused coping such as seeking social support, emotion regulation, acceptance and cognitive restructuring (Carver & Connor-Smith, 2010).

Disengagement coping, by contrast, is aimed at escaping from the stressor or the distressing emotion (Carver & Connor-Smith, 2010). Disengagement coping is often emotion focused because it involves attempts to escape feelings of distress. It further includes responses such as avoidance, denial and wishful thinking (Muhonen & Torkelson, 2011). Disengagement coping is an ineffective coping response for the following reasons: (1) the individual acts as though the stressor does not exist; (2) it does nothing about the stressful situation and its impact on the individual; and (3) it increases negative moods and anxiety (Carver & Connor-Smith, 2010). In summary, disengagement coping addresses both the stressor's existence and the emotional impact it has on the individual, and is associated with higher levels of distress. Disengagement coping is thus associated with avoidance coping (discussed in section 3.4.3.5).

3.4.3.4 *Adaptive versus maladaptive coping*

The literature has found that individuals still engage in *maladaptive coping strategies*, such as suppression, disengagement and avoidance, to control their emotions in an effort to respond to environmental demands (Aldao et al., 2010). Maladaptive coping strategies, however, are

associated with poor modulation skills (Newman & Llera, 2011), increased psychological distress (Holahan, Moos, Holahan, Brennan, & Schutte, 2005), occupational stress (Pasillas, Follette, & Perumean-Chaney, 2006), and consequently psychological disorders such as anxiety, depression and burnout (Karekla & Panayiotou, 2011; Mark & Smith, 2011; Mostert & Joubert, 2005; Van der Colff & Rothmann, 2009).

Active coping strategies, however, are adopted to either change the nature of a stressful situation to decrease the problematic nature of the situation, or to modify how one thinks and feels about the situation in order to change one's reaction to it (Carroll, 2013). Individuals who adopt *adaptive* coping strategies actively deal with stressors or think of ways to approach the stressful situation (Bartram & Gardner, 2008). Active coping strategies thus show weaker associations with psychological distress and psychopathological disorders (Aldao et al., 2010), and have also been found to prevent harm, reduce stress and emotional problems in the short and long term (Moritz et al., 2016).

3.4.3.5 *Avoidance coping*

Avoidance is conceptualised as refraining from an action or escaping from a person or object (Stemmet, Roger, Kuntz, & Borrill, 2014, p. 1). Avoidance coping is thus broadly defined as individuals' cognitive and behavioural efforts to avoid dealing with a situation, an individual, an emotion, a thought or any other object that causes harm (Stemmet, 2013). Similarly, Ottenbreit and Dobson (2004) define avoidance coping as a defensive response that involves ignoring, distorting or escaping from stimuli that are perceived as threatening. Individuals who engage in avoidance coping strategies thus attempt to avoid stressful situations rather than resolve them. Avoidance coping strategies include approaches such as self-destructive behaviour, distraction, disengagement (behavioural, mental [similar to thought suppression] and emotional [similar to expressive suppression, social and religious]) and denial (Karekla & Panayiotou, 2011). Avoidance coping, according to Aldao et al. (2010), also includes experiential avoidance (discussed in section 3.5.2.1).

3.4.3.6 *Proactive coping*

Proactive coping deals with anticipated stressful events that have not yet occurred (Gan, Hu, & Zhang, 2010). It is defined as "efforts undertaken in advance of a potentially stressful event to prevent it or to modify its form before it occurs" (Aspinwall & Taylor, 1997, p. 417). This type of coping is thus a multidimensional, future-oriented strategy that integrates processes of

personal quality-of-life management with those of self-regulatory goal attainment (Greenglass et al., 1999). In proactive coping, individuals perceive opportunities and demands in the future, but they do not appraise these as threats. Instead, they perceive difficult situations as challenges (Greenglass & Fiksenbaum, 2009). Individuals who adopt proactive coping strategies accumulate coping resources and skills, take the necessary steps to prevent resource depletion and can use these resources when required. Proactive coping therefore incorporates a more constructive and positive approach to dealing with stressors, and promotes individual health and wellbeing (Greenglass & Fiksenbaum, 2009). Research has found that proactive coping contributes to physical health and mental wellbeing, greater optimism and life satisfaction, and less depression and burnout (Greenglass, 2006). Proactive coping is further characterised by a positive mood and feeling energetic and successful (Greenglass & Fiksenbaum, 2009).

3.4.3.7 *Cognitive coping*

Cognition is defined as the “mental action or process of acquiring knowledge and understanding through thought, experience and senses” (Oxford Dictionaries, 2016). It encompasses processes such as knowledge, attention, memory, and working memory, judgement and evaluation, reasoning and computation, problem solving and decision making, comprehension and the production of language, to name a few (Sternberg & Sternberg, 2012). Cognition provides structure to the individual’s world which determines how he or she feels and behaves (Sharoff, 2002).

Cognitive coping was conceptualised by Legerstee et al. (2011) as the cognitive efforts to manage the intake of emotionally arousing stimuli. Similarly, Park and DeFrank (2010) explain cognitive coping as the ability to reduce stress by the effective management of time and effort, as well as the use of a systematic approach to problem solving and thinking. Cognitive coping strategies are therefore defined as the “cognitive way of managing the intake of emotionally arousing information” (Garnefski, Legerstee, Kraaij, Van den Kommer, & Teerds, 2002, p. 605).

In their work, Garnefski et al. (2001) identified nine dimensions of cognitive emotion regulation or cognitive coping strategies, namely self-blame, other-blame, rumination, catastrophising, putting into perspective, positive refocusing, positive reappraisal, acceptance and refocus on planning. These nine dimensions were further grouped into adaptive and less adaptive coping strategies (Lui, Chen, & Blue, 2016). Adaptive cognitive coping strategies include positive

reappraisal, refocus on planning, acceptance and putting into perspective, whereas less adaptive strategies include self-blame, catastrophising, rumination and other-blame.

3.4.3.8 Emotional coping

The emotional approach to coping involves active movement towards, rather than away from, a stressor (Snyder et al., 2011), and is defined as the effortful attempt to approach one's emotions in response to stressful encounters that are appraised as taxing or exceeding an individual's coping resources (Stanton et al., 2000). In other words, coping takes place by means of acknowledging, understanding and expressing emotions (Snyder & Lopez, 2005). Based on this definition, Stanton et al. (2000) identified three emotion approach strategies to coping, namely (1) emotion identification, (2) emotional processing, and (3) emotional expression (discussed in section 3.4.1.10). Gross and Oliver (2013), and Compas et al. (2001) further explained that emotional processing and emotional expression play a vital role in emotional regulation which, in turn, allows the individual to cope with stressful situations. Emotional approach coping is therefore an advantageous coping mechanism (Stanton et al., 2000).

3.4.3.9 Social support coping

Previous research has shown that an individual's social support system or social relationships not only affect his or her socialisation, development and general wellbeing, but are also invaluable in coping with environmental demands (Antonucci, Lansford, & Ajrouch, 2007). Social support, according to Walsh (2008), assists individuals in stressful situations by acting as an "auxiliary ego". The auxiliary ego is the person who assumes the role of a significant person in the individual's life (Psychology Dictionary, 2016). Social support is therefore defined as a "dynamic process of transactions between people whereby assistance is received, especially during periods of stressful demands" (Hobfoll, 2001, p. 14 461). Social support refers to various types of support that individuals receive from others which arises from the conduct of personal relationships (Gottlieb & Bergen, 2010). Social support, according to Antonucci et al. (2007), and DeLongis and Holtzman (2006), has a direct effect on the health and wellbeing of an individual regardless of the level of stress experienced and therefore acts as a buffer against stress. In terms of this approach, during stressful events, social support mediates the association between the stressor and adjustment so the stressor does not negatively affect individuals who have adequate support systems compared to those who have less adequate support. Consequently, one's support system is helpful in the following four primary ways: it

provides (1) emotional comfort and enhances self-esteem; (2) financial or other material aid; (3) information or advice; and (4) assistance or instrumental help (Lepore, 2012). Individuals also benefit from having supportive social relations without having any direct exchange of support (Lepore, 2012). The mere perception (perceived support) that support is available is often enough to reduce negative emotional experiences, boost an individual's morale and/or reduce the negative impact of a stressful situation. Perceived support is more important than actual support, because it is the individual's belief that social support is available and provides what the individual in the given situation requires (Mattson & Gibb Hall, 2011). Support can further protect individuals' mental and physical health when they are unaware that support has been provided (Lepore, 2012). This is also known as invisible support. Social support is thus part of an individual's relationships with others which helps him or her in times of crisis, enhances his or her sense of belongingness and positive self-image (Kumar, Lal, & Bhuchar, 2014). Blum et al. (2012) therefore contend that social support is recognised as one of the most productive or adaptive coping strategies. DeLongis and Holtzman (2006) and Park et al. (2015) further explain that social referencing, social relationships and social networks act as invaluable coping resources. Accordingly, social support can take many forms, namely (1) emotional support, (2) esteem support, (3) network support, (4) information support, and (5) tangible support (Mattson & Gibb Hall, 2011).

3.4.3.10 Leisure coping

Stress and coping are prevalent and ubiquitous in one's daily life. The way in which individuals perceive stress and ways in which they cope with stressors strongly influence their health and wellbeing. Distracting responses (thoughts and behaviours that direct the individual's attention away from a stressful situation) such as leisure (Hutchinson, Loy, Kleiber, & Dattilo, 2003; Iwasaki, 2003a; Iwasaki, 2003b; Iwasaki & Mannell, 2000; Iwasaki & Schneider, 2003; Lehto, Park, Fu, & Lee, 2014) and physical activity or exercise (Azizi, 2011; Edwards, 2006; Gerber & Pühse, 2009; Kim & McKenzie, 2014; De Andréa, Lanuez, Machado, & Filho, 2010; Stults-Kolehmainen & Sinha, 2014) have been identified as a means to cope with stressors by buffering the impact of negative life events.

Leisure is conceptualised by Joudrey and Wallace (2009, p. 197) as the activities that individuals voluntarily engage in when they are free from work, social or familial obligations. Similarly, Kim and McKenzie (2014) define leisure as an intrinsically, self-endorsed activity which includes pursuing enjoyment, self-expression and meaningful engagement. Leisure is thus a broader concept than physical activity or exercise. Physical exercise is defined as any

physical activity that is planned, structured and repetitive, and its objective is to improve or maintain one's physical fitness (Stults-Kolehmainen & Sinha, 2014). Physical activity, however, is conceptualised as any bodily movement that results in energy expenditure and includes, say sports, activities done as part of daily living and leisure, and active transportation (Stults-Kolehmainen & Sinha, 2014).

In one of the first studies to address the relationship between leisure, stress and coping, Coleman and Iso-Ahola (1993) hypothesised that social support (i.e. engaging in leisurely activities with friends) and self-determination (i.e. individuals' belief that their actions are self-determined, freely chosen or autonomous) gained through leisure contribute to stress reduction, and consequently promote physical and mental health and wellbeing. Subsequently, in a study conducted by Caltabiano (1994), the researcher identified three dimensions of leisure, namely outdoor-active sport, social and cultural hobbies leisure. Later, in 2000, Iwasaki and Mannell (2000) identified two dimensions of leisure coping, namely coping resources (i.e. leisure coping beliefs) and coping strategies (i.e. leisure coping strategies). They (Iwasaki & Mannell, 2000, p. 165) explained leisure coping beliefs as individuals' belief that their leisure helps them cope with stress. These beliefs gradually develop over time and are mainly maintained through socialisation. Leisure coping strategies, however, are conceptualised as "the actual stress-coping situation-grounded behaviours or cognitions available through involvement in leisure" (Iwasaki & Mannell, 2000, p. 167). Through their research, the researchers further found that individuals may at times intentionally choose their leisure activities to generate behaviours or cognitions that assist them in coping with stressful situations. At other times, they may find that what they do or have done in their leisure time has helped them manage stress, even though they have chosen to participate in these activities for other reasons (Iwasaki & Mannell, 2000). In subsequent research, researchers found that leisure coping significantly predicted positive, long-term coping outcomes, mental health and psychological wellbeing (Iwasaki, 2001; Iwasaki, Mannell, Smale, & Butcher, 2002). The researchers concluded that leisure coping strategies are thus more situation specific and intentional than leisure coping beliefs, and the use and effectiveness of coping strategies depend on the specific life circumstances encountered by the individual. Evidence therefore suggests that leisure participation serves as a protective factor or general coping mechanism, as a way to overcome threatening or negative life events, and also as a situational coping resource or strategy (Patry, Blanchard, & Mask, 2007).

Leisure, according to Kim and McKenzie (2014) and Joudrey and Wallace (2009), is further grouped into four categories, namely (1) passive leisure, (2) active leisure, (3) social leisure activities, and (4) vacation time.

3.4.3.11 Religious coping

Religion is a prominent force in people's lives, and for many years, religious researchers and theorists have recommended religious coping as a means for dealing with stressors (Ano & Vasconcelles, 2005; Hammer & Marting, 1988; Pargament & Raiya, 2007; Zeidner & Hammer, 1990). Religious and spiritual activities, according to Amjad and Bokharey (2014), assist individuals in reframing stressful events in ways that motivate them to intrinsically deal with stressors.

Spirituality is conceptualised as "a subjective belief system that incorporates self-awareness and reference to a transcendence dimension, providing meaning and purpose in life, and feelings of connectedness with God or the larger reality" (Bensley, 1991, p. 288). Religion, however, is defined as "an organised system of beliefs, practices, and symbols designed to facilitate closeness to a higher power" (Koenig, George, & Titus, 2004, p. 554). Koenig et al. (2004, pp. 554–555) further categorised religious activities into three dimensions, namely (1) organisational religious activity (ORA), (2) non-organisational religious activity (NORA), and (3) subjective or intrinsic religiosity (IR). ORA is the social dimension of religiousness and includes, for example, going to church, participating in prayer or Bible study groups, and/or participating in church functions. NORA consists of more private and/or personal religious behaviours which occur alone such as prayer or meditation, reading the Bible or other religious literature, listening to a religious radio station or watching a religious television show. Lastly, IR reflects the extent to which religion is the primary motivating factor in an individual's life which influences his or her decision making. Individuals who are thus involved in religious activities may cope better with stressful situations because their self-esteem and sense of wellbeing are not dependent on their physical circumstances.

Pargament and Raiya (2007, p. 743) defined religious coping as "ways of understanding and dealing with negative life events that are related to the sacred". Pargament et al. (2011) further distinguished between positive and negative religious coping strategies. Positive religious coping strategies are more related to positive outcomes and include, say, seeking spiritual connections and spiritual support, whereas negative religious coping strategies are generally more related to negative outcomes and include punishing-God reappraisals and expressing

spiritual discontent (Pargament et al., 2000). Studies have found that positive religious coping is positively associated with physical and mental health and wellbeing (see Ano & Vasconcelles, 2005; Brewster, Robinson, Sandil, Esposito, & Geiger, 2014; Brewster, Velez, Foster, Esposito, & Robinson, 2016; Kim, Kendall, & Webb, 2015; Pargament, 2010), while negative religious coping is a source of strain and poor health and wellbeing (Lee, Roberts, & Gibbons, 2013; Pargament & Raiya, 2007). Carpenter et al. (2011) found, among a sample of adolescents, that negative religious coping worsened the effects of stress, while positive religious coping only marginally buffered the effects of stress.

Literature confirms that religious coping is similar to active and/or engagement coping (Terrori & Glenwick, 2013), which enhances resilience (McIntire & Duncan, 2013), optimism (Kvande, Klöckner, Moksnes, & Espnes, 2015) and predicted psychological adjustment (Ghorbani, Watson, Tahbaz, & Chen, 2016). Religious coping was further found to increase individuals' personal empowerment, life satisfaction (Lee et al., 2013) and was associated with greater growth (Trevino, Archambault, Schuster, Richardson, & Moye, 2012). Positive religious coping was positively correlated to health and wellbeing (Kvande et al., 2015; Terrori & Glenwick, 2013), quality of life (Nolan et al., 2012; Ramirez et al., 2012), stress (Nurasikin et al., 2013; Stoltzfus & Farkas, 2012), occupational stress (Safaria et al., 2010), burnout (Noh, Chang, Jang, Lee, & Lee, 2016) and depression (Amadi et al., 2015). Nolan et al. (2012) and Wnuk (2015) further found that private religious activities (NORA) are positively correlated with positive religious coping methods. Positive aspects of religious coping and frequencies of prayer, attending mass and spiritual experiences are all thus positively correlated.

A number of dimensions and subdimensions identified in the questionnaires (discussed in section 3.4.1) were outlined and briefly discussed in this section. This discussion further assisted with the identification of proposed dimensions and subdimensions for the new coping instrument.

3.4.4 Coping resources versus coping strategies

The dimensions and subdimensions discussed above (section 3.4.3) are also known as coping strategies, which are defined as the cognitive and behavioural efforts that individuals adopt to manage or reduce environmental demands that are considered taxing or exceed their coping resources (Folkman & Lazarus, 1980). A coping strategy is thus a coping response, because it is a means of responding to a stressor (Chen, 2007). By contrast, coping resources are defined as "those resources inherent in individuals that enable them to handle stressors

effectively, to experience fewer or less intense symptoms upon exposure to a stressor, or to recover faster after being exposed to stressors” (Coetzee et al., 2008, p. 173). Coping resources are thus social and individual characteristics that individuals use to help them withstand threats posed by their environment. During secondary appraisal, individuals determine which coping resources are available before a coping strategy is adopted.

In their work, Lazarus and Folkman (1984) identified some of the most important coping resources, namely health and energy, positive belief, problem-solving skills, social skills, social support and material sources. These coping resources are summarised in table 3.17. Chen (2007) and Coetzee et al. (2008) further classified coping resources into psychological (or internal resources) and social resources (or external resources).

Table 3.17
Coping resources

<i>Coping resource</i>	<i>Description</i>
Health and energy	Healthy individuals are better able to deal with external and internal demands.
Positive belief	Positive thinking and hope are encouraged by the general belief that outcomes are controllable.
Problem-solving skills	Problem-solving skills allow individuals to structure their lives by obtaining information, analysing situations for the purpose of identifying problems and taking an alternative course of action.
Social skills	Social skills facilitate problem solving in conjunction with other individuals. Social skills are an important coping resource because of their role in human adaptation.
Social support	Social support is an important coping resource, because it allows individuals to build relationships with others to feel good about themselves and their lives. Social support, further consists of emotional, informational and tangible support.
Material resources	Individuals with monetary resources have the ability to purchase goods and/or services that reduce their vulnerability to threats and hence facilitate effective coping.

Source: Adapted from Lazarus and Folkman (1984, p. 30)

3.4.4.1 *Psychological or internal resources*

Psychological or internal resources are defined as personal traits that are used to better predict psychological adaptation to stress (Martz & Livneh, 2007). These resources are thus behaviours, characteristics, capabilities, values and attributes inherent in the individual, and include, for example, self-mastery, positive self-esteem, sense of coherence, self-efficacy,

personal control, problem solving and interpersonal skills (Chen, 2007; Martz & Livneh, 2007; Zeidner & Endler, 1996).

Psychological or internal resources are further divided into the following categories (Coetzee et al., 2008; Coetzee & Esterhuizen, 2010; Zeidner & Hammer, 1990):

- *Cognitive resources.* These are concerned with the extent to which individuals maintain a positive sense of self-worth, a positive outlook towards others and optimism about life in general.
- *Social resources.* These involve the degree to which individuals are part of a social network that is able to provide support in times of need or stress.
- *Emotional resources.* These refer to the degree to which individuals are able to identify and express a range of emotions, which are based on the premise that a variety of emotional responses can reduce the negative consequences of stress.
- *Spiritual/philosophical resources.* These involve the extent to which individuals' actions are guided by stable and consistent values derived from their religious, familial or cultural tradition, or from a personal philosophy.
- *Physical resources.* These refer to the degree to which individuals enact health-promoting behaviours which are believed to increase physical wellbeing, which, in turn, decrease the negative responses to stress.

3.4.4.2 *Social or external resources*

Social or external resources are engrained in the individual's social networks that provide them with support in times of distress (Coetzee et al., 2008). Social support refers to the perceived comfort, understanding and assistance an individual receives from significant others, such as family members, friends and co-workers (Barkway, 2009). Social support can mediate stress either by reducing its impact or by reducing the likelihood of adverse events. Social support is categorised into five categories (Barkway, 2009), namely:

- *Emotional support.* This involves the provision of empathy and concern for the individual during a difficult time.
- *Esteem support.* This occurs when others encourage the individual who is experiencing a difficult time, or support an individual's views and findings that increase feelings of self-worth and competence in the individual.
- *Instrumental support.* This entails providing direct assistance to an individual, say, by taking care of the individual's children while he or she attends an out of town conference.

- *Information support.* This involves providing individuals with guidance, advice and suggestions to assist them in their decision-making process, or to provide feedback on decisions taken to affirm decisions made.
- *Network support.* This entails being part of a group of people who share similar values, interests or experiences that provide the individual with a sense of belonging.

In conclusion, coping strategies are coping responses to environmental demands, whereas coping resources are inherent in individuals and enable them to cope more effectively with stressors. The more resources the individual has available, the better he or she is able to cope with environmental demands.

3.4.5 Coping strategies that academics adopt in response to stress

As discussed in the preceding sections, *how* individuals respond to a stressful situation depends on their interpretation and/or perception of a stressor. Coping strategies are consequently adopted to help them deal with a particular event. Academics should also respond to stressful situations in some way (the stressors that academics experience were discussed in chapter 2).

In a study conducted by Odirile et al. (2009), the researchers examined the coping strategies that higher education employees use to cope with work stress. The COPE, as adapted to the South African context by Van der Walt et al. (2008), was administered to 63 higher education employees. The results revealed that academic staff use problem solving and avoidance coping strategies to cope with stress. The researchers further found that employees with higher qualifications (e.g. a master's degree), reported using more avoidant strategies compared to those with lower qualifications (Odirile et al., 2009). One would, however, expect employees with higher qualifications to rationalise and find alternative solutions to stressful events rather than avoid confronting the problem.

Ladebo and Oloruntoba (2005), however, found that academics employ active-planning and support-seeking mechanisms to cope with stressful situations. Some faculty members also reported using disengagement as a means of dealing with stress. There were no rank or gender differences in the use of the three coping mechanisms by the academics. The COPE was administered to 133 faculty members at a university in Nigeria.

Devonport et al (2008) found that the participants in their study (higher education lecturers in the UK) identified 19 coping strategies that were used to manage stress. These strategies include, for example, relaxation, prioritising, humour, exercises and alcohol. Social interaction (i.e. emotional support), planning and time management were identified as a coping strategy by all the participants. The data further revealed that the participants made use of a combination of strategies to cope with the stressor. Semi-structured interviews were used to explore the stress and coping experiences of these university lecturers.

Mate Siakwa (2014) administered a questionnaire to 214 senior academic members at a university in Ghana to explore the sources of stress and coping mechanisms they adopt in response to stressors. The results revealed that the respondents adopted coping strategies such as confronting, distancing, self-control, seeking social support, accepting responsibility, escape avoidance, problem solving and positive reappraisal.

Holton, Barry, and Chaney (2015) administered a survey to 2 500 full-time academics to examine how they cope with work and personal stress and whether their coping strategies are adaptive or maladaptive. More than 50% of the surveyed academics (1 277 completed the survey) indicated that they use adaptive coping strategies, such as talking to family and/or friends and exercises, while the rest most frequently resort to maladaptive coping strategies such as using alcohol and eating more than usual.

Finally, Darabi et al. (2017) interviewed 31 academics to determine how they perceived their role as academics and how they coped with the challenges presented at work. Using qualitative methodology, the findings revealed that academics mainly use positive coping mechanisms to deal with stressors in the institution (87.1%). Support from colleagues and time management was identified as the most commonly used coping strategies.

From the discussion above one could conclude that academics mostly use problem solving, social support and avoidance strategies to cope with stressful situations. The study conducted by Odirile et al. (2009) further revealed that academics with higher qualifications used avoidance coping strategies to cope with stress. Unfortunately, researchers have devoted little attention to the coping strategies that academics adopt, especially in a South African context, and have further failed to determine whether demographical variables (such as age, gender, job rank, etc.) influence the coping strategies that academics adopt to cope with stress. The aim of this study was to address this gap in the literature by, firstly, exploring which coping strategies academics adopt in response to occupational stress, and secondly, determining

whether academics from different demographical backgrounds differ concerning the coping strategies they use.

3.4.6 Summary

The measurement of coping was briefly discussed in this section to gain an understanding of how the construct is measured and to further contextualise it. This discussion allowed the researcher to further refine the conceptual model and to generate items that measure the construct and proposed dimensions. Consequently, to achieve these objectives, a number of existing coping questionnaires were reviewed and briefly discussed. Firstly, each questionnaire's basic composition and psychometric properties, and the critique it received from other coping researchers were briefly outlined. A number of conceptual and methodological issues were raised that were addressed in constructing the new coping instrument.

Secondly, the coping instruments that have been developed and validated in a South African and African context were discussed. From this discussion it is evident that hardly any instruments have been developed and validated in a South African and/or African context. Only one instrument was developed (De Beer & Korf, 2005) and only the COPE was validated for a South African context (Stapelberg & Wissing, 1999; Visser, 2005; Van der Walt et al., 2008). This discussion confirms Van Wyk's (2010) finding that very few coping instruments have been developed and validated in a South African and African context. It was thus anticipated that the present study would make a valuable contribution to this shortcoming in existing literature. Thirdly, the dimensions and subdimensions identified in existing coping instruments were outlined and briefly discussed. The most widely used dimensions of coping include, for example, problem and emotion-focused coping, primary versus secondary control coping, engagement versus disengagement coping, adaptive versus maladaptive coping, and proactive coping and avoidance. The literature further suggests that emotions are regulated by a range of biological, behavioural, emotional and cognitive processes, and more positive dimensions, such as religious coping, leisure coping and social support coping. The discussion of these dimensions further assisted the researcher in identifying dimensions and subdimensions for the new coping instrument. Lastly, the coping strategies that academics adopt in response to occupational stress were briefly discussed.

3.5 MEASURING EMOTION REGULATION

A number of self-report measures that measure dispositional tendencies towards certain emotion regulation strategies have been developed in recent years (Aldao et al., 2010). These measures generally assess the degree to which individuals are able to modulate their emotions (Compare et al., 2014). For the purposes of this study, the most psychometrically established and commonly used emotion regulation instruments were reviewed and discussed briefly. From this discussion and process model of emotion regulation (discussed in section 3.3.6), the dimensions identified in existing emotion regulation literature are outlined and briefly discussed.

3.5.1 Emotion regulation questionnaires

Emotion regulation questionnaires, such as the Cognitive Emotion Regulation Questionnaire (CERQ) and the Emotion Regulation Questionnaire (ERQ), are discussed briefly in this section.

3.5.1.1 Cognitive Emotion Regulation Questionnaire (CERQ)

The CERQ is a self-report questionnaire that measures what people think after they have experienced a threatening or stressful life event (Garnefski et al., 2001). It comprises nine dimensions and 36 items that were developed both on theoretical and empirical bases. Each subscale consists of four items that are measured on a five-point Likert scale (1 = *almost never*; 5 = *almost always*). The nine dimensions are as follows: (1) self-blame, (2) blaming others, (3) acceptance, (4) refocus on planning, (5) positive refocusing, (6) rumination or focus on thought, (7) positive reappraisal, (8) putting into perspective, and (9) catastrophising (Garnefski et al., 2001) (see table 3.18).

Table 3.18

Dimensions and items from the CERQ

<i>Dimension</i>	<i>Example of item</i>
Self-blame <i>Refers to thoughts of blaming yourself for what you have experienced.</i>	I feel that I am the one to blame for it.
Blaming others <i>Refers to thoughts of putting the blame of what one has experienced on others.</i>	I feel that others are to blame for it.

<i>Dimension</i>	<i>Example of item</i>
Acceptance <i>Accepting what one has experienced and resigning oneself to what has happened.</i>	I think that I have to accept that this has happened.
Refocus on planning <i>Refers to thinking about what steps to take and how to handle the negative event.</i>	I think of what I can do best.
Positive refocusing <i>Refers to thinking about joyful and pleasant issues instead of thinking about the actual event.</i>	I think of nicer things than what I have experienced.
Rumination or focus on thought <i>Refers to thinking about the feelings and thoughts associated with the negative event.</i>	I often think about how I feel about what I have experienced.
Positive reappraisal <i>Refers to thoughts of attaching a positive meaning to the event in terms of personal growth.</i>	I think I can learn something from the situation.
Putting into perspective <i>Refers to thoughts of playing down the seriousness of the event or emphasising its relativity when compared to other events.</i>	I think that it all could have been much worse.
Catastrophising <i>Refers to thoughts of explicitly emphasising the terror of an experience.</i>	I often think that what I have experienced is much worse than what others have experienced.

Source: Garnefski et al. (2001, pp. 1314-1316)

The psychometric properties of the CERQ have been proven to be sound. Principal component analyses, with oblimin rotation, supported the allocation of items to the subscales, while the reliabilities of the scales were good with most alphas exceeding 0.70, and in many cases over 0.80 (Garnefski et al., 2001). Internal consistencies range from 0.75 to 0.80 and the test-retest reliabilities (from 0.48 to 0.65) suggest that cognitive coping strategies are relatively stable styles.

3.5.1.2 Emotion Regulation Questionnaire (ERQ)

The ERQ was deductively developed by Gross and John (2003) to measure two emotion regulation strategies, namely (1) cognitive reappraisal, and (2) expressive suppression (see table 3.19). Cognitive reappraisal is defined as “a form of cognitive change that involves construing a potentially emotion-eliciting situation in a way that changes its emotional impact” (Gross & John, 2003, p. 349). Expressive suppression, however, is defined as “a form of response modulation that involves inhibiting ongoing emotion-expressive behaviour” (Gross & John, 2003, p. 349). The questionnaire comprises 10 items that are measured on a seven-point Likert scale, ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Table 3.19

Emotion Regulation Questionnaire (ERQ)

<i>Dimension</i>	<i>Example of item</i>
<p>Cognitive reappraisal <i>Refers to an individual's abilities to change the meaning of an emotion-eliciting event and hence its emotional impact.</i> <i>(6 items)</i></p>	<ol style="list-style-type: none"> 1. When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about. 2. When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about. 3. When I'm faced with a stressful situation, I make myself think about it in a way that helps me stay calm. 4. When I want to feel more positive emotion, I change the way I'm thinking about the situation. 5. I control my emotions by changing the way I think about the situation I'm in. 6. When I want to feel less negative emotion, I change the way I'm thinking about the situation.
<p>Expressive suppression <i>Refers to the general tendency to control, hide or change the natural occurrence of positive and negative emotions.</i> <i>(4 items)</i></p>	<ol style="list-style-type: none"> 1. I keep my emotions to myself. 2. When I am feeling positive emotions, I am careful not to express them. 3. I control my emotions by not expressing them. 4. When I am feeling negative emotions, I make sure not to express them.

Source: Gross and John (2003, p. 351)

The ERQ has presented sound psychometric properties (Ioannidis & Siegling, 2015). Firstly, the questionnaire has demonstrated good internal consistency (0.82) and temporal stability. Secondly, the alpha reliabilities averaged 0.79 for reappraisal and 0.73 for suppression. Thirdly, the test-retest reliability across three months was 0.69 for both scales. Fourthly, sound convergent and discriminant validity were reported. Lastly, the factor structure proposed by Gross and John (2003) was confirmed through confirmatory factor analysis and has been replicated by various researchers (Ioannidis & Siegling, 2015).

3.5.1.3 Summary

In the preceding section two of the most psychometrically sound and commonly used emotion regulation instruments were outlined and briefly discussed. The purpose of this discussion was to explain the basic composition of these instruments and report on their psychometric properties (see table 3.20).

Table 3.20

Emotion regulation questionnaires

<i>Purpose</i>	<i>Development approach</i>	<i>Population and sample</i>	<i>Dimensions</i>	<i>Items and response format</i>	<i>Statistical analysis</i>	<i>Psychometric properties</i>
Cognitive Emotion Regulation Questionnaire (CERQ) (Garnefski et al., 2001)						
The CERQ is used to measure cognitive strategies that individuals adopt in response to stressful events.	Deductive approach	State schools	9 dimensions (outlined in table 3.18)	36 items, 5-point Likert scale	Principal component analyses	Reliabilities of the scale were good, with most alphas exceeding 0.80. Internal consistencies ranged from 0.75 to 0.80. Test-retest reliabilities ranged from 0.48 to 0.65.
Conceptual and methodological issues of the CERQ:						
<ul style="list-style-type: none"> Confirmatory factor analysis was not used to confirm the factor structure. 						
Emotion Regulation Questionnaire (ERQ) (Gross & John, 2003)						
The ERQ was developed to measure emotion regulation.	Deductive approach	Undergraduate samples	2 dimensions (outlined in table 3.19)	10 items, 7-point Likert scale	Exploratory factor analysis Confirmatory factor analysis	Cronbach's alpha coefficients ranged from 0.75 to 0.82 for reappraisal, and from 0.68 to 0.76 for suppression.
Conceptual and methodological issues of the ERQ:						
<ul style="list-style-type: none"> The ERQ was administered to undergraduate students, which brings generalisation into question (Spaapen, Waters, Brummer, Stopa, & Bucks, 2013). 						

Source: Author's own compilation

3.5.2 Dimensions and subdimensions of emotion regulation

As discussed in section 3.2.1, both coping and emotion regulation involve affect modulation and appraising stressful situations. It was therefore deemed necessary to include in this section the emotion regulation strategies proposed by Gross (1998). As discussed in section 3.3.6, Gross (1998) proposed the following five sets of emotion regulation strategies: (1) situation selection, which consists of approaching or avoiding people; (2) situation modification, which is aimed at changing the situation to alter its emotional impact; (3) attentional deployment, which includes strategies like distraction and rumination; (4) cognitive change, which includes reappraisal that transforms one's appraisal of the event; and (5) response modulation, which attempts to influence the physiological, experiential and behavioural aspects of the emotional response. Emotional suppression is an example of a response modulation strategy. These strategies are discussed briefly in this section.

3.5.2.1 Experiential avoidance

Experiential avoidance (EA) was first conceptualised by Hayes, Strosahl, and Wilson (1999) as the suppression or avoidance of any array of psychological experiences, including thoughts, emotions, sensations, memories and urges. Similarly, Gámez et al. (2011) defined EA as an individual's inclination to avoid experiencing negative emotions. EA therefore consists of two related processes, namely (1) the individual's unwillingness to remain in contact with aversive experiences, and (2) the action taken to change these aversive experiences or events that elicit them (Chawla & Ostafin, 2007). EA, according to Hayes et al. (1999), therefore includes both avoidance and escape strategies, which are used to alter the form and frequency of the aversive experiences and distress. Kashdan et al. (2006) further explain that EA coping includes instances of attempts to escape the stressful event (avoidance coping), to become independent from the stressful event and accompanying emotions (detached coping) or to inhibit the expression of emotions (emotion suppression). Another element is the belief that personal control over threatening events rests outside oneself (uncontrollability) (Kashdan et al., 2006). Experiential avoidance further includes emotional control and regulatory processes such as rumination (Karekla & Panayiotou, 2011; Kashdan et al., 2006), thought suppression and worry (Chawla & Ostafin, 2007).

3.5.2.2 *Distraction*

Distraction is an antecedent-focused emotion regulation strategy that is used prior to eliciting an emotion (Moyal, Henik, & Anholt, 2014). Distraction is thus an adaptive form of self-reflection that involves the deployment of attention away from the negative aspects of a situation (Gross, 1998). Individuals often use distraction when the emotion-eliciting stimulus is intense (Sheppes, Scheibe, Suri, & Gross, 2011). It was further found that distraction reduces the intensity of painful and emotional experiences, alleviates emotional distress and prevents depression (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008).

3.5.2.3 *Rumination*

Rumination is defined as the process that individuals engage in to think about what causes their problems, emotions, negative thoughts and actions, and the consequences of these symptoms (Nolen-Hoeksema et al., 2008). Individuals engage in rumination to “escape from aversive self-focus by suppressing negative feelings and thoughts cognitively or by engaging in behaviours to avoid self-awareness” (Nolen-Hoeksema et al., 2008, p. 410). Individuals therefore direct their attention inwards to understand the nature and implications of their negative feelings (Hong, 2007). Attention is further directed to negative information and symptoms of distress (Steidtmann, 2010).

Rumination, according to Dickson, Ciesla, and Reilly (2012), and Hong (2007), is thus a maladaptive, cognitive coping strategy that individuals engage in to deal with emotional distress. The literature further indicates that rumination is positively correlated with disengagement, and negatively with perceived coping effectiveness, problem solving and social support (Aldao et al., 2010; Nolen-Hoeksema et al., 2008). Instead, individuals who are ruminating, remain fixated on their problems and feelings without taking action (Nolen-Hoeksema et al., 2008). Consequently, the emotional distress or negative affect that they are experiencing is prolonged. In a nutshell, rumination is not an effective coping strategy. Instead of focusing on and dealing with the stressful situation, the individual disapproves and dismisses the thought, which only increases his or her attention to the negative feeling or symptom of distress.

3.5.2.4 *Reappraisal*

Reappraisal, an example of cognitive change, involves reinterpreting the meaning of an event to alter its emotional impact (Gross, 1998). Reappraisal is thus a conscious attempt by the individual to reduce the aversiveness of an event before it occurs by changing the way he or she evaluates it. Reappraisal is considered to be an adaptive emotion regulation strategy, because not only does it reduce distress, but it leads to the reduction in negative emotional experiences (Kashdan et al. 2006), fewer symptoms of depression and increased wellbeing (Moyal, Henik, & Anholt, 2014).

3.5.2.5 *Suppression*

Suppression is conceptualised as an effortful and conscious process that diverts an individual's attention away from unwanted thoughts and emotions, and an effortless and unconscious monitoring process that ensures that the unwanted thought and/or emotion does not resurface in the consciousness (Najmi & Wegner, 2009). Suppression, according to Aldao et al. (2010), further includes expressive and thought suppression.

a Expressive suppression

Emotional suppression, also known as expressive suppression or emotional disengagement, is defined as the conscious inhibition or suppression of expressing an emotion (Compas et al., 2014; Gross & Levenson, 1993; Vogt & De Houwer, 2014). It occurs after the emotional experience, and is therefore deemed to be effortful and does not alter the felt affect (Gross & Levenson, 1993; Gross, 1998). Expressive suppression is therefore counterproductive, because it only increases the emotion the individual is trying to suppress (Vogt & De Houwer, 2014). Expressive suppression is further associated with lower levels of life satisfaction and happiness (Gross, 1998), greater levels of depression and distress (Campbell-Sills, Barlow, Brown, & Hofmann, 2006), and other maladaptive physiological responses (Peters, Overall, & Jamieson, 2014).

b Thought suppression

Thought suppression is a type of conscious cognitive avoidance strategy that individuals adopt to cope with unwanted internal experiences (Hetzl-Riggin & Wilber, 2010; Petkus, Gum, & Loebach Wetherell, 2012; Rassin, Merckelbach, & Muris, 2000; Steidtmann, 2010). Individuals

adopt thought suppression when they actively attempt not to think about an unwanted thought or feeling that they are experiencing (Petkus et al., 2012). Individuals thus suppress the unwanted thought or feeling by shifting their attention to another thought. Thought suppression is thus conceptualised as an individual's purposeful attempt to control or avoid certain thoughts (Hetzel-Riggin & Wilber, 2010), and includes strategies such as thought avoidance and distraction (Hooper et al., 2010). Hooper et al. (2010) further contend that thought suppression is often unsuccessful and counterproductive, because the more the individual attempts not to think about the topic, the more frequently the topic enters his or her consciousness (Aldao et al., 2010; Steidtmann, 2010).

3.5.2.6 *Acceptance*

Acceptance is a response-focused strategy that allows the individual to experience an emotion without attempts to alter or suppress it (Gross, 1998). An individual thus accepts that a situation has elicited an emotion, but that nothing can be done about it. Previous research has shown that acceptance is associated with experiencing less fear, catastrophic thoughts, avoidance behaviour, faster recovery from negative affect and consequently lower levels of subjective distress (Gross, 2014; Wolgast, Lundh, & Viborg, 2011). Acceptance has further been found to negatively correlate with poor work performance, burnout (Garnefski et al., 2001) and psychological disorders, such as generalised anxiety disorder and borderline personality disorder (Aldao et al., 2010).

3.5.3 **Summary**

This section outlined the principal theoretical findings relating to the measurement of emotion regulation. These findings were discussed to gain an understanding of how the regulation of emotions is measured and its theoretical context. It was further deemed important to discuss these findings because coping was conceptualised as emotion regulation under stress and as a mediator of the emotion response, and the theory and emotion-regulation strategies (experiential avoidance, distraction, rumination, reappraisal, expressive suppression, thought suppression and acceptance) were considered in developing a conceptual model with proposed dimensions for coping with occupational stress.

3.6 CONCLUSION AND CHAPTER SUMMARY

This chapter outlined the meta-theoretical context of coping and emotion regulation that formed the definitive boundary of the research. The primary objective of this study was to construct an instrument for determining which coping strategies academics adopt in response to occupational stress. To achieve this objective a thorough review of existing coping and emotion regulation literature was conducted to (1) gain an understanding of the constructs under investigation and their theoretical context; (2) develop a conceptual model with proposed theoretical dimensions and subdimensions; and (3) generate items that measure the construct and proposed dimensions. To further achieve this objective, the constructs under investigation were conceptualised, and it was concluded that coping is closely linked to emotion and its regulation in response to environmental demands. Coping was thus conceptualised as “emotion regulation under stress”, and defined as conscious efforts that individuals adopt to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources.

To further contextualise coping and emotion regulation, various theoretical approaches were discussed. The literature revealed that individuals use coping and emotion regulation strategies to respond to a *specific situation* that is appraised as stressful and important to their wellbeing. Appraisal is necessary to elicit an emotional reaction towards the situation. Coping and/or regulatory strategies are thus adopted to modulate the felt emotion and change the intensity and quality of the emotion. Both coping and emotion regulation therefore involve affect modulation, appraisal processes and a response to a specific situation. Consequently, coping is viewed as a mediator of emotion and resembles the emotion regulation concept.

The remainder of the chapter (sections 3.4 and 3.5) was devoted to reviewing a number of existing coping and emotion regulation questionnaires to summarise their composition, discuss their psychometric properties and the critique they obtained from other coping researchers, and the dimensions and subdimensions that categorise coping and emotion regulation strategies. A number of conceptual and methodological concerns were raised, and it was concluded that there is a paucity of coping and emotion regulation instruments that have been developed and validated in a South African and African context. It was, however, interesting to note that the psychometric properties outlined in the coping questionnaires were not as prominent in the emotion regulation questionnaires. One might thus argue that the deductive approach to developing instruments is more attractive, not only because the construct is clearly

defined, but also because the broad theoretical dimensions are clear and theoretically derived. Consequently, items are generated to measure the construct.

This discussion further revealed a number of overarching characteristics (commonalities) between the coping and emotion regulation strategies. Experiential avoidance, conceptualised by Hayes et al. (1999) as the avoidance of an array of psychological experiences, for example, shares commonalities with avoidance, defined by Stemmet (2013) as individuals' attempts to avoid dealing with an environmental demand. Both strategies measure the individual's inclination to avoid an environmental demand that elicits an emotional response. Distraction, measured by the CISS and MEAQ (attempts to ignore or suppress distress), shares commonalities with distraction as an emotion regulation strategy, in that distraction involves the deployment of attention away from negative aspects of a situation that elicits an emotion. Likewise, emotion regulation strategies such as reappraisal, suppression and acceptance are measured by coping questionnaires such as the COPE (reappraisal, suppression and acceptance), RCOPE (reappraisal), EACS (reappraisal), MEAQ (suppression) and AAQ (acceptance). Experiential avoidance further measures regulatory processes such as rumination and thought suppression. In light of these commonalities, both coping and emotion regulation strategies were considered in identifying dimensions and subdimensions for the new coping instrument.

The review further differentiated between coping resources and coping strategies, and outlined the coping strategies that academics adopt to cope with occupational stress. Although previous research found that academics mainly use problem solving, social support and avoidance coping strategies to deal with stressful situations, current literature does not investigate whether demographic variables (such as age, gender, job rank, etc.) have an influence on the coping strategies that academics adopt. Consequently, there is a need for researchers to first explore which coping strategies academics adopt in response to occupational stress, and secondly, to determine whether academics from different demographic backgrounds differ with regard to the coping strategies they use to cope with occupational stress. The current study addressed this gap in the existing literature.

The following literature research objectives were achieved in this chapter:

Research objective 1: To conceptualise the constructs of coping and emotion regulation by means of a comprehensive literature review

Research objective 4: To determine which coping strategies academics adopt in response to occupational stress

Research objective 5: To review and discuss existing coping and emotion regulation questionnaires and dimensions

The proposed theoretical dimensions and conceptual model are outlined and discussed in chapter 4.

CHAPTER 4

CONCEPTUAL MODEL FOR COPING WITH OCCUPATIONAL STRESS

“To change something, build a new model that makes the existing model obsolete.”

– R Buckminster Fuller

4.1 INTRODUCTION

The primary objective of this study was to construct an instrument for determining which coping strategies academics adopt in response to occupational stress. To achieve this objective, a thorough literature review was conducted to develop a conceptual model with proposed theoretical dimensions (or strategies) for coping with occupational stress. This model allowed the researcher to not only gain an understanding of the constructs under investigation, but also to generate items that measure the construct and proposed dimensions. The theoretical dimensions and conceptual model for this study are outlined and discussed in this chapter.

4.2 PROPOSED THEORETICAL DIMENSIONS FOR MEASURING COPING WITH OCCUPATIONAL STRESS

Six theoretical dimensions that conceptualise and measure coping with occupational stress were proposed. The researcher is of the opinion that these six coping strategies are adopted by individuals to regulate heightened emotions in response to environmental demands that are appraised as taxing or exceeding their coping resources. The six proposed coping strategies are (1) *cognitive*, (2) *emotional*, (3) *social support*, (4) *leisure*, (5) *religious*, and (6) *experiential avoidance*. The strategies are outlined in figure 4.1 and discussed in this section.

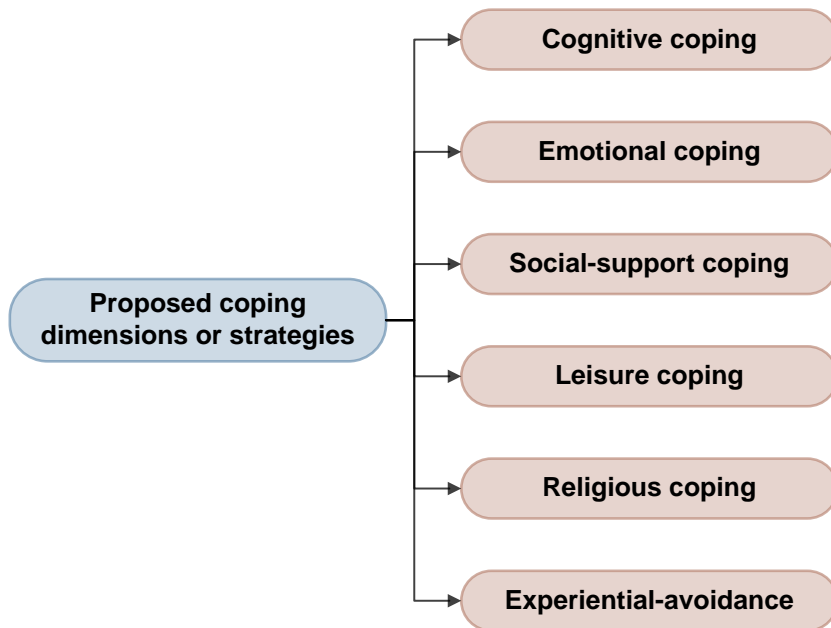


Figure 4.1. Proposed theoretical dimensions for coping with occupational stress

Source: Author's own compilation

4.2.1 Cognitive coping strategy

Lazarus and Folkman (1984, p. 141) defined coping as the “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the [coping] resources of the person”. This definition, according to Compas et al. (2001), is part of a broader motivational model of psychological stress and emotion that emphasises cognitive appraisal in determining what is stressful to the individual. Coping is therefore a goal-directed process in which individuals orient their thoughts and behaviours towards resolving the source of stress and managing emotional reactions to stress (Lazarus, 1993). Similarly, Garnefski et al. (2001) contend that cognitions or cognitive processes help individuals to regulate their emotions. Cognitive processes are thus categorised as an active coping strategy (see section 3.4.3.4).

Consequently, from the discussion above and literature discussed in chapter 3, *cognitive coping* was identified as an active coping strategy, and defined as the cognitive processes of acquiring knowledge and understanding through thoughts and experiences to manage the intake of emotionally arousing stimuli. In addition, five subdimensions of cognitive coping were proposed, namely (1) cognitive restructuring, (2) acceptance, (3) problem-solving coping, (4) planning, and (5) critical thinking. These subdimensions are briefly discussed and are graphically represented in figure 4.2.

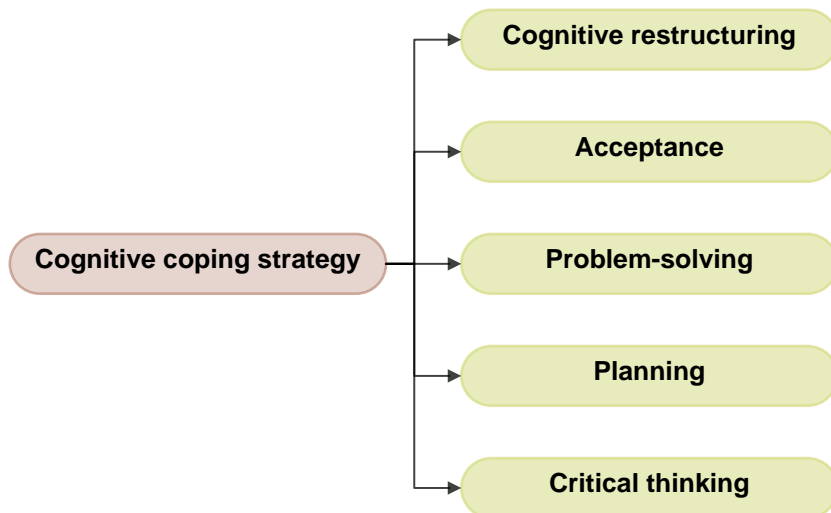


Figure 4.2. The cognitive coping construct and its subdimensions

Source: Author's own compilation

4.2.1.1 Cognitive restructuring

Positive reappraisal, also known as cognitive restructuring or reframing (making meaning), is often associated with cognitive coping measures (Khosla, 2006). Furthermore, Gross (2014) asserts that “positive reappraisal”, “cognitive restructuring”, “putting into perspective” and “refocus on planning” all share elements of cognitive change and reappraisal. Consequently, for the purpose of this study, these terms were collectively termed *cognitive restructuring*, which is defined as “the adaptive process by which stressful events are re-constructed as benign, valuable or beneficial” (Garland, Gaylord, & Park, 2008, p. 37). Cognitive restructuring therefore allows individuals to become aware of their own thoughts, and through reorganisation, change how they perceive the stressor (Sharoff, 2002). Individuals are thus able to identify, challenge and alter stress-inducing thought patterns and beliefs (Mills, Reiss, & Dombeck, 2008). Hence cognitive restructuring is concerned with replacing negative thoughts with more rational thoughts, which results in positive emotional and physical responses to emotion-eliciting stimuli (Aldao et al., 2010). The stressful event is therefore perceived as positive (Khosla, 2006).

4.2.1.2 Acceptance

Wong and Wong (2006) define acceptance as accepting that the problem had occurred, but that nothing could be done about it. Carver et al. (1989) conceptualised acceptance coping as accepting that a difficult situation is real and must be dealt with. According to Aldebot and Weisman de Mamani (2009), acceptance leads to more informed decision making. An

individual who accepts the situation that he or she is confronted with, accepts that the situation is real, rationally thinks about the situation, makes informed decisions and consequently decreases negative emotional experiences and copes better with the situation. In conclusion, acceptance, according to Meško, Karpljuk, Videmšek, and Podbreger (2009), encompasses cognitive efforts to respond to a stressor by accepting it. McMurray and Clendon (2015) further conclude that acceptance helps individuals cope with occupational stress and personal problems.

4.2.1.3 Problem solving

Sharoff (2002), and Kazantzis, Reinecke, and Freeman (2010) categorised problem solving as a cognitive coping skill. Problem solving measures therefore include cognitions directed at solving the problem (Aldao et al., 2010), and involve skills or strategies such as collecting information, decision making, planning and conflict resolution (Khosla, 2006). Individuals who adopt problem-solving coping strategies effectively (1) perceive a stressor as a challenge or “problem that needs to be solved”; (2) believe that they are capable of solving the problem successfully; (3) carefully define the problem and set realistic goals; (4) generate a variety of alternative solutions; (5) choose the best or most effective solution; (6) implement the solution effectively; and (7) carefully observe and evaluate the outcome (Kazantzis et al., 2010).

4.2.1.4 Planning

Snyder and Ford (1987) explain that planning as a coping strategy involves mental formulations in dealing with problems. Planning therefore involves thinking about how to conform to the stressor by planning one’s active coping efforts (Carver et al., 1989). Sniehotta, Schwarzer, Scholz, and Schüz (2005, p. 566) further define the concept as “a prospective self-regulatory strategy, a mental simulation of linking concrete responses to future situations”. The concept is therefore conceptualised as a cognitive coping style (Gross, 2014).

Planning is further classified as action planning and coping planning (Sniehotta et al., 2005). Action planning pertains to the “post-intentional process that links goal-directed responses to situational cues by specifying when, where and how to act in accordance with one’s goal intention” (Sniehotta, Scholz, & Schwarzer, 2006, p. 25). Individuals who form action plans are more likely to act in the intended way and initiate goal-directed behaviour faster. In contrast, coping planning is defined as “an independent planning cognition that prepares a person for successful coping with situations in which strong cues invite both intended and intentional

responses” (Sniehotta et al., 2006, p. 25). Through coping planning, individuals develop one or more plans or strategies to cope with such a stressful situation (Scholz, Schüz, Ziegelmann, Lippke, & Schwarzer, 2008). Those strategies consist of self-regulatory techniques, such as self-instructed motivation statements, cognitive restructuring, emotion control, techniques for handling the situation or escape responses (Sniehotta et al., 2006). For the purposes of this study, coping planning was identified as a cognitive coping strategy for the following two reasons: (1) planning is a cognitive coping strategy; and (2) through coping planning individuals develop strategies to cope with stressful situations.

4.2.1.5 *Critical thinking*

Critical thinking, also known as logical analysis or critical analysis, is defined as “reasonable, reflective thinking that is focused on deciding what to believe or do” (Ennis, 2011, p. 10). Similarly, Pithers, and Soden (2000, p. 239) explain critical thinking as “any area [that] involves being able to pursue one’s questions through self-directed search and interrogation of knowledge, a sense that knowledge is contestable, and being able to present evidence to support one’s arguments”. The emphasis is thus on how to think rather than what to think (Thompson, 2011). Cognitive thinking is therefore a cognitive skill or strategy that increases the likelihood of a desirable outcome (Lai, 2011). Critical thinking includes a number of activities and abilities, such as analysing the meaning of information, examining information accuracy and completeness, putting various pieces of information together in a coherent manner, comprehending instructions and advice, following instructions, questioning matters, and decision making, to name a few (Salmon, 2013). A critical thinker must therefore be inquisitive, well-informed, trustful of reason, open-minded, flexible, fair-minded in evaluation, prudent in making judgement, willing to reconsider, orderly in complex matters and diligent in seeking information (Thompson, 2011). Critical thinking is a cognitive psychological process that individuals use to make sense of their world (Lai, 2011).

In the construction of the *Coping Responses Inventory (CRI)*, Moos (1992) identified logical analysis as a cognitive approach to coping. Meško et al. (2009, p. 28) explain that in this context, logical analysis “measures the cognitive effort to understand the stressor and attempt to mentally prepare for the stressor and its consequences”. Critical thinking is therefore considered a cognitive approach to coping (Fink, 2016; Haan, Joffe, Morrissey, & Naditch, 1977; Martz & Livneh, 2007).

In summary, for the purposes of this study, *cognitive coping* was identified as an active coping strategy which is measured through five subdimensions, namely cognitive restructuring, acceptance, problem solving, planning and critical thinking.

4.2.2 Emotional coping strategy

As discussed in chapter 3, one of the most commonly known categorisations of coping is the differentiation of strategies that are primarily problem focused from those that are more emotion focused (Lazarus & Folkman, 1984). Emotion-focused coping, however, has been proven to be associated with maladaptation, maladjustment, negative effect and depression (Stanton et al., 2000). Secondly, emotional processing and emotional expression (discussed in section 3.4.3.8) play an important role in emotion regulation (Gross & Oliver, 2013).

Based on the discussion above and existing literature, *emotional coping* was identified as an active coping strategy and is defined as the subjective, psychological and physiological expression and reaction to stressful encounters that are appraised as taxing or exceeding an individual's coping resources. In addition, (1) emotional expression and (2) emotional processing (Stanton et al., 2000) were identified as subdimensions that measure emotional coping. These subdimensions are briefly explained in the section below and graphically represented in figure 4.3.

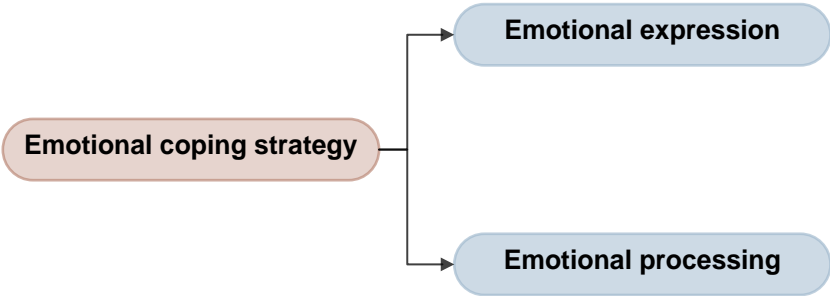


Figure 4.3. The emotional coping construct and its subdimensions
Source: Author's own

4.2.2.1 Emotional expression

Emotional expression (also known as emotional disclosure or expressive coping), as defined in section 3.4.3.8, includes the verbal and nonverbal expression of emotions and is dependent on the characteristics of the stressor, the environment, the individual and the coping effort itself (Stanton & Low, 2012). Regarding the *attributes of expressive coping*, the timing of emotional expression in relation to the onset of the stressor can moderate its usefulness. Studies have

shown that emotional expression is more likely to increase the health and wellbeing of the individual (Frattaroli, 2006). Secondly, the manner in which certain emotions are expressed and the degree of expressive coping may also moderate its effects (Stanton & Low, 2012). Regarding the *attributes of the stressor*, individuals are more likely to express emotions in response to uncontrollable stressors than controllable stressors (Stanton & Low, 2012). Thirdly, *personal attributes*, such as gender, are likely to influence the relationship between coping and adjustment. Stanton and Low (2012), for example, found that women often report higher levels of emotionally expressive coping than men. Similarly, Hoyt (2009) reported that, among men diagnosed with cancer, a greater degree of gender role conflict was associated with less emotionally expressive coping. Lastly, *individual differences* in emotion regulation can also influence the effectiveness of coping strategies. Goal-directed determination and confidence can, for example, increase expressing emotions, which increases psychological and physical health and wellbeing (Stanton & Low, 2012). Expression is thus most useful when individuals have come to understand their feelings (Snyder & Lopez, 1995).

In their work, Stanton and Low (2012) further found that (1) by expressing one's emotions, one can lessen the subjective intensity of a feeling; (2) emotional expression can catalyse an individual's perception and reappraisal of a situation; (3) emotional expression allows an individual to direct his or her attention towards important goals, identify barriers to goal achievement and generate strategies to accomplish goals; and (4) coping through emotional expression affords the individual an opportunity to confront a stressor and its attendant emotions, which, in turn, reduces physiological reactivity and physical responses to thoughts or emotions about the stressor over time. Emotional expression is therefore conceptualised as an adaptive coping strategy associated with positive psychological adjustment. Examples of emotion expression coping items include "I feel free to express my emotions" and "I let my feelings come out freely" (Snyder & Lopez, 2005).

4.2.2.2 *Emotional processing*

Emotional processing is another form of the emotional approach to coping in which individuals attempt to identify and think about their emotions in relation to a stressor. Similar to emotional expression, emotional processing is also associated with indicators of positive psychological adjustment such as greater hope, instrumentality and self-esteem and to lower neuroticism, trait anxiety and depressive symptoms (Snyder & Lopez, 2005). Snyder et al. (2011) further explain that emotional processing seems to become more adaptive as individuals learn about what they feel and why they feel it.

In summary, for the purposes of this study, *emotional coping* was identified as an adaptive coping strategy and defined as the subjective, psychological and physiological expression and reaction to stressful encounters that are appraised as taxing or exceeding an individual's coping resources. In addition, emotional expression and emotional processing were identified as subdimensions of emotional coping.

4.2.3 Social support coping strategy

An individual's social support network refers to the type of support that he or she receives from others (discussed in chapter 3). An individual's social support system does not only affect his or her socialisation, development and general wellbeing, but is also an invaluable coping resource that acts as a buffer against stress. Consequently, for the purposes of this study, social support was theorised as the perceived support that individuals receive from their social network or personal relationships to regulate heightened emotions in response to environmental demands that are perceived as taxing or exceeding their coping resources. In addition, (1) emotional support, (2) network support, (3) information support, and (4) tangible (or instrumental) support were identified as subdimensions of social support. These dimensions are graphically represented in figure 4.4 and are briefly discussed in this section. Esteem support (as outlined in section 3.4.3.9) was not included in the final dimensions, because researchers often refer to emotional support as "esteem support" or "appraisal support" (Wills, 1991). The duplication of potential items was thus avoided.

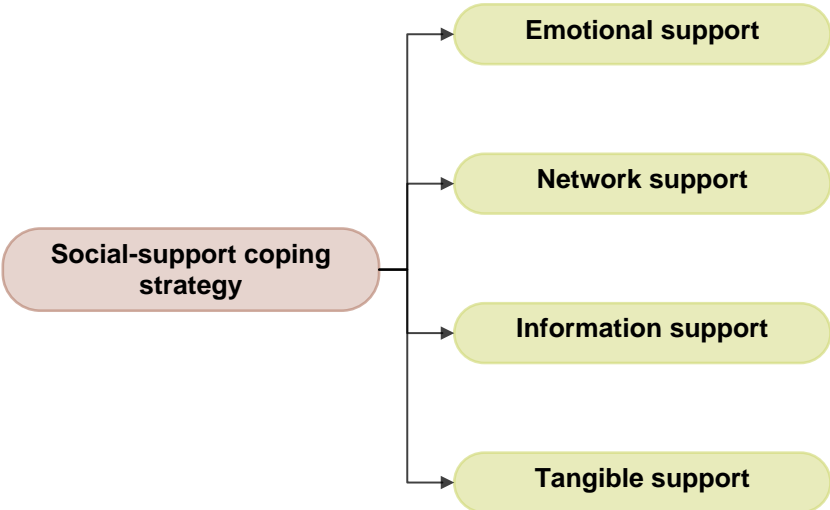


Figure 4.4. The social support coping construct and its subdimensions
Source: Author's own compilation

4.2.3.1 Emotional support

In simple terms, emotional support involves the perception that one is cared for, loved and valued as part of a social network (Chang, 2007). Similarly, Mattson and Gibb Hall (2011, p. 185) describe emotional support as the communication that meets one's emotional or affective needs and includes expressions such as "I feel bad for you" or "I just want you to know how much you mean to me". Emotional support therefore consists of communicating concepts such as caring and empathy (Budd, Buschman, & Esch, 2008). Emotional supportiveness has been found to play a critical role in the development of and maintenance of friendships, romances, families and work relationships (Burleson, 2008), and relieves the perception of stress and improves general health and wellbeing (Burleson, 2008; Pierce, Sarason, & Sarason, 1996). Mattson and Gibb Hall (2011) further posit that emotional support does not directly solve the individual's problems, but serves to raise his or her mood by decreasing negative emotional experiences.

4.2.3.2 Network support

Network support, or structural social support, does not focus on the emotions or self-concept of the individual, but rather refers to the communication that affirms individuals' belongingness to a network (or group) or reminds them of the support available in that network (Chang, 2007; Mattson & Gibb Hall, 2011). A social network is thus the social relationships that encircle an individual (Kumar, Lal, & Bhuchar, 2014; Schwarzer, Knoll, & Rieckmann, 2003), which is available to provide social support (Mattson & Gibb Hall, 2011). Family relationships, friends and membership in clubs and organisations are examples of network support.

4.2.3.3 Informational support

Informational support is communication that provides useful or needed information (Mattson & Gibb Hall, 2011). Similarly, Chang (2007) describes informational support as advice, guidance and suggestions that are received from a member of one's social support network which assist the individual in making informed decisions or solving problems. A social support group, for example, is a source of informational support (Helgeson & Cohen, 1996), because valuable information and emotional support are provided, including encouragement from people experiencing similar circumstances.

4.2.3.4 Tangible support

Tangible or instrumental support is any physical assistance provided by others, and is defined by Mattson and Gibb Hall (2011, p. 184) as the transactional communicative process that aims to improve an individual's feelings of coping, competence, belonging and/or self-esteem. Tangible support includes, for example, material aid such as financial support or making a meal for someone who is ill. Financial support can, for example, buffer the effects of financial stress (Aslund, Larm, Starrin, & Nilsson, 2014).

In summary, for the purposes of this study, *social support* was identified as an active coping strategy and defined as the perceived support that individuals receive from their social network or personal relationships to regulate heightened emotions in response to environmental demands that are perceived as taxing or exceeding their coping resources. In addition, (1) emotional support, (2) network support, (3) information support, and (4) tangible (or instrumental) support were identified as subdimensions that measure social support coping.

4.2.4 Leisure coping strategy

Leisure affords individuals an opportunity to experience a feeling of being free and unaware of the passage of time. Leisure participation also contributes to building autonomy, social relationships and optimism, which enhance coping resources and physical and mental health and wellbeing (Azizi, 2011; Edwards, 2006; Gerber & Pühse, 2009; Kim & McKenzie, 2014; De Andréa et al., 2010; Stults-Kolehmainen & Sinha, 2014). Leisure participation and engaging in physical activities have thus been recognised as an effective means to cope with stress by reducing the intensity of the stressor, recovering energy and stimulating positive feelings (Lehto et al., 2014). Leisure, as discussed in section 3.4.3.10, is grouped into four categories, namely (1) passive leisure, (2) active leisure, (3) social leisure and (4) vacation time (Kim & McKenzie, 2014; Joudrey & Wallace, 2009). These four strategies are briefly discussed below:

- **Passive leisure** includes activities that are restful, restorative or recuperative in nature. Passive leisure activities are thus not physically exertive and include, say, watching television or a movie, reading a book or listening to music. Similarly, Hayward (2000) describes passive leisure activities as those which require little effort or response from the person participating in that activity.

- **Active leisure** involves some degree of physical exertion, and includes, for example, recreational activities such as running, walking, swimming and cycling. Active leisure includes physical activities and exercise.
- **Social leisure or companionship** involves social interactions such as spending time with friends and attending a social function or party. Social leisure is thus related to interpersonal and intrapersonal relationships during leisure (Freire, 2013). Companionship is considered a situation-specific coping strategy because people may seek opportunities to socialise with others in response to their experiences with a specific stressor (Iwasaki, 2003a). Social leisure should not be confused with social support, as discussed in section 4.2.3.
- **Vacation time** may foster individuals' sense of control over their lives because it can provide an opportunity for pursuing interests that are not work-related (Joudrey & Wallace, 2009).

Consequently, for the purposes of this study the palliative coping strategy identified by Iwasaki and colleagues, and the leisure involvement subdimension of Patry et al. (2007) were considered in formulating the current leisure coping strategy. Iwasaki and Mannell (2000) conceptualised the leisure palliative coping strategy as a means of keeping an individual's mind and body busy, temporarily allowing him or her to escape from problems, and/or allowing the individual to feel refreshed and regrouping to better handle problems. They (Iwasaki & Mannell, 2000) therefore describe leisure as a positive diversion or "time-out" from stressful situations and thoughts. Similarly, leisure involvement is conceptualised as a temporary distraction or escape from a stressful event where the individual experiences positive feelings and restores his or her depleted resources (Patry et al., 2007). One should, however, not confuse leisure coping (more specifically palliative coping) with avoidance. According to Compas et al. (2001), one should distinguish between avoidance and distraction. Although both dimensions are a form of disengagement, distraction involves directing one's attention to activities that are more positively valenced (attractive), such as spending time with family, reading a book or listening to music. Leisure participation is thus viewed as a diversion whereby alternative, positive experiences are offered that deflect thoughts about current stress in the individual's life, allowing him or her to formulate different perspectives towards the stressful situation and/or feeling refreshed when he or she returns to his or her daily activities (Joudrey & Wallace, 2007). Similarly, Patry et al. (2007) found that leisure palliative coping generates positive feelings, reduces feelings of stress and restores depleted energy, which, in turn, could assist the individual in sustaining subsequent coping efforts. Patry et al. (2007),

however, caution that leisure palliative coping, if not used as a temporary distraction strategy, could lead to behaviour disengagement and mental ill-health.

In summary, for the purposes of this research study, leisure participation was identified as a situational and active coping strategy (Iwasaki, 2003a) that individuals adopt to regulate heightened emotions. Leisure coping is thus defined as the physical activities that individuals voluntarily engage in to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources. Leisure participation was further grouped into four categories or strategies, namely (1) passive leisure, (2) active leisure, (3) social leisure activities, and (4) vacation time (Kim & McKenzie, 2014; Joudrey & Wallace, 2009). These strategies formed the subdimensions that measured the leisure coping strategy for the current study.

The leisure construct and its subdimensions are graphically represented in figure 4.5.

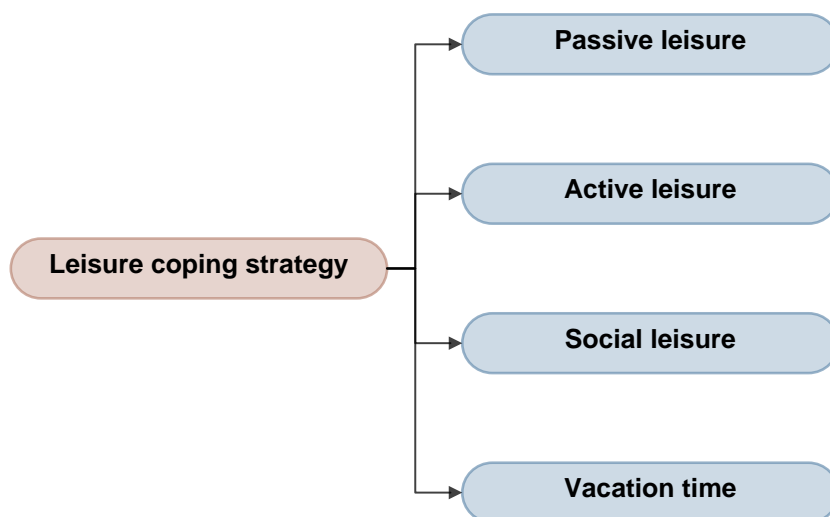


Figure 4.5. The leisure coping construct and its subdimensions

Source: Author's own compilation

4.2.5 Religious coping strategy

Religious activity as an active/engagement coping strategy helps individuals to reframe stressful events that motivate them to deal with stressors. Consequently, for the purposes of this study, religion was identified as an adaptive coping strategy that individuals adopt to regulate heightened emotions in response to environmental demands. For this study, Pargament and colleagues' (2000) definition of religious coping was deemed appropriate. Pargament et al. (2000) defined religious coping strategies as "ways of understanding and dealing with negative life events that are related to the sacred" (Pargament & Raiya, 2007, p.

743). In this definition, the concept “sacred” refers not only to traditional notions of God, divinity or higher powers, but also to other aspects of life associated with the divine. Based on this definition and the discussion in section 3.4.3.11, the religious coping dimensions were constructed with due regard for the positive religious coping strategies, identified by Pargament et al. (2011), and the organisational religious activity (ORA) and non-organisational religious activity (NORA) dimensions proposed by Koenig et al. (2004). The use of existing measures and theory was deemed appropriate given the sensitive nature of religion. The religious coping strategy and its subdimensions are graphically depicted in figure 4.6.

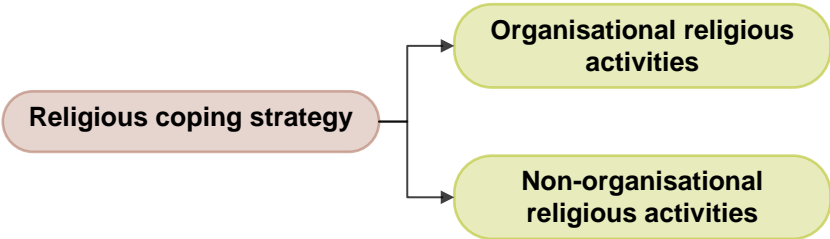


Figure 4.6. The religious coping strategy and its subdimensions
 Source: Author’s own compilation

4.2.6 Experiential avoidance coping strategy

Experiential avoidance (EA) (discussed in section 3.5.2.1) was identified as a maladaptive coping strategy that individuals engage in to regulate their emotions in response to environmental demands that are appraised as taxing or exceeding their coping resources. Although EA has never been described as a form or strategy of coping, Karekla and Panayiotou (2011) found that EA loads on the same factor as other emotion-focused and avoidant types of coping. EA further includes emotional control and regulatory processes or strategies such as avoidant coping, detached coping, emotion suppression, rumination, thought suppression and worry (discussed in section 3.5.2) (Chawla & Ostafin, 2007; Karekla & Panayiotou, 2011; Kashdan et al., 2006), which according to Aldao et al. (2010), are maladaptive coping strategies that individuals use to regulate their emotions. EA can thus be thought of as another coping strategy.

Consequently, for the purposes of this study, EA coping was conceptualised as a maladaptive avoidance (or escape) coping strategy that individuals adopt to alter the form and frequency of any aversive experiences and distress (Hayes, Strosahl, & Wilson, 1999). Given the discussion above, four EA coping subdimensions, namely (1) expression suppression, (2) thought suppression, (3) avoidant coping, and (4) rumination, were identified as

subdimensions of EA coping. The avoidant coping subdimension further includes self-destructive behaviour and behavioural, social, and religious disengagement. The EA coping dimension and subdimensions are graphically represented in figure 4.7 below.

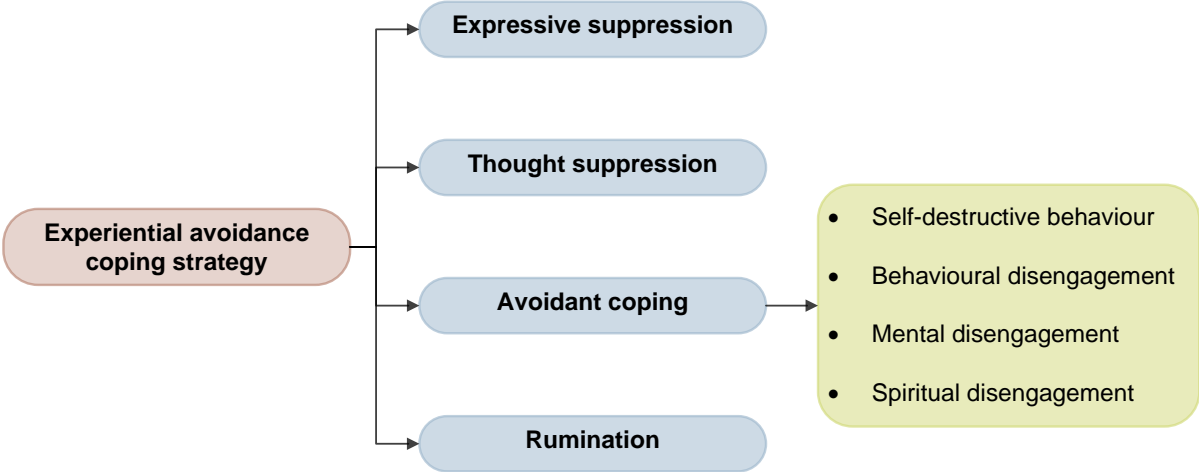


Figure 4.7. The experiential avoidance coping construct and its subdimensions

Source: Author’s own compilation

4.2.7 Integration: Proposed theoretical dimensions for measuring coping with occupational stress

Six theoretical dimensions (or coping strategies) that individuals adopt to respond to occupational stressors were proposed. The proposed dimensions and subdimensions, as discussed in sections 4.2.1 to 4.2.6, are graphically summarised in figure 4.8. Table 4.1 further provides an overview of the proposed dimensions, subdimensions, definitions of the dimensions, examples of typical items and type of coping strategy.

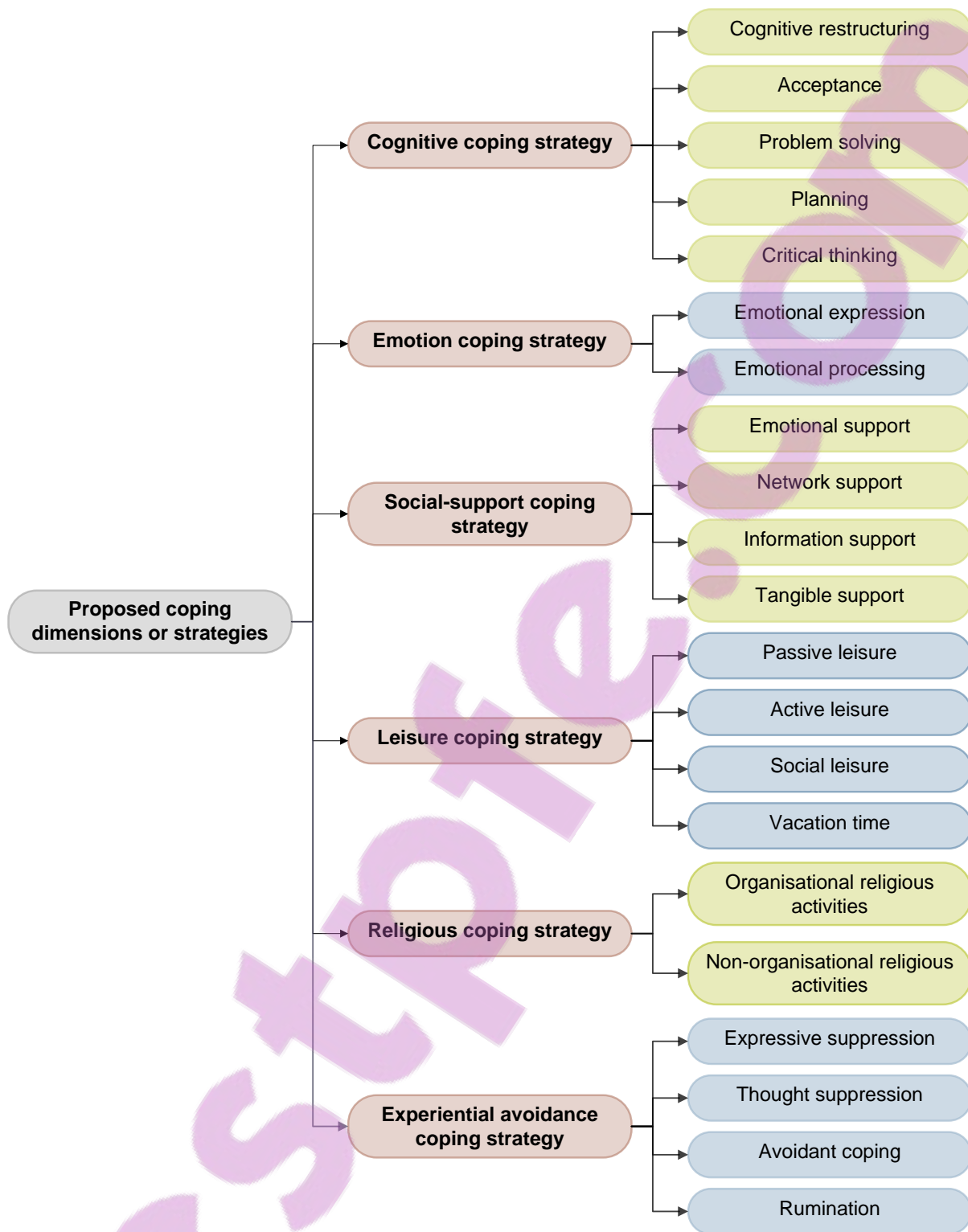


Figure 4.8. Proposed dimensions and subdimensions for coping with occupational stress

Source: Author's own compilation

Table 4.1

Summary of the proposed dimensions and subdimensions for coping with occupational stress

<i>Dimension</i>	<i>Subdimensions</i>		<i>Example of an item</i>	<i>Classification</i>
Cognitive coping The cognitive processes of acquiring knowledge and understanding through thoughts and experiences to manage the intake of emotionally arousing stimuli.	Cognitive restructuring	Allows individuals to become aware of their own thoughts and through reorganisation change how they think (Sharoff, 2002).	I tried to make sense of the situation.	Adaptive coping strategy
	Acceptance	Accepting that the problem occurred (Wong & Wong, 2006), that it is real and that it must be addressed (Carver et al., 1989).	I accepted that the situation is real.	
	Problem solving	Problem solving measures include cognitions directed at solving the problem (Aldao et al., 2010).	I concentrated on solving the problem.	
	Planning	Planning is a prospective self-regulatory strategy that involves mental formulations of dealing with problems (Sniehotta et al., 2005).	I came up with a strategy about what to do.	
	Critical thinking	Critical analysis is reasonable reflective thinking that is focused on deciding what to believe or do (Ennis, 2011).	I thought of different methods to deal with the situation.	
Emotional coping Emotional coping is the subjective, psychological and physiological expression and reaction to stressful encounters that are appraised as taxing or exceeding an individual's coping resources.	Emotional expression	Emotional expression, also known as emotional disclosure or expressive coping, is defined as the verbal and non-verbal expression of emotions (Stanton & Low, 2012).	I expressed my emotions freely about the situation.	Adaptive coping strategy
	Emotional processing	Emotional processing allows individuals to identify and think about their emotions in relation to a stressful experience (Stanton et al., 2000).	I realised that my feelings towards the situation are important.	
Social support coping Social support coping is defined as the perceived support that individuals receive from their social network or personal relationships to regulate heightened emotions in response to environmental demands that are perceived as taxing or exceeding their coping resources.	Emotional support	The perception that one is cared for, loved and valued as part of a social network of mutual relationships (Chang, 2007).	I sought comfort from my social support network.	Adaptive coping strategy
	Network support	The communication that affirms individuals' belongingness to a group or reminds them of the support available in that network (Chang, 2007; Mattson & Gibb Hall, 2011).	I relied on my social support network for support.	
	Informational support	The information, advice, guidance and suggestions received from a member of one's social support network (Chang, 2007; Mattson & Gibb Hall, 2011).	I asked for advice from individuals in my social support network.	

<i>Dimension</i>	<i>Subdimensions</i>		<i>Example of an item</i>	<i>Classification</i>
	Tangible support	Any physical assistance provided by others (Mattson & Gibb Hall, 2011).	I sought physical aid from my social support network that helped me with the situation.	
Leisure coping Leisure coping is defined as the physical activities that individuals voluntarily engage in to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources.	Passive leisure	Passive leisure includes activities that are restful, restorative or recuperative in nature.	I engaged in relaxing activities such as reading a book.	Adaptive coping strategy
	Active leisure	Active leisure involves some degree of physical exertion, and includes, say, recreational activities such as running, walking, swimming and cycling.	I engaged in sporting activities such as playing golf, tennis, squash and soccer.	
	Social leisure companionship	Social leisure or companionship involves social interaction such as spending time with friends and attending a social function or party. Social leisure is thus related to interpersonal and intrapersonal relationships during leisure (Freire, 2013).	I socialised with family and friends.	
	Vacation leisure	Vacation time may foster individuals' sense of control over their lives, because it can provide an opportunity for pursuing interests that are not work related (Joudrey & Wallace, 2009).	I took a vacation.	
Religious coping Pargament et al. (2000) define religious coping methods as "ways of understanding and dealing with negative life events that are related to the sacred" (Pargament et al, 2007, p. 743).	Organisational religious activities	Organisational religious activities are defined as the social dimension of religiousness and include, say, going to church, participating in prayer or Bible study groups and/or participating in church functions (Koenig et al., 2004).	I went to a place of worship.	Adaptive coping strategy
	Non-organisational religious activities	Non-organisational religious activities are defined as private and/or personal religious behaviours which are done alone, such as prayer or meditation, reading the Bible or other religious literature, listening to a religious radio station or watching a religious television show (Koenig et al., 2004).	I prayed to get my mind off my problems.	
Experiential avoidance coping	Expressive suppression	Expressive suppression is defined as the conscious inhibition or suppression of expressing emotions	I tried to suppress my emotions.	Maladaptive coping strategy

<i>Dimension</i>	<i>Subdimensions</i>		<i>Example of an item</i>	<i>Classification</i>
Experiential avoidance coping is conceptualised as a maladaptive avoidance (or escape) coping strategy that individuals engage in to alter the form and frequency of any aversive experiences and distress (Hayes et al., 1999).		(Compas et al., 2014; Gross & Levenson, 1993; Vogt & De Houwer, 2014).		
	Thought suppression	Thought suppression is defined as a conscious cognitive avoidance coping strategy that individuals engage in when they actively attempt not to think about an unwanted thought or feeling that they are experiencing (Hetzel-Riggin & Wilber, 2010; Petkus et al., 2012).	I tried not to think of the stressful situation.	
	Avoidant coping	Avoidant coping is broadly defined as individuals' cognitive and behavioural attempts to avoid or escape from having to deal with a situation, a person, an emotion, thought or any other entity that causes harm (Stemmet, 2013).	I avoided having to deal with the situation.	
	<i>Self-destructive behaviour</i>	Self-destructive behaviour is a maladaptive coping strategy that individuals engage in to redirect their attention away from the current problem (Nolen-Hoeksema et al, 2008).	I engaged in self-destructive behaviour such as abusing alcohol.	
	<i>Behavioural disengagement</i>	Behavioural disengagement is defined as reducing one's effort or giving up any attempt to deal with the stressor (Carver et al., 1989, p. 269).	I gave up any attempt to deal with the situation.	
	<i>Social disengagement</i>	Social disengagement, also known as social withdrawal, includes avoiding contact with others (Gottlieb, 1997, p. 115).	I avoided contact with my colleagues.	
	<i>Religious disengagement</i>	Religious disengagement is defined as the loss of interest in things sacred (Pargament et al., 2011, p. 127).	I withdrew from any religious activity.	
	Rumination	Rumination is defined as "a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms" (Nolen-Hoeksema et al., 2008, p. 400).	I thought about what caused the situation instead of finding a solution.	

Source: Author's own compilation

4.3 PROPOSED CONCEPTUAL MODEL FOR COPING WITH OCCUPATIONAL STRESS

The literature review (discussed in chapters 2 and 3) provides a comprehensive overview of stress, occupational stress, coping and emotion regulation that were considered in developing a conceptual model with proposed dimensions for coping with occupational stress. The proposed conceptual model is shown in figure 4.9, and is briefly discussed in this section.

The organisation (or workplace) is perceived by many individuals as a source of stress that affects their health and wellbeing (Beheshtifar & Nazarian, 2013; Vokić & Bogdanić, 2008). Stress responses in the organisation are often caused by extra-organisational sources, organisational sources, group stressors and individual stressors (section 2.3.3). A stress response is thus elicited once the workplace stressor is perceived as taxing or exceeding the individual's coping resources. There is thus an imbalance between the demands in the environment and the resources available to the individual to respond to them. Consequently, a stressor is perceived as a threat to the individual's health and wellbeing. Individual characteristics (such as demographic and personality variables) and sources in the external environment further contribute to the individual's perception of occupational stress. Occupational stress was consequently conceptualised as the perceived discrepancy between demands in the workplace and the individual's ability to cope with these demands. A misfit between the individual and environment leads to health and performance problems for him or her and unwanted occurrences and costs for the organisation.

The model further explains that an individual elicits an emotion when a workplace stressor is appraised as a threat, challenge and/or harmful to his or her health and wellbeing. Primary appraisal is thus essential to eliciting an emotional response (discussed in sections 2.2.2.3 and 3.3.5). Once the appraisal process generates an emotion, it has to be regulated to modify the magnitude and/or type of emotional experience and/or emotion-eliciting event. Emotional responses are experienced because of the individual's inability to regulate emotions. The coping processes, and more specifically coping strategies, are adopted to respond to the felt emotion and modulate the individual's perception of the stressor. Coping (as defined in section 3.1) is thus a continuous effort that assists individuals in decreasing negative emotional experiences by maintaining psychological adaptation during stressful periods. Coping was conceptualised by the researcher as "emotion regulation under stress", and defined as the conscious efforts that individuals adopt to regulate heightened emotions in response to environmental demands that are perceived as taxing or exceeding their coping resources. The

coping strategies that individuals adopt to regulate their emotions are further influenced by their coping resources (discussed in section 3.4.4).

Coping resources are viewed as adaptive resources inherent in the individual that enable them to cope with stressors more effectively. Coping strategies, however, are defined as an adaptive or maladaptive response to a stressor which causes the individual to experience heightened positive or negative emotions. Individuals thus adopt coping strategies to modulate their emotions to change the perception of the stressor. The following six theoretical dimensions or coping strategies were proposed: (1) *cognitive*, (2) *emotional*, (3) *social support*, (4) *leisure*, (5) *religious*, and (6) *experiential avoidance*. It was anticipated that the findings of the study would provide insight into whether the proposed strategies (1) regulate the academic's emotions (i.e. lead to coping success), and (2) reduce occupational stress.

After the workplace stressor has been appraised as stressful, emotions are evoked, and coping strategies are adopted to regulate the emotions, the situation is continuously reappraised (or re-evaluated) until the felt affect is altered or completely eliminated. The first five strategies (*cognitive*, *emotional*, *social support*, *leisure* and *religious*) are proposed adaptive coping strategies. The model further proposes that the adaptive coping strategies modulate the felt emotions so that the individual's perception of the stressor is changed. Adaptive coping strategies are therefore positively associated with physiological and psychological health and wellbeing and organisational success.

The last strategy, *experiential avoidance*, is proposed as a maladaptive strategy. Experiential avoidance not only prevents the individual from regulating negative emotions, but also from taking action to change the aversive experiences or events that elicit them. Avoidance is thus a defensive response that involves ignoring or escaping from an environmental demand that is perceived as taxing or exceeding the individual's coping resources. Avoidance coping is useful in the short term, because it is a temporary distraction that allows the individual to calm his or her emotions. However, it is dysfunctional in the long term, because the longer the individual avoids the stressor, the more distressed he or she becomes. Maladaptive coping strategies are associated with increased psychological distress, occupational stress and consequently disorders such as anxiety, depression and burnout (Karekla & Panayiotou, 2011; Mark & Smith, 2011; Mostert & Joubert, 2005; Newman & Llera, 2011; Pasillas et al., 2006; Van Der Colff & Rothmann, 2009). Individuals who engage in experiential avoidance coping strategies continue to reappraise the stressor (because the negative emotional experience is

not altered) until they are able to adopt adaptive coping strategies. The coping process thus continues until the stressor is perceived as less stressful or until it is completely eliminated.

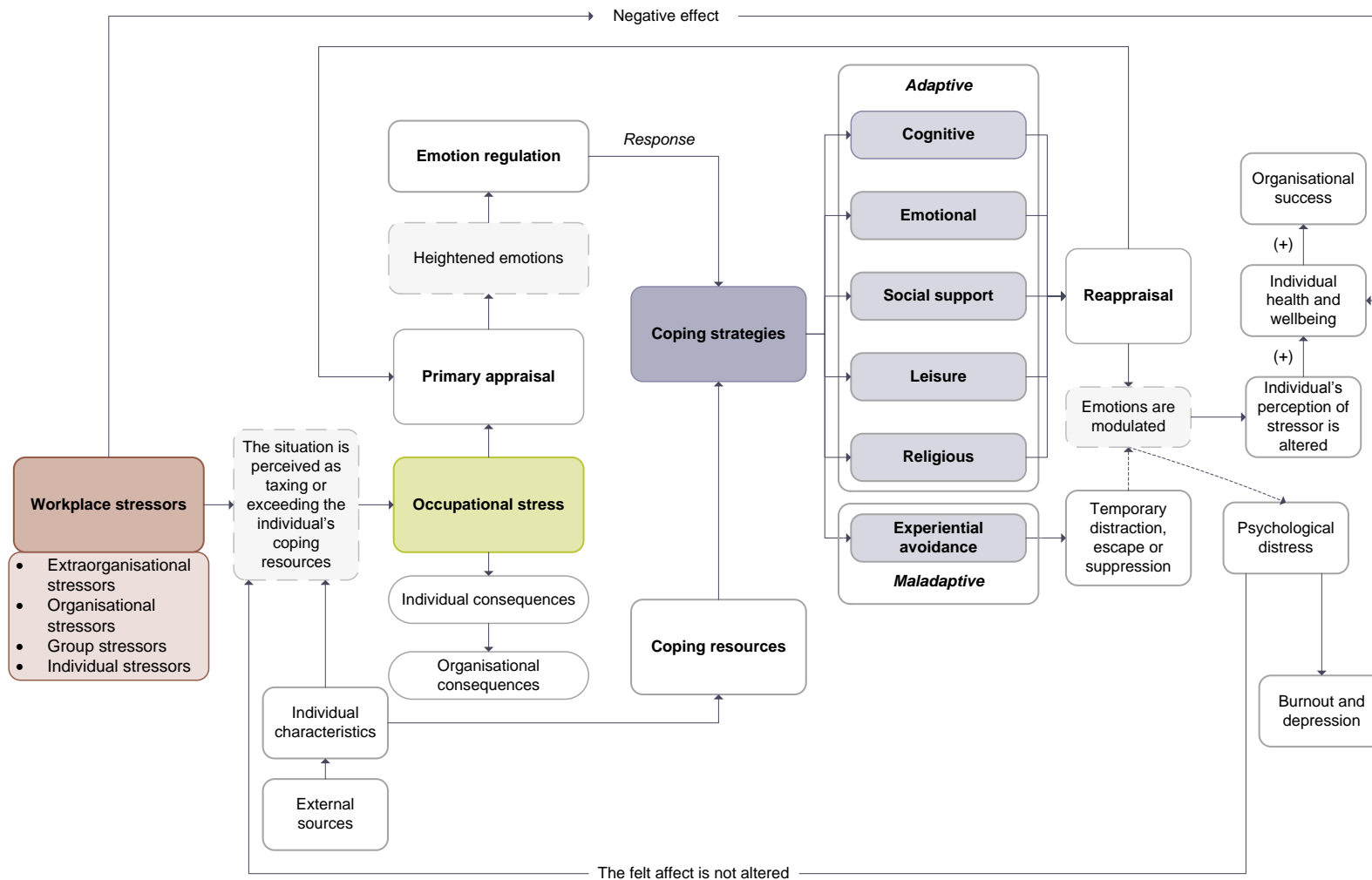


Figure 4.9. Proposed conceptual model for coping with occupational stress

Source: Author's own compilation

4.4 CONCLUSION AND CHAPTER SUMMARY

This chapter outlined the proposed theoretical dimensions and conceptual model for coping with occupational stress. The conceptual model (as illustrated in figure 4.9) was not only used to gain an understanding of the constructs under investigation, but also to generate items that measure the constructs and proposed dimensions. Six theoretically derived coping strategies that individuals adopt in response to occupational stress were proposed, namely (1) *cognitive*, (2) *emotional*, (3) *social support*, (4) *leisure*, (5) *religious*, and (6) *experiential avoidance*. The literature review, proposed dimensions and conceptual model in this chapter concludes the first phase of the first step of the instrument development process, namely “conceptualisation and item generation”.

The following literature research objectives were achieved in this chapter:

Research objective 6: To identify dimensions and subdimensions for measuring coping with occupational stress in higher education institutions in South Africa

Research objective 7: To develop a conceptual model for coping with occupational stress for higher education institutions in South Africa, based on the theoretical relationship dynamics between occupational stress, coping and emotion regulation

The research objectives of the literature review were therefore achieved in this chapter. The instrument development process and research methodology and strategy that were utilised in this study are outlined and discussed in chapter 5.

CHAPTER 5

RESEARCH METHODOLOGY

“If we knew what it was we were doing, it would not be called research, would it?”

– Albert Einstein

5.1 INTRODUCTION

Chapter 5 outlines the research methodology that was applied in the construction of an instrument for determining which coping strategies university employees adopt in response to occupational stress. The methodology addressed in this chapter includes a description of the research approach and design. The population, the sampling frame and sampling method are also briefly discussed, followed by an explanation of how the instrument was developed, administered and validated. The chapter concludes with a description of the data analysis methods that were applied, as well as the procedures that were followed to adhere to ethical accountability requirements. The research methodology process that was followed is summarised in figure 5.1.

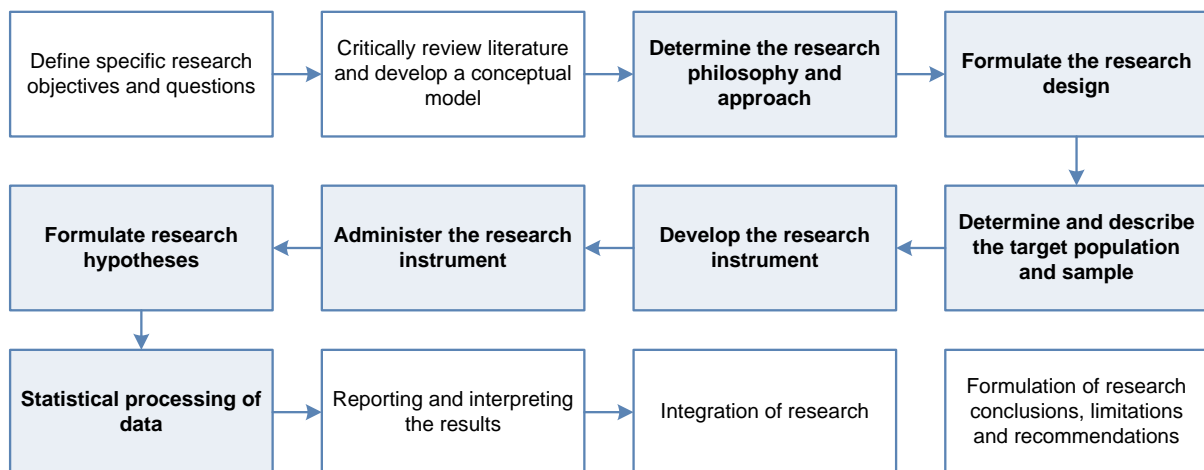


Figure 5.1. Research methodology process

Source: Adapted from Bryman et al. (2014, p. 32)

The highlighted section is addressed in this chapter, while the last three steps are addressed in the remainder of the thesis.

5.2 RESEARCH APPROACH

A research approach is defined by Creswell (2014, p. 2) as “the plans and procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation”. A research approach is therefore the mind map that is used to

conduct research. Three research approaches have been identified in the literature, namely: (1) qualitative, (2) quantitative, and (3) mixed methods (Bryman et al., 2014; Creswell, 2014). For the purposes of this study, a quantitative research approach was adopted.

Quantitative research is based on the premise that real things exist, and that they can be measured, have numerical values assigned to them and are meaningful (Garwood, 2006). Quantitative research is associated with the realist epistemology and post-positivism philosophies, discussed in chapter 1. Consequently, quantitative research involves collecting data in numerical form for quantitative analysis (Garwood, 2006; Lyons & Doueck, 2009). A deductive approach, which is better suited to a post-positivist paradigm, is accordingly followed, where a theory is developed and tested (Lyons & Doueck, 2009). Quantitative research often concludes with the formulation of a conceptual model (Jonker & Pennink, 2009). Research activities, such as the problem statement, objectives, research questions and hypotheses, are used to search for theory and formulate models. The researcher's focus is therefore on the methodological and technical translation of the research problem into measurement instruments for collecting data (Jonker & Pennink, 2009). Data is primarily collected by means of questionnaires and analysed by means of quantitative (or statistical) methods. The aim of quantitative research is therefore to empirically test the theoretical constructs as they are represented in the conceptual model.

Researchers conducting quantitative research are often classified as objective, independent observers who are not personally involved in the phenomena under investigation (Jonker & Pennink, 2009). They are experts in their respective fields and observe the real world through their own eyes to make observations and draw conclusions (Jonker & Pennink, 2009; Lyons & Doueck, 2009). Quantitative researchers are detail oriented, and their studies are carefully planned and finely executed (Drew, Hardman, & Hosp, 2008). The characteristics of a quantitative research approach are summarised in the table below.

Table 5.1
Characteristics of a quantitative research approach

	<i>Quantitative approach</i>
Definition	Quantitative research is used to explain phenomena by collecting numerical data that are empirically analysed through statistical methods.
Purpose	To test theoretical constructs as represented in the conceptual model.
Scientific method	Deductive
Role of researcher	Researcher is an independent, objective analyst.

	<i>Quantitative approach</i>
Research design	Non-experimental, large, randomly selected sample size. Descriptive and causal research design.
Data collection	Numerical data are collected by means of validated instruments, questionnaires or experiments.
Data analysis	Statistical methods and tools (e.g. IBM SPSS)
Findings	Statistical report with statistical significant, generalisable findings

Sources: Füllemann, Breitenmoser, and Fischl (2011, p. 5); Johnson and Christensen (2012); Xavier University Library (2012); Zikmund, Babin, Carr, and Griffin (2013, p. 135)

From the discussion and table above, one could conclude that the quantitative research approach is supported by a wide choice of methodological possibilities, and provides the researcher with an approach that is academically and scientifically sound and accepted in many disciplines. Füllemann et al. (2011) and Jonker and Pennink (2009) identified various advantages and potential weaknesses that should be taken into consideration when applying quantitative research. These are summarised in table 5.2.

Table 5.2
Advantages and disadvantages of quantitative research

<i>Advantages</i>	<i>Disadvantages</i>
– Possibility of isolating variables in systems and discovering causal relationships	– Threat of not making sense
– Statistical analysis gives meaning to raw data	– Gap between conceptual approach and reality
– Highly structured	– Cannot be applied if a theory is not available
– Comprehensible methodology is used	– Limited with complex questions
– Lower effort, in terms of costs and time	– Lack of flexibility caused by the predetermination of the researcher
– Replicable and generalisable results	
– Objective researcher	

Sources: Füllemann et al. (2011); Jonker and Pennink (2009)

In summary, a quantitative research approach was applied in this study. From existing literature, an understanding of the constructs under investigation was obtained which led to the development of the conceptual model that was used as the construct domain in the construction of the instrument. Using inferential statistics, the psychometric properties of the instrument were determined, as well as how the conceptual model compared with the observed structure of the sample. Highly structured data collection and analysis methods were used to test the model and instrument, and draw inferential conclusions. Throughout the study, the researcher remained an objective, independent observer.

It is, however, not sufficient to only outline the research approach – the purpose and type of study to be conducted also has to be specified (Cresswell, 2014). Therefore, in the next two sections, the research purpose and design that were applicable to this study are discussed.

5.3 CLASSIFICATION OF THE RESEARCH PURPOSE

The purpose of research can take on four forms: Exploratory; descriptive; explanatory; and evaluative (Saunders et al., 2016). The purpose of this study is classified as exploratory and descriptive.

5.3.1 Exploratory research

Exploratory research is defined as a means of asking questions to discover what is happening and gain insight into the constructs under investigation (Saunders et al., 2016, p. 174). Exploratory research is useful when little is known about a topic and the researcher wishes to familiarise himself or herself with the topic in order to gain new insights. Exploratory research is conducted for three reasons, namely (1) to satisfy the researcher's interest in and need for understanding a topic; (2) to test the probability for conducting more intensive research; and (3) to determine which methods are used in any subsequent study (Babbie, 2008). In this study, the researcher aimed to explore, by means of a newly developed coping instrument, which coping strategies academics adopt in response to occupational stress.

5.3.2 Descriptive research

Descriptive research involves observing and describing the behaviour of a subject without influencing it (Babbie, 2008). A descriptive study was chosen for this research project, because the literature review in this study discussed and conceptualised the constructs under investigation, and a conceptual model for coping with occupational stress was proposed. An empirical study includes descriptive statistics (such as thematic analysis and reporting means and standard deviations) to describe the characteristics of the data.

5.4 RESEARCH DESIGN

The research design (or strategy of inquiry) is the general plan or procedure that is followed to answer the research question(s) and/or achieve the research objectives (Saunders et al.,

2016). The research design is therefore based on the research question(s) and/or objectives, and is consistent with the research approach.

As discussed in the previous section, a quantitative approach was followed in this study. Quantitative research is divided into experimental and non-experimental research (Creswell, 2014). Non-experimental research designs are primarily used to answer questions about the population and whether differences exist between the respondents (Lobmeier, 2010). The conclusions drawn from a non-experimental research design are descriptive and exploratory in nature, and for that reason, any conclusions drawn about the phenomena under investigation are done post hoc without interference from the researcher. This characteristic is termed *ex post facto* research (Jonker & Pennink, 2010).

Non-experimental methods include survey research, historical research, observations, and analysis of existing datasets (Muijs, 2011). Survey research, the most popular research design in social research, is used to obtain a quantitative description of trends, attitudes or opinions of a sample (Creswell, 2014). Researchers often make use of standardised questionnaires to obtain data, which are quantitatively analysed through descriptive and inferential statistics (Saunders et al., 2016). Survey research was applied in this study, firstly, because it is associated with the quantitative approach, and is often used in exploratory and descriptive research (Saunders et al., 2016). Secondly, the researcher has control over the research process. Thirdly, survey research suggests possible reasons for particular correlations between variables and can be used to produce conceptual models. Fourthly, the findings are representative of the population. Lastly, survey research is less costly and time consuming.

Questionnaires, such as the one administered in this study, are divided into three categories, namely self-administered questionnaires, investigator-administered questionnaires and psychological tests (Mitchell & Jolley, 2013). For the purposes of this study, a self-administered questionnaire was used to determine which coping strategies academics adopt in response to occupational stress. Self-administered questionnaires are designed specifically for participants to complete in their own time without the interference of the researcher (Wolf, 2008). Self-administered questionnaires are easily distributed to a large number of respondents, and often allow anonymity (Mitchell & Jolley, 2013). The detailed instrument development process is discussed in section 5.6.

A cross-sectional survey was chosen for this study because data collection occurred at a single point in time (Babbie, 2010). The participants were required to indicate whether they have used

a specific coping strategy (measured through various items) to cope with a stressful situation or stressor in the workplace that they have experienced at a specific time. Cross-sectional studies are usually economical, easy to control, used in exploratory and/or descriptive studies and often associated with survey research (Saunders et al., 2016).

In conclusion, in order to achieve the research objectives, a non-experimental, *ex post facto*, cross-sectional, quantitative survey design was used. The population and sampling strategy are discussed in the next section.

5.5 DESCRIPTION OF THE POPULATION AND SAMPLE

A population is a complete set of events and/or objects or cluster of people that form part of the purpose of research, and about which the researcher would like to identify certain characteristics (Gravetter & Wallnau, 2011). By contrast, a sample is drawn from a population and is defined as a subset of the population about which conclusions are drawn (Sekaran & Bougie, 2010). A sample should be representative of the entire population (Hair, Bush, & Ortinau, 2009).

There are two main types of sampling, namely probability and non-probability (Saunders et al., 2016). Probability sampling gives every element in the population an equal chance of being selected for the sample (Zikmund et al., 2013), while non-probability sampling does not allow for elements to be selected according to the principle of systematic randomness (Terre Blanche, Durrheim, & Painter, 2006). In non-probability sampling, the probability of any particular member of the population being selected is unknown. Instead, the sample is selected based on personal judgement or convenience (Zikmund et al., 2013).

A non-probability, convenience sample was selected to achieve the objectives of this study. Convenience sampling involves selecting participants based on their availability or accessibility (Swanson & Holton, 2005). This method was chosen to ensure that a sufficient number of responses were obtained quickly and economically. Convenience sampling is a cost-effective means of ensuring that a large number of participants are included in the study (Zikmund et al., 2013). The disadvantages of convenience sampling, however, include bias and the fact that they can lead to over-representation or under-representation of particular groups in the sample (Farrokhi & Mahmoudi-Hamidabad, 2012). However, these disadvantages were addressed by ensuring that a representative sample of participants was obtained (see section 6.2.4). Swanson and Holton (2005) also discourage convenience sampling because of its

inability to generalise research findings. The primary objective of this study, however, was not to generalise findings, but merely to develop and validate the coping instrument.

The target population, as set out for the current study, consisted of adults who were permanently employed as academics in a higher education institution in the Gauteng province of South Africa. These employees were chosen because a secondary objective of this study was to determine which coping strategies academics adopt in response to occupational stress. The literature revealed that the workplace is a major source of stress for employees because of the amount of time spent at work. Previous studies have also found that academia is a highly stressful occupation. The focus of these studies, however, was on determining what causes stress among university employees, but little attention was devoted to *how* they cope with occupational stressors. The instrument would thus allow the researcher to explore and describe which coping strategies these employees adopt in response to occupational stress.

The profile of the sample is described according to the following demographic variables: gender, age, job level, years of employment and highest qualification. These variables were included because, according to Barkhuizen and Rothmann (2008), academics are not a homogeneous group of individuals and therefore differ with regard to the coping strategies they use to cope with stressors. A secondary objective of this study was, for the latter reason, to explore how university employees from different demographic backgrounds differ with regard to the coping strategies they use to cope with occupational stressors.

5.6 INSTRUMENT DEVELOPMENT

The development of an instrument is a complex task that involves a series of steps and/or strategies, as proposed by Barry, Chaney, Stellefson, and Chaney (2011), DeVellis (2012), Du Preez, Visser, and Janse van Noordwyk, (2008a; 2008b), Netemeyer, Bearden, and Sharma (2003); Schmiedel, Vom Brocke, and Recker (2014), Slavec and Drnovšek (2012), and Worthington and Whittaker (2006). For the purpose of this study, a combination of steps suggested by these authors was followed to construct the instrument. The process was broken down into three phases, each comprising a number of steps, as illustrated in figure 5.2.

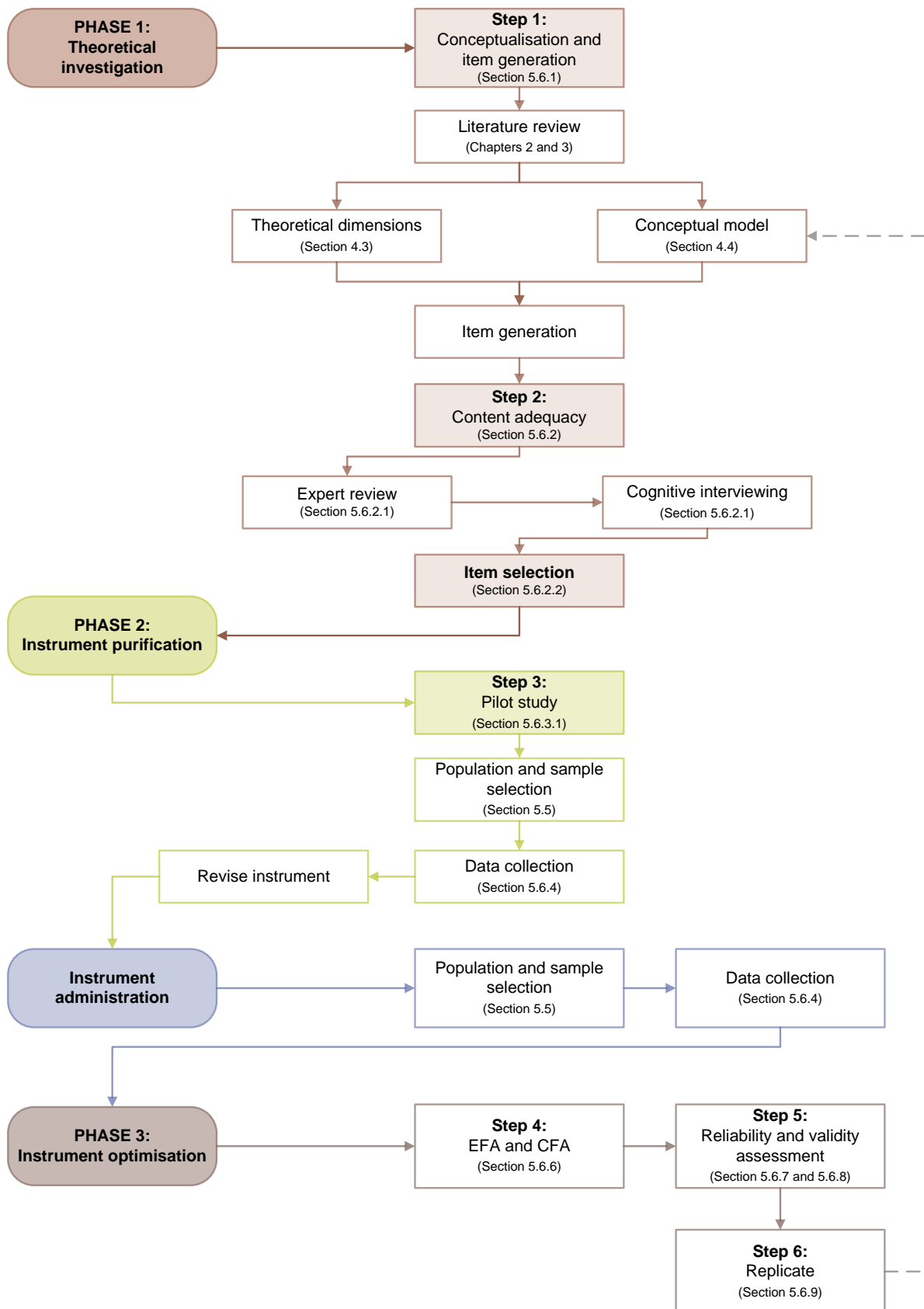


Figure 5.2. The instrument development process

Source: Author's own compilation

5.6.1 Conceptualisation and item generation

5.6.1.1 Conceptualisation and literature review

The first step in the instrument development process is to gain an understanding of the construct under investigation and its theoretical context (Clark & Watson, 1995; Slavec & Drnovšek, 2012). The importance of this step cannot be overstated, because the validity of what is being measured depends on the definition and content domain (Netemeyer et al., 2003). The conceptualisation of a construct is thus imperative for valid empirical results and interpretation (Du Preez et al., 2008a). The researcher needs to be careful about what to include and exclude from the construct domain. Instruments that are too narrow fail to include important facets of the construct, while items that are too broadly defined include extraneous factors of other construct domains, which are irrelevant and threaten the construct validity of the instrument. The boundaries of the construct under investigation should be clearly specified.

According to DeVellis (2012), theory or literature is a great aid in clarifying a construct. Slavec and Drnovšek (2012, p. 54) support this view that a literature review serves as the basis for “grounding the theory” of a new construct. A literature review has several advantages, the first being that a comprehensive literature review serves to clarify the nature and range of the content of the construct. Secondly, shortcomings in existing instruments are identified. Lastly, the literature review reveals whether the instrument is necessary or not.

The conceptualisation (or literature review) of a construct is therefore a vital step in the development process, because ill-defined constructs can lead to the inclusion of items that are only partially related to the construct, or to the exclusion of items that are important components of the content domain (Worthington & Whittaker, 2006). Instrument developers should build a construct model that specifies the following: (1) the internal structure of the construct (i.e. its componential structure); (2) the external relationships of the construct(s) to other constructs; (3) potential types of indicators (or item formats) for measuring behaviours that are relevant to assessing the construct; and (4) construct-related processes, such as causal impacts that the construct is expected to have on a specific behaviour (Dimitrov, 2010).

5.6.1.2 Item generation

Once a comprehensive understanding of the constructs under investigation has been gained, the creation of items to assess the construct begins (Hinkin, Tracey, & Enz, 1997). During this

stage, the primary concern is content validity, which according to Hinkin (1995, p. 969), is the “minimum psychometric requirements for measurement adequacy and is the first step in construct validation of a new measure”. The instrument must therefore measure what it was designed for. Hinkin (1998) explains that a deductive or inductive approach could be followed to develop preliminary items. The instrument development process used in this study is described as a theoretical-rational or deductive method of development (Clark & Watson, 1995). Firstly, the deductive approach requires a thorough understanding of the construct under investigation (Hinkin, 1995). Secondly, empirical validation and conceptual and psychometric analysis is a vital requirement in the deductive approach, for the following two reasons: (1) the analyses increase one’s understanding of the construct domain; and (2) one is able to identify deficiencies in the initial item pool (Clark & Watson, 1995). Lastly, the content validity of the instrument increases (Hinkin, 1998).

After the scope and range of the construct domain have been identified, the actual task of generating items begins. The purpose of this stage is to generate a large pool of items that are potential candidates for inclusion in the final instrument (Slavec & Drnovšek, 2012). To achieve this objective, the initial item pool should be broad and more comprehensive than the researcher’s theoretical view of the construct (Clark & Watson, 1995). Although there are no commonly accepted rules or norms for the size of the initial item pool, researchers have made several recommendations. Harvey, Billings, and Nilan (1985), for example, suggest that at least four items per scale are required to test the homogeneity of items within each construct. Worthington and Whittaker (2006) advise that an item pool should include three to four times the number of items that are included in the final instrument. Through psychometric analysis, the weak and unrelated items are removed. DeVellis (2012) agrees that an item pool should be twice the size of the final instrument. Hinkin (1995), however, posits that the number of items should be kept to a minimum in order to decrease response bias. Kenny (1979) is of the opinion that too few items have a negative effect on the psychometric properties of the instrument. Netemeyer et al. (2003), in conclusion, suggest a large number of items because overinclusiveness is more desirable than underinclusiveness.

The following guidelines should be taken into consideration when writing items:

a Item writing

It is imperative to write “good” items (Furr, 2011). According to Slavec and Drnovšek (2012), the writing of good items is an art and a number of guidelines should be followed when writing

them. Statements should be clear, simple and short. The language should be straightforward, and appropriate for the reading level of the target population. Trendy expressions, colloquialism, slang language, “double-barrelled” items and leading questions should be avoided (examples of problems associated with item writing are provided in table 5.3). Items should be written to ensure variability in the participants’ responses. Negatively worded or reverse-scored items should be used with caution. Although reverse-scored items reduce response bias, they may have a negative effect on the psychometric properties of the instrument (Hinkin, 1998). In summary, the researcher should write items that are clear, concise, readable and distinct, and reflect the instrument’s purpose.

Table 5.3
Problems associated with writing items

<i>Problem question</i>	<i>Description</i>	<i>Example</i>
Double-barrelled	Two questions are incorporated into one.	Do you feel calm and relaxed after exercising?
Loaded or leading	Directing people to give different answers than they would give if the question had been worded in a more neutral manner.	You agree that exercising reduces stress, don't you?
Negative	Using “not” in a question.	Are you not satisfied with your manager's support?
Unnecessary detail	Requesting participants to provide their exact age or years of employment instead of using groups (e.g. 5 to 10 years).	How long have you been employed in your current position?
Dead giveaway	Questions that contain absolute, all-inclusive or exclusive words or phrases.	Could the civil protection do a better job of protecting residents from volcanic hazards?

Source: Bird (2009, p. 1 312)

b Choice of response format

The response format should be determined early in the instrument development process mainly for the following two reasons: (1) the wording of the items should match the scale format; and (2) the choice of the response format should be consistent with the conceptual definition of the construct (Sirakaya-Turk, Uysal, Hammitt, & Vaske, 2011). When a response format is chosen, the researcher should ensure that the scale used generates sufficient variance for statistical analysis among respondents (Swanson & Holton, 2005). The two dominant response formats are dichotomous responding (e.g. yes-no, true-false, and agree-

disagree) and the Likert scale with three or more options (e.g. never-always, not at all-very much and like me-not like me) (Clark & Watson, 1995).

The Likert scale is often used in psychometric assessment because multiple-choice formats are more reliable, provide results that are more constant, produce better instruments and are suitable for factor analysis (Clark & Watson, 1995; DeVellis, 2012; Hinkin, 1998). The number of response options should therefore be taken into consideration when an instrument is designed (Clark & Watson, 1995). Instruments with an even number of response options (e.g. a four or six-point scale), for example, force respondents to “choose a side”, while five or seven-point scales compel respondents to choose the middle option. Having too many response options thus results in random responses that jeopardise the validity of the instrument. Hinkin (1998) recommends a five-point rating scale to ensure that the instrument is reliable. Brace (2008) also advises researchers to take the following matters into consideration when designing instruments: (1) the order effect (i.e. the order in which the response codes are presented); (2) acquiescence (i.e. the tendency of the respondents to say “yes” to the statements); (3) central tendency (i.e. respondents remaining neutral); and (4) pattern answering (i.e. when respondents answer the statements in a pattern).

In conclusion, the initial stage of the instrument development process is crucial to the success of the study under investigation. During the first stage, the researcher is required to gain an understanding of the construct and develop items that are used to measure the construct. Matters such as item development, the size of the initial item pool and the choice of the response format should also be taken into consideration during this step.

From the discussion above, the following important considerations were identified and addressed in this study.

- (1) *The importance of a well-defined construct cannot be overstated.* The construct domain was conceptualised by means of a thorough literature review. Conducting a literature review was considered the best approach to follow to clarify the construct, identify shortcomings in existing literature, and determine whether or not it was necessary to develop an instrument. The findings of the literature review were further used to develop a conceptual model with proposed theoretical dimensions, and to generate an item pool.
- (2) *The items should tap the construct domain.* When items are developed, the construct domain should be considered, as well as the wording of the items. The wording of the items should be appropriate to ensure that the items demonstrate content validity. For

this reason, a thorough literature review was conducted. Content validity is ensured by means of item consistency.

- (3) *Item writing is an art and not a science.* The writing of items is an art and not a science. Items that are clear, concise and readable, and that reflect the instrument's purpose and content domains should be developed.
- (4) *The size of the item pool does not matter.* There are no set rules about the size of the initial item pool. A large item pool is deemed necessary for the following reasons: (1) in the early stages of the instrument development process, it is preferable to be overinclusive rather than underinclusive; (2) the internal consistency of the instrument is determined by how strongly the items correlate with each other; and (3) the instrument is usually submitted for an expert review, cognitive interview and pilot study, which assist in its purification and refinement.
- (5) *The response format matters.* The response format of the instrument should be determined early in the instrument development process since it has an influence on the validity of the instrument. A choice should be made between dichotomous and multichotomous scale points, as well as the wording of the scale points. For the purpose of this study a multichotomous, six-point scale was chosen because multichotomous scales create more scale variance. According to DeVellis (2012), if an instrument fails to discriminate differences in the underlying attribute, its correlations with other instruments are restricted and its utility is limited. A six-point scale was used to allow the respondents to discriminate meaningfully between the response options and to reduce ambiguity.

5.6.2 Content adequacy assessment and item selection

5.6.2.1 Content validity evaluation

After items have been generated, they should be subjected to a content validity assessment (Hinkin, 1998; Swanson & Holton, 2005). Content validity refers to the degree to which the elements (i.e. the items, response format and instructions) in an instrument are relevant to and representative of the theoretical construct under investigation (Hardesty & Bearden, 2004; Slavec & Drnovsek, 2012). Content validity is ensured through face validity, which is defined as the extent to which experts judge an instrument to ensure that it measures what it was designed to measure. The purpose of this stage is therefore to pretest the instrument, allowing items that are conceptually inconsistent to be removed from the instrument (Hinkin et al., 1997).

Various content assessment methods have been identified in the literature (Hinkin et al., 1997). These methods include, the following, inter alia: Allowing respondents to categorise or sort items based on their similarity to construct definitions (Hinkin, 1998); having the items reviewed by experts (or knowledgeable individuals) in the content area (Slavec & Drnovšek, 2012); conducting cognitive interviews with participants from the target population (Yuen et al., 2014); substantive validity analysis (Hinkin, 1998); and/or factor analytical techniques (Hinkin et al., 1997). In this research study, an expert review and cognitive interviews were used to test for content validity.

a Expert review

According to DeVellis (2012), an expert review is beneficial to the instrument development process because it maximises the content validity of the instrument in a number of ways. Firstly, the expert review confirms or invalidates the definition or relevancy of the constructs under investigation. Secondly, the reviewers evaluate the items' clarity and conciseness. An item might be relevant to the construct, but its meaning is unclear. This might have an influence on the items' reliability because vague or unclear items reflect factors extraneous to the latent variable. Thirdly, the reviewers suggest items that the researcher has failed to include. Lastly, the reviewers evaluate items for conciseness, grammar, reading level, face validity and redundancy (Worthington & Whittaker, 2006). In summary, in order to increase the legitimacy of the new construct, information on the representativeness, relevance and evaluation of the instrument should be recorded (Slavec & Drnovšek, 2012). The content validity of an instrument is influenced by how the experts were chosen and utilised in the development process. Grant and Davis (1997) therefore suggest that the characteristics of the experts and how they were recruited should be included in the research findings.

When experts are chosen to review the instrument, the following guidelines should be taken into consideration.

i Selecting review experts

Lynn (1986) suggests a minimum of three and a maximum of 10 experts to conduct the review. Experts should have the necessary training, experience and qualifications to conduct the review (Grant & Davis, 1997). Grant and Kinney (1992) therefore suggest that the number of publications in accredited journals, conference proceedings and presentations, research in the construct of interest and experience should be used as the criteria for selecting experts.

Experience with regard to the conceptual framework should also be considered when a theoretical basis is used to develop the instrument (Grant & Davis, 1997). Geographically dispersed experts can also increase the content validity of the instrument (Grant & Davis, 1997). In some instances, however, it might be difficult to obtain experts who meet the selection criteria. One should then request subsets of experts to evaluate the instrument. It is, however, essential to obtain a number of experts who have the necessary expertise and knowledge to review the instrument.

ii Utilising the panel of experts

Once the panel of experts has been selected, they have to be provided with the conceptual basis for the instrument. This includes the dimensions and subdimensions of the construct, as well as the response format for the instrument. The reviewers should then be instructed to validate the initial item pool in terms of its item content, item style and comprehensiveness (Grant & Davis, 1997). These criteria are discussed briefly below.

- (1) *Item content.* The representativeness of the individual items should be assessed (or reviewed) to determine if the content areas sufficiently measure the dimensions of the construct under investigation. Possible suggestions to improve items that are not consistent with the conceptual definition of the construct or are not representative of the content, should be included in the review (Grant & Davis, 1997).
- (2) *Item style.* The clarity and conciseness of the individual items should also be reviewed to judge the construction and wording of the items (Grant & Davis, 1997). Although an instrument might represent the content domain, the respondents might provide inaccurate information because the instructions for the instrument, the items or response format are unclear. Consequently, the findings of the study are negatively affected.
- (3) *Comprehensiveness.* The last step of the expert review process involves the evaluation of the total instrument for comprehensiveness. This step is necessary to ensure that the items sufficiently represent the content domain. Suggestions from this review allow the developer to identify items that need to be added, rephrased or deleted. Lynn (1986) further suggests that the instrument be reviewed when the reviewers have different findings or when missing domain areas are identified.

Once the expert review has been concluded, the level of interrater agreement (IRA) and content validity of the instrument can be determined (Grant & Davis, 1997).

- *Interrater agreement (IRA)*

IRA is “the absolute consensus in scores furnished by multiple judges for one or more targets” (LeBreton & Senter, 2008, p. 816). IRA is therefore the absolute value of the experts’ ratings. Levels of acceptable IRA suggested in the literature range from 0.70 to 0.80, depending on the statistical measure used (LeBreton & Senter, 2008). According to Grant and Davis (1997), when IRA is unacceptable, the researcher must confirm the content domain of the instrument and use the scale suggested by the reviewers, as some might not have used the full range of scale options. Interviews might also be conducted to discuss and clarify questions about the instrument (also known as cognitive interviewing). Once IRA is acceptable, the content validity index (CVI) should be calculated.

- *Content validity*

The content validity of an instrument is enhanced by carefully conceptualising and analysing the construct domain before items are generated, and evaluating the relevance of the instrument’s content by means of an expert review (as discussed in section 5.6.2.1). Content validity is therefore defined as the “degree to which a sample of items, taken together, constitutes an adequate operational definition of the construct” (Polit & Beck, 2006, p. 490).

Although various statistical methods have been proposed in the literature, the content validity index (CVI) was applied in this study. According to Lynn (1986), two types of CVIs are determined, namely (1) the content validity of the individual items (I-CVI), and (2) the content validity of the overall instrument (S-CVI). To determine the I-CVI of the instrument, a panel of experts is asked to rate each individual item in terms of relevance to the underlying construct using a four-point Likert scale where *1 = not relevant* and *4 = highly relevant* (Davis, 1992; Lynn, 1986). The I-CVI is then computed as the number of experts giving a rating of either 3 or 4, divided by the total number of experts (Polit & Beck, 2006). An I-CVI of 0.80 is deemed acceptable, but, in circumstances where there are five or fewer experts, the I-CVI should be 1.00 (Lynn, 1986; Polit & Beck, 2006).

The S-CVI, where two or more reviewers are used, is defined as “the proportion of items on an instrument that achieved a rating of 3 or 4 by all the content experts” (Polit, Beck, & Owen, 2007, p. 460). Two approaches, S-CVI/UA (universal agreement) and S-CVI/AVE (average), are often used to compute the S-CVI, and an acceptable criterion is between 0.80 and 0.90

(Polit et al., 2007). A new instrument should have a content validity index of 0.80 (Grant & Davis, 1997).

The discussion above highlights that determining the content validity of an instrument is a crucial step in the instrument development process. Although various content assessment methods have been identified in the literature (Hinkin et al., 1997), the researcher made use of a panel of experts to validate the initial item pool in terms of its relevance, clarity and comprehensiveness. To complete this stage in the development process, the researcher determined the interrater agreement level and content validity index of the instrument. For an instrument to have content validity, it should be composed of items with an I-CVI of 0.78 (for 6 to 10 experts) and an S-CVI of 0.90 or higher. This requires a strong conceptualisation of the construct under investigation, well-developed items, carefully selected experts and clear instructions to the reviewers. The process followed during this stage (content validity evaluation) is summarised in figure 5.3.

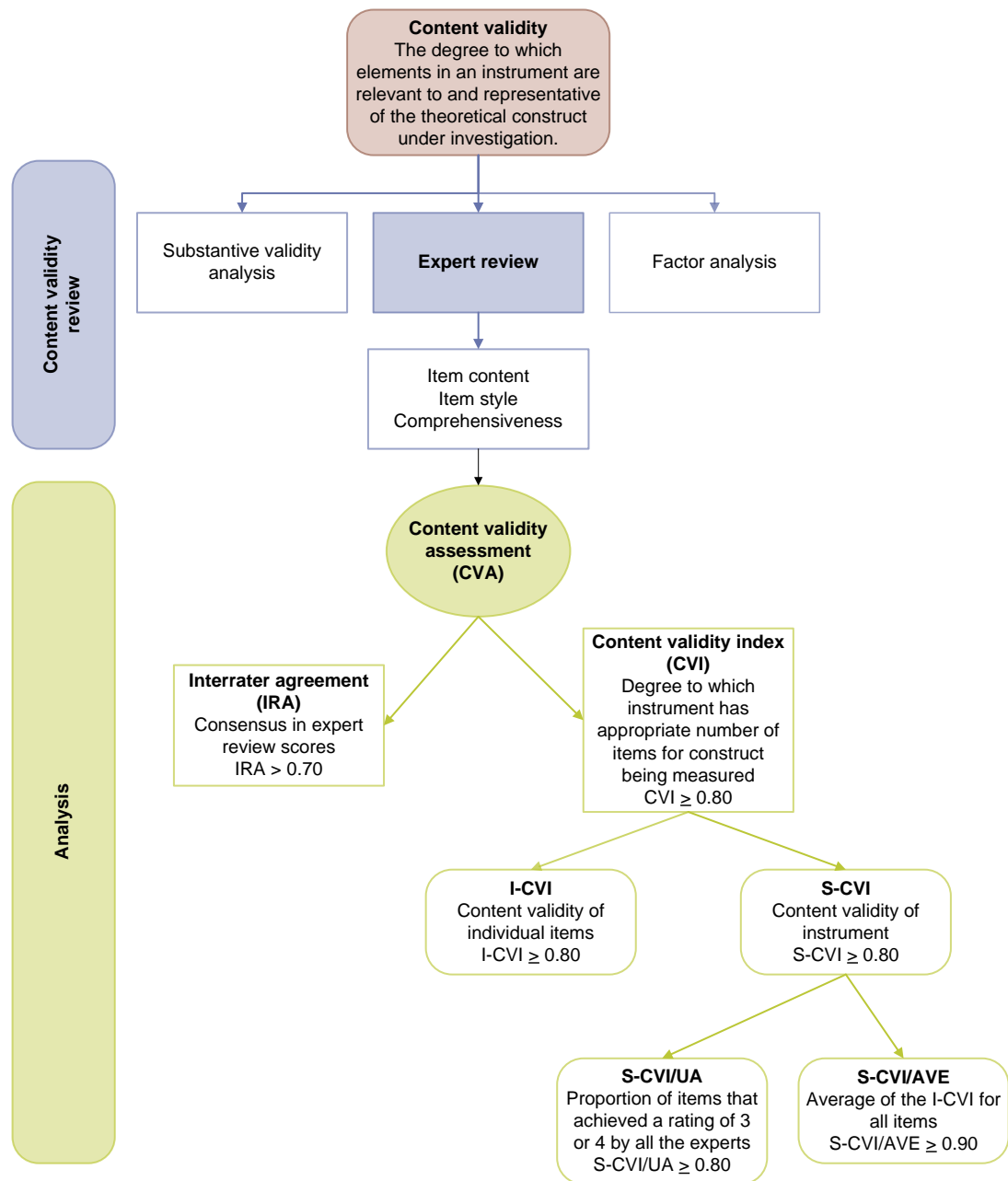


Figure 5.3. Content validity assessment process

Source: Author's own compilation

b Cognitive interviewing

Lastly, the instrument was subjected to cognitive interviewing, which emerged as a vital step in the instrument development process (Solorio, Ayala, Paez, Skalicky, & Morales, 2016). Grounded on the cognitive psychology and information processing theory, cognitive interviewing allows for the expression of thoughts, feelings, interpretations and ideas that come to mind when completing a survey (Willis, 1994). Cognitive interviewing allows direct input from

participants on the item content, format of the instrument and understandability of the statements (Irwin, Varni, Yeatts, & DeWalt, 2009).

The following four cognitive interviewing approaches are often used in scale development: (1) think-aloud interviews, (2) respondent debriefing, (3) probing techniques, and (4) paraphrasing (Solorio et al., 2016). In this study, respondent debriefing and cognitive probing were applied. In respondent debriefing, the interviewer (in this case, the researcher) requested specific information, such as the difficulties the participants experienced while completing the items and the reason for the response for each item, from approximately 15 participants (Willis, 2005), after they had completed the questionnaire (Irwin et al., 2009). Where necessary the researcher probes the participants to obtain a better understanding of how the questions are interpreted and whether the intent of the question and/or statement is clear.

5.6.2.2 *Item selection*

After the CVI of the instrument has been determined, the comments and suggestions regarding the representativeness, clarity and comprehensiveness of the instrument should be evaluated and modifications made (Hinkin et al., 1997; Slavec & Drnovšek, 2012). Despite the experts' opinions on the retention, alteration or elimination of items, it remains the developer's prerogative whether the suggestions of the reviewers are accepted/rejected and/or whether items are included/excluded.

The second step in the instrument development process allows the developer to determine the content validity of the items before they are administered to participants. To ensure content validity the researcher made use of an expert review and cognitive interviews. Feedback obtained from the review process was used to determine which items were retained, rephrased and deleted. From the discussion above, the important aspects, as discussed below, were identified and addressed in this study.

- (1) *Threats to content validity.* Although content validity is the easiest to evaluate, its importance cannot be overstated. According to Netemeyer et al. (2003), the content validity of an instrument is threatened if (1) items reflecting the content domain were omitted; (2) items measuring content domains outside the definition of the construct are included; (3) an aggregate score on the construct disproportionately reflects one domain over another; and (4) the instrument was difficult to administer to and respond to by the target population. Therefore, firstly, to ensure that the instrument was content valid, a thorough literature review was conducted to conceptualise the constructs under

investigation. Secondly, a panel of experts and cognitive interviewing were utilised to assess the content validity of the instrument to ensure that the construct domain was adequately addressed.

- (2) *The multifacetedness of an expert review.* As discussed in section 5.6.2.1, an expert review is beneficial to the instrument development process because it maximises the content validity of the instrument. By having experts review the items (1) the definition of the construct is confirmed or invalidated; (2) the clarity and conciseness of the items are evaluated; and (3) suggestions are made for including items that were not included, or removing items that are not applicable to the construct domain. To ensure that the expert review is successful, the instrument has to be given to experts. The items themselves, the response format, the number of scale points and instructions to the respondents should be judged via qualitative (experts writing or verbalising comments or one-on-one interviews) and quantitative (assessing the level of agreement among reviewers) procedures. The experts were therefore required to write suggestions and comments on the instrument itself, and cognitive interviews were conducted to determine if the statement and items were understood and whether the questions could be adequately answered. The results obtained from the quantitative questionnaire were used to determine the IRA among the reviewers, as well as the CVI of the instrument. An IRA of 0.70 and higher and a CVI of 0.80 and higher were deemed appropriate for this study. Despite the reviewers' suggestions, it remained the researcher's prerogative whether items were amended, rephrased or deleted.

5.6.3 Instrument purification

5.6.3.1 Pilot test

During this stage in the instrument development process, the retained items are presented to a sample that is representative of the actual population (Barry et al., 2011; Clark & Watson, 1995; Hinkin, 1998). This stage is also known as the pilot study or purification of the instrument. The purpose of the pilot study is to provide additional evidence of reliability for scale purification, as well as to further reduce the instrument's length (Du Preez et al., 2008b; Netemeyer et al., 2003; Slavec & Drnovšek, 2012). There is little guidance concerning how large a pilot study should be. Connelly (2008), and Treece and Treece (1982), for example, suggest that a pilot study sample should consist of 10% of the sample projected for the larger study. Conversely, Isaac and Michael (1995) and Hill (1998), suggest a sample of 10 to 30 participants for pilots in survey research. Lastly, Van Belle (2002) recommends a sample size

of 12 participants for a pilot study. One could thus conclude that a minimum of 10 and maximum of 30 participants are thus sufficient if the study's projected sample size is 300.

From the discussion above, the following important consideration, namely *purification of the instrument*, was identified and addressed in this study. More than one pilot test is possibly required to (1) provide insight into unclear or misleading statements; (2) determine whether the instrument's theoretical framework is measuring the intended dimensions; and (3) determine whether items should be included or deleted before final testing. Consequently, in the current study, to further purify the instrument, it was subjected to a pilot study. A sample population of 30 (Hill, 1998; Isaac & Michael, 1995; Julious, 2005) academics was deemed appropriate to assess the factors highlighted above.

5.6.4 Administering the instrument

Data was collected by means of a self-administered, online questionnaire. A questionnaire is a data collection tool that contains predetermined questions or items that are administered to an individual or group of individuals to obtain information, which is analysed by the researcher. According to Babbie (2010), questionnaires are primarily used in survey research, which allows the researcher to obtain statistical data that is quantitatively analysed (Saunders et al., 2016).

After the instrument was developed, ethical clearance and permission were obtained from the identified university's research and ethics committees to distribute the questionnaire electronically to employees. The questionnaire was uploaded onto an online survey application called SurveyMonkey. The URL link to the questionnaire was copied into an electronic mail in Microsoft® Outlook, which was sent to the participants. The link redirected the respondents to the SurveyMonkey platform where their responses were captured. This data collection method was deemed appropriate because the population to which the questionnaire was distributed contained computer-literate individuals with access to both the internet and electronic mail. Secondly, online questionnaire distribution speed is faster, it is relatively inexpensive, the turnaround time is faster, and it offers more flexibility than other methods (Zikmund et al., 2013). Thirdly, the responses could be downloaded directly onto the researcher's computer as soon as the questionnaire was submitted. Lastly, respondent anonymity was ensured. The characteristics and advantages of using online questionnaires are summarised in table 5.4.

Table 5.4

Characteristics and advantages of online questionnaires

<i>Characteristic</i>	<i>Description</i>
Population for which questionnaire is suitable	Computer literate individuals who have access to the internet and electronic mail.
Confidence that right person has responded	High if electronic mail is used.
Likelihood of result contamination or distortion	Low. Researchers, however, are concerned about hackers or competitors that might access the website.
Sample size	Large; can be geographically dispersed.
Response rate approximation	10% or lower.
Feasible length of questionnaire	Approximately six to eight A4 pages.
Time allocation	Allow respondents two to six weeks to complete the questionnaire. Approximately two reminders should be sent.
Financial resource implications	Cost of online survey tool.
Data input	Automated, accurate, real time.
Anonymity of respondent	Respondent can be anonymous or known.
Special features	Streaming media software allows use of graphics and animation.

Sources: Saunders et al. (2016, p. 441) ; Zikmund et al. (2013, p. 230)

Possible disadvantages of online questionnaires include, firstly, low response rates and problems with non-response bias (Saunders et al., 2016). Secondly, the researcher is not present to explain the instructions and/or purpose of the questionnaire to the respondents. The researcher is also not present to clarify items and answer questions to reduce uncertainty. The researcher therefore has no control over the quality of the responses (Olckers, 2011). Lastly, it might be difficult to obtain a sample that is representative of the population. Generalisability is therefore compromised (Saunders et al., 2016).

Firstly, in the current study, in order to overcome the disadvantages associated with using online questionnaires, the researcher ensured that the items and instrument were designed according to the guidelines offered in the first phase of the instrument development process. Secondly, the researcher engaged with a SurveyMonkey expert to ensure that the questionnaire was visually stimulating and did not cause response fatigue or non-response bias. Thirdly, the researcher ensured that the instructions included in the electronic mail and in the introductory letter on SurveyMonkey were clear and concise to reduce/eliminate uncertainty. Fourthly, the instrument was subjected to an expert review and cognitive interviewing to ensure that items were clear, concise, and readable. Lastly, owing to the possibility of obtaining a low response rate, two reminders were sent to the target population to encourage their participation.

5.6.5 Preparing the data for analysis

The first phase in the data analysis process involved cleaning and organising the data. The researcher, with the assistance of a statistician, examined the data, checked the data for accuracy, coded and transformed the data, and developed and documented a database structure that integrated different measures (Trochim, 2006). This phase is known as data screening and includes three steps, as outlined in figure 5.4 (De Sousa Sabbagha, 2016).

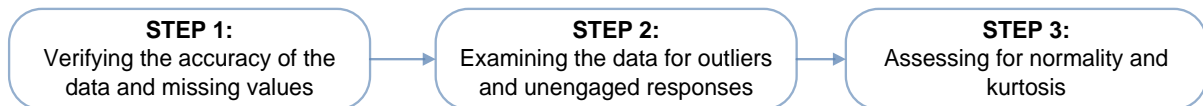


Figure 5.4. *Data screening*

Source: Author's own compilation

- *Step 1: Verifying the accuracy of the data entered into the data file and checking for and evaluating missing values.* The data should be examined to ensure that all the questions were answered and the individual items rated. The data should also be screened for miscoding and missing values.
- *Step 2: Examining the data for any outliers and unengaged responses.* Descriptive statistics should be calculated and scrutinised for possible outliers. An outlier is defined as an observation that is substantially different from the other observations on one or more characteristics (Hair, Black, Babin, & Anderson, 2010, p. 36). The frequency distribution should be scrutinised in terms of minimum and maximum values, as well as means and standard deviations. Lastly, the dataset should also be examined for unresponsive and unengaged responses, and these cases should be excluded from further analysis.
- *Step 3: Assessing the data in terms of deviations from normality and kurtosis.* The most fundamental assumption in multivariate analysis is normality. Normality refers to the assumption that each variable is normally distributed. The shape of a distribution can be described by two measures, namely kurtosis and skewness (Hair et al., 2010). Kurtosis refers to the peakedness of a normal curve (Keller, 2006), and measures whether data are either peaked or flat in relation to the normal distribution. The rule for evaluating whether or not kurtosis is problematic is if the absolute value of the kurtosis is less than three times the standard error. The Shapiro-Wilk test is more appropriate for small sample sizes (< 50 samples), but can also handle sample sizes as large as 2 000. This indicates that the data is fine – otherwise, there may be kurtosis issues. Skewness, however, is used to describe the balance of the distribution. Addressing skewness may require transformations of the data or the removal of outliers. There are two rules regarding skewness: If the skewness

value is greater than one, then the data is positively (right) skewed; if it is less than one, then data is negatively (left) skewed; and if it is in between, then skewness is balanced. According to Barry et al. (2011), skewness and kurtosis statistics should be within the +2 and -2 range when data is normally distributed. For the purposes of this study, the data were evaluated in terms of their distribution and shape, skewness and kurtosis.

Once the data have been collected and prepared for analysis, it is time to evaluate the performance of the individual items so that the appropriate ones can be identified to finalise the instrument. This process, according to DeVellis (2012), is in many ways the heart of the instrument development process. The statistical processes that were used to evaluate the performance of the individual items and further refine the instrument are discussed in section 5.6.6.

5.6.6 Optimising the instrument

The statistical processes discussed below were applied to evaluate the performance of the individual items and further refine the instrument.

5.6.6.1 Exploratory factor analysis (EFA)

Firstly, EFA is associated with theory development, and is a technique used to reduce a large number of items into a smaller set of factors (Williams, Brown, & Onsman, 2012). Secondly, EFA determines the dimensionality between the measured variables and latent constructs, thereby allowing the formation and refinement of a theory. Lastly, EFA determines the construct validity of an instrument. After the initial items are developed and administered to the target population, EFA is used to explore the underlying dimensionality of the item set. This technique allows the researcher to group a large number of items into meaningful subsets that measure different factors. Consequently, the researcher is able to identify items that do not measure an identified factor or that simultaneously measure multiple factors (Olckers, 2011). These items should, however, be eliminated from further consideration, because they are poor indicators of the construct under investigation.

The EFA process that was followed in this study, and more specifically the instrument development process, are discussed in this section (Costello & Osborne, 2005; Hair et al., 2010; Hinkin, 1998; Yong & Pearce, 2013; Williams et al., 2012; Worthington & Whittaker, 2006).

a Step 1: Determining whether the data is suitable for factor analysis

Prior to the extraction of factors, several tests should be used to assess the suitability of the data for factor analysis (Tabachnick & Fidell, 2013; Williams et al., 2012).

i Sample size

Sample size, according to Worthington and Whittaker (2006), is an issue that has received considerable attention in the literature. When too few participants are used, the pattern of covariation is not stable and the development sample may not adequately represent the intended population (DeVellis, 2012). Consequently, Worthington and Whittaker (2006, p. 817) offer the following overarching guidelines:

- Sample sizes of at least 300 are sufficient.
- Sample sizes of between 150 and 200 are likely to be adequate with datasets containing communalities higher than 0.50 or with 10:1 items per factor with loadings at 0.40.
- Smaller sample sizes may be adequate if all communalities are 0.60 or greater, or with at least 4:1 items per factor and factor loadings greater than 0.60.
- Sample sizes less than 100 or with fewer than 3:1 participant-to-item ratios are generally inadequate.

A sample size of 300 is thus sufficient for developing instruments (Barry et al., 2011; Clark & Watson, 1995), or an item-to-participant response ratio of 1:5 is sufficient for factor analysis (Gorsuch, 1983).

ii Factorability of the correlation matrix

The strength of the intercorrelations among the items should be determined by assessing the factorability of the correlation matrix. The researcher must ensure that the data matrix has sufficient correlations to justify the application of factor analysis (Hair et al., 2010). According to Williams et al. (2012), a researcher should reconsider whether factor analysis is appropriate if no correlations go beyond 0.30. Hair et al. (1995) further offer the following rule of thumb: 0.30 is minimal, 0.40 is important, and 0.50 is practically significant.

iii Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity

Two statistical measures, namely Bartlett's test of sphericity and the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, are further used to assess the factorability of the data. The KMO index indicates the extent to which a correlation matrix actually contains factors, and is recommended when the item-to-response ratio is less than 1:5. The KMO index ranges from 0 to 1, with 0.60 and higher considered suitable for factor analysis (Tabachnick & Fidell, 2013). Bartlett's test for sphericity, however, is used when there are fewer than five responses per item (Worthington & Whittaker, 2006). Where the item-to-response ratio is higher than 1:5, additional evidence for instrument factorability should be provided. For factor analysis to be appropriate, Bartlett's test should be significant ($p \leq 0.05$) (Williams et al., 2012). The significant indicator for each test is summarised in table 5.5 below.

Table 5.5
Testing for factorability

<i>Measure</i>	<i>Statistically significant indicator</i>
Sample size	≥ 300
Factorability of the correlation matrix	± 0.30
Kaiser-Meyer-Olkin (KMO)	≥ 0.60
Bartlett's test for sphericity	$p \leq 0.05$

Source: Author's own compilation

iv Examining the communalities

Lastly, a preliminary examination of the initial factor matrix should be conducted to identify items that are not associated with the underlying factors (Hair et al., 2010). Items with very low communalities (≤ 0.50) and high cross-loadings (less than 0.20 difference) should be considered for deletion. A communality is the proportion of common variance present in an item (Field, 2009). As such, an item that has no unique variance would have a communality of one, while an item that shares none of its variance with any other variable would have a communality of zero.

b Step 2: Selecting a factor extraction method

Factor extraction involves determining the smallest number of factors that can be extracted to best represent the interrelationships between the set of variables (Pallant, 2016). The most

commonly used factor extraction methods are principal components analysis (PCA) and common factor analysis. PCA is used when the primary objective is data reduction. The data is thus summarised in a minimum number of factors for prediction purposes (Hair et al., 2009; Netemeyer et al., 2003). PCA is further used when the specific and error variance represent a small portion of the total variance.

Conversely, common factor analysis is often associated with finding underlying dimensions for a set of items (Netemeyer et al., 2003). Common factor analysis also uses the correlations matrix to identify a set of factors. However, common factor analysis uses the communality estimates of items, and the variance in a given item is partitioned into that which is common to a factor. The variance explained is therefore unique to a particular item (Netemeyer et al., 2003). Common factor analysis is used in instrument development to identify theoretical constructs and to determine which items should be retained or deleted. Common factor analysis techniques include for example principal-axis factoring (PAF), maximum likelihood, image and alpha factoring, and unweighted and generalised least squares (Worthington & Whittaker, 2006). Although PAF and maximum-likelihood approaches are similar in their capabilities to extract the correct model, maximum-likelihood extractions occasionally result in problems. Common factor analysis is therefore recommended for developing a new instrument (Netemeyer et al., 2003; Worthington & Whittaker, 2006). Common factor analysis, more specifically PAF and maximum likelihood extraction, was used to extract factors in the current research study.

PAF is a least-squares estimation (De Winter & Dodou, 2012). When factors are extracted, a residual matrix is calculated, and factors are extracted until there is a large enough variance accounted for in the correlation matrix (Yong & Pearce, 2013). PAF is therefore used when the data violate the assumption of multivariate normality (Costello & Osborne, 2005). PAF further makes no assumption about the type of error and minimises the unweighted sum of squares (De Winter & Dodou, 2012). Maximum likelihood estimation, however, is derived from the normal distribution theory and assumes that all error is sampling error (De Winter & Dodou, 2012). Hence maximum likelihood attempts to analyse the maximum likelihood of sampling in the observed correlation matrix. Maximum likelihood, however, is recommended for confirmatory factor analysis to estimate the factor loadings for the population (Yong & Pearce, 2013).

i *Criteria for factor extraction*

After factor extraction, one must decide how many factors to retain for rotation (Costello & Osborne, 2005; Yong & Pearce, 2013). Several extraction rules and approaches are available to reduce the number of items into factors and simplify the factor solution. These rules and approaches are discussed in this section.

- *Cumulative percentage of variance*

Researchers using this method to retain factors, seek solutions that account for as much variance as possible with as few variables as possible (Plonsky, 2015). According to Field (2009), the minimum cumulative percentage of explained variance should be between 55% and 65%. For factor analysis, the average cumulative percentage of variance should be approximately 60% (Plonsky & Gonulal, 2015). It may therefore be appropriate to continue factor extraction until at least 60% of the total variance is accounted for.

- *Kaiser's and Joliffe's criteria*

Kaiser's criterion suggests that factors with eigenvalues greater than 1.0 should be retained, while Joliffe's criterion recommends retaining all variables with eigenvalues greater than 0.70 (Yong & Pearce, 2013; Plonsky, 2015). Eigenvalues represent the amount of variance accounted for by each variable. Hence, the higher the eigenvalue, the more variance is accounted for by the factor.

- *Scree test*

A scree test is a visual representation of the eigenvalues (McCoach, Gable, & Madura, 2013). The eigenvalues are plotted against the factor number, and the shape of the resulting curve is then examined. The point where the curve stops decreasing and straightens, indicates the maximum number of factors that need to be extracted. The scree plot, however, is subjective and has been criticised for being unreliable. The graph may be difficult to interpret if a sample size smaller than 200 responses was obtained (Yong & Pearce, 2013).

- *Parallel analysis*

Parallel analysis is one of the best methods to use for deciding how many factors to extract, but is often under-used and not reported in the literature. Parallel analysis involves comparing the average eigenvalues of random data with the eigenvalues obtained from the actual sample (McCoach et al., 2013). The number of eigenvalues from the real data that have values larger than the eigenvalues of the random data provides an estimation of the number of factors to extract.

Osborne (2008) found that the most popular methods used for deciding the number of factors to retain was Kaiser’s criterion of eigenvalues greater than 1.0 and a scree test (67%). Methods such as the percentage of variance explained and parallel analysis were rarely used. Kaiser’s criterion, a scree test and the percentage of variance explained were used in this study (see table 5.6).

Table 5.6
Factor extraction criteria

<i>Measure</i>	<i>Statistically significant indicator</i>
Cumulative percentage of variance	≥ 60%
Eigenvalues	≥ 1.0
Scree test	Factors were retained where the slope and shape of the line approached 0.

Source: Author’s own compilation

c Step 3: Selecting a rotational method

Factor rotation simplifies and clarifies the factor structure by maximising high item loadings and minimising low item loadings (Costello & Osborne, 2005; Williams et al., 2012). Researchers working with multidimensional items usually rotate the factors to clarify the nature of the factors (Furr, 2011). Factor rotation methods can be classified into either orthogonal or oblique rotations (Swanson & Holton, 2005). Orthogonal rotation occurs when the factors are rotated 90 degrees from each other, and it is assumed that they are uncorrelated (Yong & Pearce, 2013). Orthogonal rotation methods include, for example, quartimax and varimax rotation. Conversely, oblique rotation, allows correlations between the extracted factors (Swanson & Holton, 2005). An oblique rotation consequently produces a pattern matrix containing factor or item loadings and a factor correlation matrix that includes the correlations

between the factors (Yong & Pearce, 2013). The oblique rotation methods include direct oblimin and promax. Furr (2011) suggests that instrument development researchers use oblique rotations because they reveal the more meaningful theoretical factors. Furthermore, the underlying factors can rarely be considered totally independent both from a pragmatic and theoretical perspective, and therefore using an oblique rotation method allows the researcher to comprehend the instrument better. The promax rotation method was therefore applied in this study.

d Step 4: Assessing statistical significance

Only items that clearly load on a single appropriate factor should be retained (Hinkin, 1998; Samuels, 2016). The objective is therefore to identify those items that clearly represent the construct domain of the construct under investigation. Items with factor loadings higher than 0.70 are considered excellent and should be retained (Graham, 2005; Sharma & Petosa, 2014). Items with loadings greater than 0.50, however, are necessary for practical significance (Hair et al., 2010). Worthington and Whittaker (2006) suggest that items with factor loadings less than 0.32 or cross-loadings less than a 0.15 difference from an item's highest factor loading should be deleted. In addition, factors with only a single loading are of little significance since the specific factor variance is only accounted for by that one item. It is therefore suggested that at least three items that load highly are needed for a factor (Netemeyer et al., 2003; Samuels, 2016).

The percentage of total item variance should also be considered. A percentage of 60 is considered acceptable. According to Worthington and Whittaker (2006), item communalities after rotation serve as an important guideline for item deletion. Items with low communalities (e.g. less than 0.40) are not highly correlated with one or more of the factors in the solution and should be deleted.

Lastly, restricting the factor solution to a number of predetermined factors that are consistent with the theory could offer valuable information on how much variance the factors account for (Netemeyer et al., 2003). This approach further provides information about the level of cross-loadings of an item to a factor that it should not load on, and thus reveal an item that may be a candidate for deletion.

In summary, the literature reveals that items with factor loadings greater than 0.30, percentages of total variance equal or greater than 60%, and item communalities greater than

0.40 should be retained (see table 5.7). Items with inappropriate loadings should be deleted and the analysis repeated until a clear factor structure matrix is obtained.

Table 5.7
Factor reduction

<i>Measure</i>	<i>Statistically significant indicator</i>
Communalities	≥ 0.50
Size of factor loadings	Bare minimum ≥ 0.40 Acceptable ≥ 0.50 Ideal ≥ 0.60 Excellent ≥ 0.70
Amount of variance explained	50-60%
Number of items in a factor	4–10 items

Source: Author's own compilation

e *Step 5: Instrument optimisation*

According to DeVellis (2012), the challenge at this stage in the instrument development process is securing an instrument that is both reliable and concise. Although longer scales are more reliable, they tend to cause respondent fatigue. Converse and Presser (1986) therefore suggest that a questionnaire should not take longer than 50 minutes to complete. According to Worthington and Whittaker (2006), an optimal scale length is between 15 and 30 minutes. Although shorter, less time-consuming questionnaires are often preferred, one should avoid scale length optimisation that degrades the quality of the factor structure, item communalities, factor loadings and/or cross-loadings (Worthington & Whittaker, 2006). It is therefore recommended that the researcher conduct a final EFA to ensure that the factor solution does not change after items have been deleted.

In summary, EFA is a useful statistical tool in developing and validating instruments. In this study, EFA was used to reduce the number of items to smaller, more parsimonious factors, and to determine the construct validity of the instrument. EFA was also applied to confirm the conceptualised dimensions empirically after initial item evaluation through coefficient alphas and item-total correlations.

5.6.6.2 *Confirmatory factor analysis (CFA)*

CFA is often applied subsequent to EFA to confirm the factor structure. CFA is thus a model testing technique in which a conceptual model is compared with the observed structure in the

sample (Milfront & Fischer, 2010). CFA is further used for the following: (1) to obtain the final estimates for the model parameters (Gatignon, 2014); (2) to examine the nature of and relations among the latent constructs (Jackson, Gillaspay, & Purc-Stephenson, 2009); and (3) to assess the construct validity of the instrument.

Goodness-of-fit indices are used to determine the degree to which the theoretical model is consistent with the empirical data. These indices indicate how well the empirical data “fits” the proposed theoretical model (Cangur & Ercan, 2015; Milfront & Fischer, 2010). The likelihood ratio test (or chi-square test) is often used as a goodness-of-fit statistic. However, its sensitivity to sample size and its underlying assumption that the model fits the sample data perfectly has been recognised as problematic (Hinkin et al., 1997). This statistic is therefore used as a measure of fit rather than a test statistic.

Evidence of data fit is provided when the chi-square value is not statistically significant. It is, however, recommended that a combination of several fit indexes be used to assess the model fit (Dimitrov, 2010). These indices include the comparative fit index (CFI), Tucker-Lewis Index (TLI), standardised root mean square residual (SRMR), and the root mean square error of approximation (RMSEA) (Dimitrov, 2010; Worthington & Whittaker, 2006). A reasonably good fit is thus supported when the criteria outlined in table 5.8 are met.

Table 5.8
Confirmatory factor analysis: Model fit indices

<i>Model fit measure</i>	<i>Description</i>	<i>Prescribed threshold</i>
Absolute fit indices determine how well a <i>priori</i> model fits, or reproduces the data (McDonald & Ho, 2002). Absolute fit indices include the chi-square test, RMSEA, GFI, AGFI, RMR and SRMR (Hooper, Coughlan, & Mullen, 2008).		
Chi-square/df (CMIN/DF)	CMIN/DF is the minimum discrepancy divided by its degrees of freedom. Conceptually, it is a function of the sample size and the difference between the observed covariance matrix and the model covariance matrix (Gatignon, 2014). Values closer to zero indicate a better fit.	< 3 = Good < 5 = Sometimes permissible
Goodness of fit index (GFI)	The GFI is a measure of fit between the hypothesised model and the observed covariance matrix (Tanaka, 1993). A GFI of 1 indicates perfect model fit, while a GFI value of higher than 0.90 indicates good fit, and values close to 0 indicate very poor fit.	> 0.90
Adjusted goodness of fit index (AGFI)	AGFI corrects the GFI, which is affected by the number of indicators of each latent variable. The AGFI ranges between 0 and 1, with a value of over 0.90 generally	> 0.90

<i>Model fit measure</i>	<i>Description</i>	<i>Prescribed threshold</i>
	indicating acceptable model fit (Baumgartner & Homburg, 1996).	
Root mean square error of approximation (RMSEA)	The RMSEA avoids issues of sample size by analysing the discrepancy between the hypothesised model, with optimally chosen parameter estimates, and the population covariance matrix (Hooper et al., 2008). The RMSEA ranges from 0 to 1, with smaller values indicating better model fit. A value of 0.06 or less is indicative of acceptable model fit (Hu & Bentler, 1999).	≥ 0.06
Root mean square residual (RMR)	The RMR represents the square root of the average or mean of the covariance residuals. Lower RMR values represent better fit and higher values represent worse fit. The recommended value of the RMR is thus 0.02 or less.	≤ 0.02
Standardised root mean square residual (SRMR)	The SRMR is the square root of the discrepancy between the sample covariance matrix and the model covariance matrix (Hooper et al., 2008). The SRMR ranges from 0 to 1, with a value of 0.80 or less being indicative of an acceptable model (Hu & Bentler, 1999).	≤ 0.08
PCLOSE	The PCLOSE statistic is the probability of a hypothesis test that the population RMSEA is no greater than 0.05 (Hu & Bentler, 1999).	< 0.05
Relative fit indices compare the chi-square for the hypothesised model to one from a null or baseline model (McDonald & Ho, 2002). The null model usually contains a model in which all the variables are uncorrelated, and as a result, have a very large chi-square, which indicates poor fit (Hooper et al., 2008). Relative indices include the NFI, RFI, TLI and CFI (Widaman & Thompson, 2003).		
Normed fit index (NFI)	The NFI analyses the discrepancy between the chi-square value of the hypothesised model and the chi-square value of the null model (Bentler & Bonett, 1980). Values for the NFI should range between 0 and 1, with a cut-off of 0.95 or greater indicating good model fit (Hu & Bentler, 1999).	≥ 0.90
Relative fit index (RFI)	The RFI represents a derivative of the NFI. The RFI coefficient values range from zero to one with values close to one indicating superior fit (Hu & Bentler, 1999). RFI values above 0.90, however, are usually associated with a model that fits well.	≥ 0.90
Tucker Lewis Index (TLI)	The TLI provides an index of the relative placement of a substantive model along the continuum (Widaman & Thompson, 2003). According to Marsh, Balla, and McDonald (1988), the TFI is relatively independent of the sample size. Lastly, a TFI value of 0.90 or higher is considered acceptable (Hu & Bentler, 1999).	≥ 0.90
Comparative fit index (CFI)	The CFI analyses the model fit by examining the discrepancy between the data and the hypothesised model, while adjusting for the issues of sample size inherent in the chi-square test of model fit (Bentler & Bonett, 1980; Gatignon, 2014). CFI values range from 0 to 1, with larger values indicating better fit. Thus, a CFI	$> 0.95 = \text{Great}$ $> 0.90 = \text{Traditional}$ $> 0.80 = \text{Sometimes permissible}$

<i>Model fit measure</i>	<i>Description</i>	<i>Prescribed threshold</i>
	value of 0.95 or higher is accepted as an indicator of good fit (Hu & Bentler, 1999).	

Source: Author's own compilation

In this study, CFA was used to further evaluate and refine the instrument. As such, the objective of CFA was to confirm the prespecified theoretical model and assess the construct validity of the instrument.

5.6.7 Reliability assessment

After the dimensionality of the instrument has been determined, the researcher has to assess the reliability of the instrument. Reliability is a statistical measure for how reproducible the instrument's data is, and it is a necessary condition for validity (Cook & Beckman, 2006). Several methods can be used to determine the reliability of an instrument, but the most common method is based on internal consistency (Furr, 2011).

Internal consistency is the extent to which the items of an instrument measure the same construct (Tang, Ciu, & Babenko, 2014). Internal consistency therefore refers to the homogeneity of items (Slavec & Drnovsek, 2012), and is measured by calculating the Cronbach coefficient alpha (Litwin, 1995). A large coefficient alpha (≥ 0.70) provides an indication of a strong item covariance (Hinkin, 1998; Tavakol & Dennick, 2011). The coefficient alpha, however, is sensitive to the number of items in an instrument (Cortina, 1993). In other words, the alpha coefficient can be high despite low intercorrelations and multidimensionality. DeVellis (2012) offered coefficient alpha ranges for instruments as indicated in table 5.9.

Table 5.9
Guidelines for Cronbach alpha values

<i>Cronbach alpha</i>	<i>Internal consistency (reliability)</i>
< 0.60	Poor
0.60 to < 0.70	Moderate
0.70 to < 0.80	Good
0.80 to < 0.90	Very good
0.90 to 0.95	Excellent
≥ 0.95	Too high

Source: DeVellis (2012); Hair, Celsi, Money, Samouel, and Page (2016)

A reliable instrument is one that performs in consistent and predictable ways, and the scores it yields represent some true state of the variable being assessed (DeVellis, 2012). Hinkin (1998) suggests that a Cronbach alpha of 0.70 should serve as an absolute minimum for newly designed instruments.

5.6.8 Validity assessment

Dimensionality and reliability are important aspects of an instrument's psychometric properties and quality, but validity is more important (Furr, 2011). Validity is defined as "an ongoing process wherein one provides evidence to support the appropriateness, meaningfulness and usefulness of the specific inferences made from scores about individuals from a given sample and in a given context" (Zumbo, 2007, p. 48). An instrument is therefore valid if it measures what it was designed to measure (Carducci, 2009). In this study, an instrument was developed to measure the coping strategies that university employees adopt in response to occupational stress, and it was applied for that purpose. The importance of a validated instrument cannot be overstated, because without validation, any inferences made from an instrument are meaningless, inappropriate and of limited usefulness (Zumbo, 2007).

In this study, the content and construct validity of the instrument were assessed.

5.6.8.1 Content validity

The content validity of the instrument was assessed in the second phase of the instrument development process (see section 5.6.2). Expert reviewers and cognitive interviews were used to validate the item pool in terms of its content, item style and comprehensiveness. Content validity therefore provides judgemental evidence in support of the construct under investigation and the representativeness of the content. Face validity relates to content validity because it determines whether the instrument "looks valid". The interrater agreement level and content validity indices of the instrument were thus calculated (see section 5.6.2.2). Content validity also provides evidence of construct validity because it indicates that the instrument measures the intended domain of content related to the construct definition (Markus & Lin, 2010).

5.6.8.2 Construct validity

Construct validity refers to whether the items of the instrument measure the construct under investigation (Markus & Lin, 2010). Construct validity is demonstrated through the following:

(1) specifying a set of theoretical constructs and their relations; (2) developing methods to measure the constructs of the theory; and (3) empirically testing how well items measure the constructs in the theory (Netemeyer et al., 2003). Construct validity is further investigated through correlations with other measures, factor analysis, incremental validity, differential validity, and convergent and discriminant validity (Foxcroft & Roodt, 2009; Slavec & Drnovšek, 2012).

- *Correlation with other tests.* A high correlation between a new instrument and a similar measure of the same construct indicates that the new instrument measures the same construct.
- *Factorial validity.* Factor analysis measures the interrelationships of variables, as discussed in section 5.6.6.1. CFA and SEM further provide evidence of construct validity of a new instrument.
- *Convergent and discriminant validity.* An instrument demonstrates convergent and discriminant validity when it correlates highly with other variables with which it should theoretically correlate, and correlates minimally with variables from which it should differ (Foxcroft & Roodt, 2009). For the purpose of this study, the correlation coefficient was used to estimate the degree to which any two measures are related to each other. Hair et al. (2010) further advocate the use of composite reliability (CR) (> 0.70), average variance extracted (AVE) (> 0.50), maximum shared squared variance (MSV) ($< AVE$), and average shared squared variance (ASV) ($< AVE$) to measure convergent and discriminant validity.
- *Incremental validity.* An instrument displays incremental validity when it explains more variance than other instruments that measure the same construct. In this study, the instrument was developed to explain more variance than existing instruments, such as the WCQ and COPE.
- *Differential validity.* An instrument has differential validity when it is successful in distinguishing differences between individuals, groups and organisations (Foxcroft & Roodt, 2009). Coping instruments possess differential validity if they are able to differentiate between different individuals' coping strategies.

The discussion in the preceding section highlighted the importance of reliability and validity in the instrument development process. Validity and reliability are thus not characteristics of an instrument, but rather the properties of the scores produced by the instrument (Barry et al., 2011). Researchers should therefore refrain from claiming that an instrument is reliable and/or valid.

5.6.9 Replication

The results of the psychometric analyses (discussed in the previous two sections) determine the subsequent phases of scale development. If the analysis reveals clear psychometric properties and has a strong psychometric quality, the developer might confidently complete the instrument development process. However, if the psychometric analysis reveals that the psychometric properties are not sufficient, one should replicate the process to improve the quality of the instrument (Furr, 2011).

An independent sample should be used to enhance the generalisability of the new instrument (Hinkin, 1998). When items are thus added or deleted, the new instrument should be administered to another independent sample. New data should be obtained to provide evidence for construct validity. The replication should also include CFA and SEM, and reliability and validity assessments (Hinkin, 1998). It is however important to note that the back-and-forth process of writing, analysing and rewriting items might require several repetitions, but this phase contributes towards the psychometric properties produced by the instrument and ensures that its validity and reliability is acceptable and suitable for future use.

5.6.10 Summary

The discussion in section 5.6 outlined the instrument development process that was utilised in this study. It concluded that this process is not only a comprehensive process, but also an art that requires some skill and patience. A six-step process, as illustrated in figure 5.2, was followed to develop the Coping Strategies Questionnaire.

The first phase of the process deals with the theoretical importance and existence of a construct, and is determined in the first two steps. The first step involves the conceptualisation of the construct under investigation. It was found that a literature review was sufficient. Once a comprehensive understanding of the construct has been obtained, the construction of an item pool to assess the construct should commence. Matters such as item development, the number of items and format of the instrument should be taken into consideration during this stage. The second step involves evaluating the content validity of the instrument by assessing the relevance of the items by an appropriate audience. In this study, expert reviewers and cognitive interviewing were used because it increased the legitimacy of the new construct, and information on the representativeness, relevance and evaluation of the instrument could be recorded. During this step, the interrater agreement level and content validity index of the

instrument were also determined. Once the content validity of the instrument had been determined, items to be included in the instrument were selected.

During phase 2 (step 3) the retained items were subjected to a pilot study to further purify the instrument. It was concluded that a sample of 30 academics was appropriate to purify the instrument. The retained items were then presented to a sample that was representative of the actual population. The purpose of this step was to determine how well the items confirmed the psychometric properties of the new instrument. The conclusion was drawn that the instrument should be administered to a minimum sample size of at least 300 respondents or an item-to-response ratio of 1:5.

The third phase involved the statistical analysis and validation of the instrument. This phase involved optimising the scale's length and determining the validity and reliability of the final instrument. Exploratory and confirmatory factor analyses were used to refine the instrument. Although findings on the psychometric properties of the instrument are only reported in the last phase of the instrument development process, the reliability and validity of the instrument were assessed throughout the process. Methods used to evaluate the reliability and validity included the assessment of the factor structure of the instrument, the internal consistency, convergent and discriminant validity, and correlations with other measures. This phase is thus crucial for the development of an instrument in any research field because the findings of the study could be questioned if the construct(s) is(are) not adequately measured. The process should, however, be repeated if the psychometric properties of the instrument are not sufficient and of a good quality.

5.7 DESCRIPTIVE ANALYSIS

Descriptive analyses were conducted first to gain an initial impression or "general picture" of the characteristics of the data that were collected. Descriptive data analysis, according to Terre Blanche et al. (2006), aims to describe the data by investigating the distribution of scores on each variable, and by determining whether the scores on different variables are related to one another. Descriptive analysis was used to

- (1) classify and describe the job-specific stressors that the participants in the sample perceived as stressful by means of thematic analysis
- (2) determine the means and standard deviations, kurtosis and skewness of the categorical data and frequency data.

5.7.1 Thematic analysis

Thematic content analysis (Braun & Clarke, 2006; Elo & Kyngäs, 2008) was used to classify and describe the job-specific stressors that the participants in the sample perceived as stressful (empirical research objective 2). This involved employing various data reduction and theme identification techniques to code the data. The themes were labelled and the data further analysed.

Thematic analysis is a qualitative research method that is used to systematically describe and quantify phenomena. Through thematic analysis, researchers are able to test theoretical issues to enhance their understanding of the data. It is therefore possible to distil words into fewer content-related categories that share the same meaning (Elo & Kyngäs, 2008). Consequently, thematic analysis is a rigorous, yet inductive, set of procedures designed to derive and examine themes from text in a manner that is transparent and credible (Guest, MacQueen, & Namey, 2012). In this study, the data was analysed following the three phases of thematic analysis proposed by Elo and Kyngäs (2008). These three phases are further addressed in this section.

5.7.1.1 Phase 1: *Preparing*

The preparation phase starts with the selection of a unit of analysis. The unit of analysis can be a letter, word, sentence, paragraph or the number of participants in the sample. Nonetheless, the unit of analysis should be descriptive enough to form the context during the analysis process. Once the unit of analysis has been determined, the researcher should become familiar with the data (Braun & Clarke, 2006). Familiarising oneself with the data involves the repeated reading of the data in an active way, which entails searching for meanings and patterns and making notes while reading through the data (Braun & Clarke, 2006). According to Ryan and Bernard (2003), one should read the data at least once or twice before starting the coding process.

5.7.1.2 Phase 2: *Organising*

After making sense of the data, analysis is conducted using an inductive or deductive approach (Elo & Kyngäs, 2008). The inductive approach involves open coding, creating categories and abstraction. Headings and subheadings are written down as the researcher reads through the data. These headings and subheadings are then grouped into higher-order headings and/or

categories, and each category is named using content-characteristic words. Each category is described by means of abstraction. Abstraction means formulating a general description of the research topic through generating categories (Elo & Kyngäs, 2008). By contrast, deductive content analysis involves testing existing categories, concepts, models or hypotheses as outlined in the literature (Elo & Kyngäs, 2008). If deductive content analysis is used, a categorisation matrix is developed and the data is coded according to the identified categories (Polit & Beck, 2004). If an unconstrained matrix is used, different categories are created within its bounds, following the principles of inductive content analysis. If a structured matrix is used, only elements that fit the matrix are chosen from the data. The choice of the methods, however, depends on the objectives of the study.

5.7.1.3 Phase 3: Reporting

The analysis process and the results should be described in sufficient detail so that the reader has a clear understanding of how the analysis was conducted and what its strengths and limitations are (Elo & Kyngäs, 2008). The researcher should further ensure that the results are valid and reliable. To increase the reliability of the study, it is important to demonstrate a link between the results and the data. To facilitate transferability, the researcher should give a clear description of the context, selection and characteristics of the participants, data collection and process of analysis. Authentic citations should be used to increase the trustworthiness of the research and explain to the readers how the categories were formulated. Lastly, face validity can be used to assess the internal validity of the analysis.

5.7.2 Reporting of means and standard deviations

The descriptive statistics used to analyse the data in this study were frequencies, means and standard deviations (Babbie, 2014).

5.7.2.1 Frequency distributions

Frequency distributions are graphic representations that summarise the number of times a particular value of a variable occurred (Zikmund et al., 2013). Frequency distributions are therefore used to describe the distribution of scores on a variable. Because the biographical items, for example, included in the instrument are categorical, the responses to such questions are presented by means of frequency distributions.

5.7.2.2 *The mean*

The mean is a measure of central tendency, which determines the arithmetic average of all the values in a dataset (Terre Blanche et al., 2006). The mean is calculated by adding all the values in a dataset and dividing this sum by the number of values. Mean scores were calculated first to determine the participants' coping strategy. Secondly, the mean scores for each independent variable (gender, age, and so forth) were calculated to make comparisons between the groups.

5.7.2.3 *Standard deviation*

The standard deviation, or the standard error of a sampling distribution, is the most commonly used and most important measure of variability (Gravetter & Wallnau, 2008). Standard deviation determines whether the scores are generally near or far from the mean. It therefore measures variability by considering the distance between each score and the mean (Gravetter & Wallnau, 2008). A higher standard deviation indicates that the data is more dispersed, while a lower standard deviation indicates that the values are clustered around the mean (Babbie, 2008). In this study, the value of the standard deviation indicated how much the scores varied from the mean value.

5.8 INFERENCE ANALYSIS

Inferential data analysis allows the researcher to draw conclusions about the population from which the data was collected. In addition to the instrument development process (section 5.6) that was applied in this research study, this stage comprised the following four steps:

- (1) Conducting standard multiple regression analysis to empirically investigate whether the coping strategies positively and significantly predicted coping success (empirical research objective 4)
- (2) Conducting structural equation modelling (SEM) to determine whether there was a good fit between the elements of the empirically manifested structural model and the theoretical hypothesised model (empirical research objective 5)
- (3) Conducting multigroup or multisample SEM analyses to determine whether the Coping Strategies Questionnaire was invariant across the different demographic groups (empirical research objective 6)

- (4) Conducting tests for significant mean differences to empirically investigate whether significant differences existed between the groups of demographic variables (empirical research objective 7).

5.8.1 Standard multiple regression analysis

Multiple regression analysis is a common multivariate method that is used to study separate and collective contributions of several independent variables to the variance of a dependent variable (Terre Blanche & Durrheim, 2002). Regression analyses are therefore used to build models for explaining scores of the dependent variable from scores of a number of other independent variables (Terre Blanche & Durrheim, 2002; Pallant, 2016). Standard multiple regression analysis was used in this study to determine how well a set of variables was able to predict a particular outcome, and to determine which variable in the set of variables was the best predictor of an outcome.

5.8.2 Structural equation modelling (SEM)

SEM is a confirmatory, multivariate technique that “uses various types of models to depict relationships among observed variables ...” (Schumacker & Lomax, 2010, p. 2). Its main feature is to compare the model to empirical data, and it is therefore used interchangeably with CFA. In the context of SEM, CFA is often called the measurement model, while the relationships between the latent variables are called the structural model. Consequently, SEM is used in instrument development to confirm relationships projected in a conceptual model (DeVellis, 2012), or to determine the extent to which a proposed conceptual model is supported by the collected data (Salkind, 2010). SEM is therefore a powerful confirmatory technique, because it allows for greater control over the form of constraints placed on the items and factors when the hypothesised model is analysed.

SEM involves the evaluation of two models, namely a measurement model and a structural path model.

5.8.2.1 The measurement model

The measurement model is a model that specifies the indicators for each construct and enables and assessment of construct validity (Hair et al., 2010). The measurement model

therefore deals with the relationships between the measured and latent variables. Using CFA, the researcher can assess the contribution of each scale item and test for reliability.

5.8.2.2 The structural model

The purpose of the structural model is to test the causal relations found in the overall SEM model (Mancha & Leung, 2010). The structural model therefore shows potential causal dependencies between endogenous (dependent) and exogenous (independent) latent variables in a path diagram. Path analysis is an extension of multiple regression analysis, which compares the regression weights obtained from the proposed causal model to the correlations obtained from the data, and estimates the fit of the data to the proposed model (Foster, Barkus, & Yavorsky, 2006; Mancha & Leung, 2010).

As stated in the preceding section, structural equation models consist of a structural model that represents the relationship between the latent variables of interest, and a measurement model that represents the relationship between the latent variables and their manifest or observable indicators. The SEM process focuses on the validation of the measurement model by obtaining estimates of the parameters of the model and by assessing whether the model itself provides a good fit to the data (Garson, 2015). The model adequacy is evaluated by means of the goodness-of-fit indices, which determine whether the model being tested should be accepted or rejected. If the model fit is acceptable, the assumed relationships between the latent and measured variables (measurement model), as well as the assumed dependencies between the various latent variables (structural model), are regarded as being supported by the data (Nachtigall, Kroehne, Funke, & Steyer, 2003). In the context of the present study, SEM analysis was performed to test the relationship between the variables obtained from the CFA model. Model adequacy was evaluated by means of goodness-of-fit measures.

5.8.3 Testing measurement invariance across different demographic groups

Measurement invariance assesses the “psychometric equivalence of a construct across groups or measurement occasions, and demonstrates that a construct has the same meaning as those groups or across repeated measurements” (Putnick & Bornstein, 2016, p. 72). Measurement variance therefore suggests that a construct has different structure or meaning to different groups, and the construct cannot therefore be meaningfully tested or construed across groups or across time. Testing for measurement invariance is an important prerequisite for making meaningful comparisons between groups, especially in the South African context

(Meiring, Van De Vijver, Rothmann, & Barrick, 2015; Moerdyk, 2009). Researchers have further reported that demographic differences affect the psychometric properties of instruments and should thus be considered when standardising an instrument (Heyns & Rothmann, 2016; Visser & Viviers, 2010). Consequently, for the purposes of this study, the measurement invariance of the Coping Strategies Questionnaire was assessed across the demographic variables using multigroup or multisample SEM analysis (also known as multigroup modelling).

Multigroup modelling is used to determine whether the same SEM model is applicable across groups and to compare two groups in a cross-sectional sample (Deng & Yuan, 2015). The universal procedure is to test for measurement invariance between the unconstrained model for all the groups combined, and then for a model where certain parameters are constrained to be equal between the groups. A chi-square value is derived by computing the model fit for the sample of participants. A chi-square difference test is then applied to determine whether the difference between the constrained and unconstrained models is significant. If the chi-square difference statistic does not reveal a significant difference between the original and the constrained models, then it is concluded that the model does apply across groups and indicates measurement invariance (Garson, 2015). However, if a lack of measurement invariance is found, it means that the meaning of the latent construct is shifting across groups over time.

5.8.4 Test for group mean differences

This stage involved testing for group differences. Conducting tests for significant mean differences allows the researcher to determine whether significant differences existed between the groups of demographic variables that acted as significant moderators between the independent variables (coping strategies) and the dependant variable (coping success).

Independent samples t-tests and the analysis of variance (ANOVA) technique were used to determine whether participants from different demographic backgrounds (gender, age, job level, etc.) differed significantly concerning the coping strategies that they adopted in response to occupational stress. Independent sample t-tests were used to test whether significant differences existed between the means of two groups, whereas ANOVAs were used where several (more than two) groups were compared.

The level of significance was determined by reading the p -value. As a rule of thumb, a p -value of 0.05 was deemed significant, providing 95% confidence that the statistical expectation for a

given test was true and did not occur by chance (Holton & Burnett, 2005; Zikmund et al., 2013). The significance level of this study was set at 0.05 ($p \leq 0.05$).

5.9 FORMULATION OF RESEARCH HYPOTHESES

A hypothesis is defined as “a proposition to be tested or a tentative statement of the relationship between two variables” (DePoy & Gitlin, 2016, p. 103). A null hypothesis is used in statistics to suggest that no statistical significance is present in a specific set of observations. The null hypothesis therefore proposes that no variation exists between the variables. An alternative hypothesis, however, is accepted if statistical significance is found between a set of variables. Hypotheses are thus rejected when the hypothesised statements cannot be answered through scientific observations, and hypotheses are accepted when they are statistically proven. The research hypotheses that were formulated to achieve the empirical objectives of the study are summarised in table 5.10.

Table 5.10
Research hypotheses

<i>Research objective</i>	<i>Research hypotheses</i>		<i>Statistical methods</i>
Research objective 1: To construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress	H₀1	A six-factor structure is not expected to underlie the Coping Strategies Questionnaire in order to support the six proposed dimensions of the instrument.	EFA and CEF
	H_a1	A six-factor structure is expected to underlie the Coping Strategies Questionnaire in order to support the six proposed dimensions of the instrument.	
Research objective 2: To explore which occupational stressors academics are confronted with in their institutions	H₀2.1	Academics are not confronted with stressors that are organisation specific.	Thematic analysis
	H_a2.1	Academics are confronted with stressors that are organisation specific.	
	H₀2.2	Academics are not confronted with stressors that are job specific.	
	H_a2.2	Academics are confronted with stressors that are job specific.	
Research objective 3: To explore which coping strategies academics adopt to regulate heightened emotions to respond to occupational	H₀3	Academics do not adopt adaptive coping strategies to regulate heightened emotions in response to occupational stressors that are perceived as taxing or exceeding their coping resources.	Descriptive statistics

<i>Research objective</i>	<i>Research hypotheses</i>		<i>Statistical methods</i>
stressors that are perceived as taxing or exceeding their coping resources	H_{a3}	Academics adopt adaptive coping strategies to regulate heightened emotions in response to occupational stressors that are perceived as taxing or exceeding their coping resources.	
Research objective 4: To determine whether the proposed coping strategies positively and significantly predict coping success	H_{04.1}	The adaptive coping strategies do not positively and significantly predict coping success.	Standard multiple regression analysis
	H_{a4.1}	The adaptive coping strategies positively and significantly predict coping success.	
	H_{04.2}	The maladaptive coping strategies do not positively and significantly predict coping success.	
	H_{a4.2}	The maladaptive coping strategies positively and significantly predict coping success.	
Research objective 5: To determine whether there is a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model	H₀₅	The theoretically hypothesised model does not have a good fit with the empirically manifested structural model.	SEM
	H_{a5}	The theoretically hypothesised model has a good fit with the empirically manifested structural model.	
Research objective 6: To test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups	H₀₆	The model does not apply across groups and indicates measurement variance.	Multigroup or multisample SEM analysis
	H_{a6}	The model does apply across groups and indicates measurement invariance.	
Research objective 7: To assess whether significant differences exist between individuals from different demographic backgrounds with regard to the coping strategies that they adopt in response to occupational stress	H₀₇	There are no significant mean differences between the groups of biographical variables and the independent variables.	Test for significant mean differences
	H_{a7}	There are significant mean differences between the groups of biographical variables and the independent variables.	
Research objective 8: To develop an empirical model for coping with occupational stress for higher education institutions in South Africa	H₀₈	The model for coping with occupational stress was not empirically tested to find support for the conceptual model.	Descriptive and inferential statistics
	H_{a8}	The model for coping with occupational stress was empirically tested to find support for the conceptual model.	

Note: H₀: Null hypothesis; H_a: Alternative hypothesis

5.10 ETHICAL CONSIDERATIONS

Researchers should be serious about their responsibility to act morally (Weathington, Cunningham, & Pittenger, 2012). Anyone who conducts research or uses the results of research should be mindful of ethical reasoning. Research ethics are the moral standards that

guide the behaviour of a researcher. The following ethical considerations were attended to in this research study:

5.10.1 Ethical clearance and permission

Ethical clearance was obtained from the Department of Industrial and Organisational Psychology's Ethics Review Committee to conduct the study and to distribute the questionnaire to the population identified in section 5.5. Permission was also obtained from the identified university to distribute the questionnaire electronically to academic staff.

5.10.2 Ethical considerations

Ethical considerations, as outlined in the Professional Board of Psychology's Rules of Conduct, the HPCSA's policy documentation and the Employment Equity Act 55 of 1998, were adhered to in this study.

Academics were invited to participate voluntarily in the study by means of a participation invitation letter, which explained the purpose of the study, the nature of their participation, the benefits of taking part in the study, the anticipated risk, confidentiality and autonomy. The covering letter included an informed consent agreement, which stated that completing the questionnaire, and returning it constituted agreement to use the results for research purposes only. In this letter, participants were informed that completing the questionnaire would be considered informed consent. Participants were assured of anonymity and confidentiality. Anonymity was ensured, as participants were not required to provide any personal information that might reveal their identity. Online surveys also allow for anonymity, as discussed in section 5.6.4. Confidentiality was assured by explaining to the participants that the information obtained would be used for academic purposes only. The parties involved in working with the data signed confidentiality agreements. Lastly, the researcher would be held accountable for the manner in which the data was analysed and reported, as well as for protecting the confidentiality and security of the information obtained.

5.11 CONCLUSION AND CHAPTER SUMMARY

This chapter outlined the research methodology that was applied in the construction of an instrument for determining which coping strategies academics adopt in response to occupational stress.

In this study, a non-experimental, *ex post facto*, cross-sectional, quantitative survey design was followed, because from existing literature, a conceptual model was developed that was used as the construct domain in the construction of the Coping Strategies Questionnaire. Through inferential statistics, the psychometric properties of the instrument were determined, as well as how the conceptual model compared with the observed structure in the sample. The target population consisted of a non-probability, convenient sample of adults who were permanently employed as academics in a higher education institution in Gauteng, South Africa.

The chapter outlined a series of steps and/or strategies that were followed in the construction of the Coping Strategies Questionnaire. This process resulted in a questionnaire that might measure the coping strategies that academics adopt in response to occupational stress. Data was therefore collected by means of a self-administered, online questionnaire and analysed through descriptive and inferential statistics. The chapter concluded with a summary of the research hypotheses that were formulated to achieve the empirical objectives and a description of the ethical considerations (informed consent, autonomy, confidentiality and accountability) that were adhered to.

Chapter 6 discusses the reporting and interpretation of the results and the integration of the empirical findings.

CHAPTER 6

RESEARCH RESULTS

“Without data you’re just another person with an opinion.”

– W. Edwards Deming

6.1 INTRODUCTION

Chapter 5 outlined the research methodology that was applied in the construction of an instrument for determining which coping strategies academics adopt in response to occupational stress. In this chapter, the process and methodology used to construct the instrument are documented and explained. This chapter further discusses the statistical results of the study and integrates the empirical findings with the literature. The results are reported in terms of the instrument development process outlined in section 5.6, and descriptive and inferential analyses.

6.2 INSTRUMENT DEVELOPMENT

As outlined and discussed in chapter 5, the instrument development process proposed by various scale development authors (Barry et al., 2011; DeVellis, 2012; Du Preez et al., 2008a; 2008b; Netemeyer et al., 2003; Schmiedel et al., 2014; Slavec & Dronovšek, 2012; Worthington & Whittaker, 2006) was followed to construct the instrument. The instrument development process was outlined in figure 5.2 (section 5.6) and is further reported on in this chapter.

6.2.1 Conceptualisation and item generation

6.2.1.1 *Conceptualisation and literature review*

A thorough literature review was conducted to gain an understanding of the constructs under investigation and their theoretical context. The constructs of *stress* and *occupational stress* were conceptualised in chapter 2 and *coping* and *emotion regulation* in chapter 3. The literature review served as the foundation on which this study was assembled. The constructs were conceptualised and defined, and a conceptual model with proposed theoretical dimensions and subdimensions (or strategies) was developed (chapter 4). The dimensions of coping and emotion regulation (discussed in sections 3.4 and 3.5) were used to identify dimensions and

subdimensions that theoretically measure coping with occupational stress. Items were generated to ensure that each dimension and subdimension could be measured. The definition of each construct and proposed dimension and subdimension is summarised in table 6.1.

Table 6.1

Definitions of the constructs and proposed dimensions and subdimensions

<i>Construct</i>	<i>Definition</i>
Constructs	
Stress	The agitation, feeling of anxiety, and/or physical tension that occur when the demands placed on the individual are believed to exceed his or her ability to cope (Slocum & Hellriegel, 2007, p. 448).
Occupational stress	The perceived discrepancy between demands in the workplace and the individual's ability to cope with these demands.
Coping	Coping was conceptualised as "emotion regulation under stress", and defined as the conscious efforts that individuals adopt to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources.
Proposed dimensions and subdimensions	
Cognitive coping	The cognitive processes of acquiring knowledge and understanding through thoughts and experiences to manage the intake of emotionally arousing stimuli.
Cognitive restructuring	Allows individuals to become aware of their own thoughts and through reorganisation change how they think (Sharoff, 2002).
Acceptance	Accepting that the problem occurred (Wong & Wong, 2006), that it is real and that it must be addressed (Carver et al., 1989).
Problem solving	Problem solving measures include cognitions directed at solving the problem (Aldao et al., 2010).
Planning	Planning is a prospective self-regulatory strategy that involves mental formulations of dealing with problems (Sniehotta et al., 2005).
Critical thinking	Critical analysis is reasonable reflective thinking that is focused on deciding what to believe or do (Ennis, 2011).
Emotional coping	The emotional coping strategy is the subjective, psychological and physiological expressions and reaction to stressful encounters that are appraised as taxing or exceeding an individual's coping resources.
Emotional expression	Emotional expression, also known as emotional disclosure or expressive coping, is defined as the verbal and non-verbal expression of emotions (Stanton & Low, 2012).
Emotional processing	Emotional processing allows individuals to identify and think about their emotions in relation to a stressful experience (Stanton et al., 2000).
Social support	Social support coping is defined as the perceived support that individuals receive from their social network or personal relationships to regulate heightened emotions in response to environmental demands that are perceived as taxing or exceeding their coping resources.
Emotional support	The perception that one is cared for, loved and valued as part of a social network of mutual relationships (Chang, 2007).
Network support	The communication that affirms individuals' belongingness to a group or reminds them of the support available in that network (Chang 2007; Mattson & Gibb Hall, 2011).

Construct	Definition
Informational support	The information, advice, guidance and suggestions that are received from a member of one's social support network (Chang, 2007; Mattson & Gibb Hall, 2011).
Tangible support	Any physical assistance provided by others (Mattson & Gibb Hall, 2011).
Leisure coping	Leisure coping is defined as the physical activities that individuals voluntarily engage in to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources.
Passive leisure	Passive leisure includes activities that are restful, restorative or recuperative in nature (Joudrey & Wallace, 2009).
Active leisure	Active leisure involves some degree of physical exertion, and includes, for example, recreational activities such as running, walking, swimming and cycling (Joudrey & Wallace, 2009).
Social leisure companionship	Social leisure or companionship involves social interactions such as spending time with friends and attending a social function or party. Social leisure is thus related to interpersonal and intrapersonal relationships during leisure (Freire, 2013).
Vacation leisure	Vacation time may foster individuals' sense of control over their lives because it can provide an opportunity for pursuing interests that are not work related (Joudrey & Wallace, 2009).
Religious coping	Pargament et al. (2000) define religious coping methods as "ways of understanding and dealing with negative life events that are related to the sacred" (Pargament & Raiya, 2007, p. 743).
Organisational religious activities	Organisational religious activities are defined as the social dimension of religiousness and include, for example, going to church, participating in prayer or Bible study groups and/or participating in church functions (Koenig et al., 2004).
Non-organisational religious activities	Non-organisational religious activities are defined as private and/or personal religious behaviours which are done alone, such as prayer or meditation, reading the Bible or other religious literature, listening to a religious radio station or watching a religious television show (Koenig et al., 2004).
Experiential avoidance coping	Experiential avoidance coping is conceptualised as a maladaptive avoidance (or escape) coping strategy that individuals engage in to alter the form and frequency of any aversive experiences and distress (Hayes et al., 1999).
Expressive suppression	Expressive suppression is defined as the conscious inhibition or suppression of expressing emotions (Compas et al., 2014; Gross & Levenson, 1993; Vogt & De Houwer, 2014).
Thought suppression	Thought suppression is defined as a conscious cognitive avoidance coping strategy that individuals engage in when they actively attempt not to think about an unwanted thought or feeling that they are experiencing (Hetzl-Rigglin & Wilber, 2010; Petkus et al., 2012).
Avoidant coping	Avoidant coping is broadly defined as individuals' cognitive and behavioural attempts to avoid or escape from having to deal with a situation, a person, an emotion, thought or any other entity that causes harm (Stemmet, 2013).
Self-destructive behaviour	Self-destructive behaviour is a maladaptive coping strategy that individuals engage in to redirect their attention away from the current problem (Nolen-Hoeksema et al., 2008).
Behavioural disengagement	Behavioural disengagement is defined as reducing one's effort or giving up any attempt to deal with the stressor (Carver et al., 1989, p. 269).

<i>Construct</i>	<i>Definition</i>
<i>Social disengagement</i>	Social disengagement, also known as social withdrawal, includes avoiding contact with others (Gottlieb 1997, p. 115).
<i>Religious disengagement</i>	Religious disengagement is defined as the loss of interest in things sacred (Pargament et al., 2011, p. 127).
<i>Rumination</i>	Rumination is defined as “a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms” (Nolen-Hoeksema et al., 2008, p. 400).

Source: Author’s own compilation

6.2.1.2 *Item generation*

A deductive approach was used to generate items. This approach requires a thorough understanding of the constructs under investigation (Hinkin, 1995). Item generation was thus initiated by a thorough review of the literature on stress, occupational stress, coping and emotion regulation. The construct domain and definitions of the dimensions and subdimensions (outlined in table 6.1) were used as the point of departure for generating items. Initially, literature pertaining to the proposed dimensions and subdimensions was reviewed. Thereafter, literature pertaining to the measurement of coping and emotion regulation was reviewed. The instrument was thus constructed with due regard to existing literature and instruments measuring the dimensions comprising the constructs. Eighty-two (82) items that represent the six proposed dimensions were generated. The number of items representing each dimension and subdimension is summarised in table 6.2.

Table 6.2
Number of items per dimension

<i>Dimension</i>	<i>Subdimension</i>	<i>Number of items</i>
Cognitive coping	Acceptance	2
	Cognitive restructuring	4
	Critical thinking	5
	Planning	2
	Problem solving	4
	Subtotal	17
Emotional coping	Emotional expression	3
	Emotional processing	4
	Subtotal	7
Social support coping	Network support	2
	Emotional support	4
	Informational support	4
	Tangible support	2

<i>Dimension</i>	<i>Subdimension</i>	<i>Number of items</i>
	Subtotal	12
Leisure coping	Passive leisure	4
	Active leisure	5
	Social leisure or companionship	3
	Vacation time	2
	Subtotal	14
Religious coping	Positive religious coping	2
	Organisational religious activities	4
	Non-organisational religious activities	5
	Subtotal	11
Experiential avoidance coping	Expressive suppression	3
	Thought suppression	3
	Avoidant coping	2
	<i>Self-destructive behaviour</i>	3
	<i>Social disengagement</i>	3
	<i>Behavioural disengagement</i>	2
	<i>Religious disengagement</i>	1
	Rumination	4
	Subtotal	21
Total		82

Source: Author's own compilation

A detailed theoretical verification of each item is provided in table 6.3.

Table 6.3

Theoretical verification of each item per dimension

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
Cognitive coping strategy		
The cognitive processes of acquiring knowledge and understanding through thought and experiences to manage the intake of emotion-arousing stimuli.		
Acceptance Accepting that the problem occurred (Wong & Wong, 2006), that it is real and that it must be addressed (Carver et al., 1989).	1. I accepted that the situation was real.	Carver et al. (1989) conceptualise acceptance coping as accepting that a difficult situation is real and needs to be addressed.
	2. I accepted that the situation had to be dealt with.	Carver et al. (1989) conceptualise acceptance coping as accepting that a difficult situation is real and must be addressed.
Cognitive restructuring Allows individuals to become aware of their own thoughts and through reorganisation change the way they think (Sharoff, 2002).	3. I tried to make sense of the situation.	According to Anisman (2016, p. 92), having experienced a stressful event, individuals might try to make sense of the event and actually derive some benefit from the experience. Finding meaning, according to Anisman (2016, p. 91), "is a form of cognitive restructuring that entails individuals finding some benefit or making sense of a traumatic experience". Aldwin (2007) further contends that cognitive reframing (or making meaning)

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
		is a positive strategy that includes restructuring existing cognitive motivational structures or the reappraisal of the event. Cognitive reframing therefore involves trying to make sense of a problem.
	4. I re-evaluated the situation so that it would appear more positive.	"Reassessing or placing a new spin on a situation so that it may take on positive attributes" (Anisman, 2016, p. 91).
	5. I focused on the positive aspects of the situation.	Positive appraisal is a form of cognitive coping in which the significance of the event is interpreted in a more positive way (Folkman, 2010).
	6. I considered the bright side of the situation.	Positive reappraisal is concerned with replacing negative thoughts with more rational ones (Folkman, 2010). Individuals should therefore look for the so-called "silver lining".
Critical thinking Critical analysis is reasonable reflective thinking that is focused on deciding what to believe or do (Ennis, 2011).	7. I thought of different methods to deal with the situation.	Logical analysis "measures the cognitive effort to understand the stressor and attempt to mentally prepare for the stressor and its consequences" (Meško et al., 2009, p. 28). Adapted from the Coping Responses Inventory (Moos, 1992). Original item: "Think of different ways to deal with the situation."
	8. I applied reasoning to the situation.	Critical thinking "is reasonable, reflective thinking that is focused on deciding what to do" (Ennis, 2011, p. 1). Logical analysis therefore involves reasoning, which allows one to come to a conclusion.
	9. I analysed the situation critically.	Critical thinking involves "analysing arguments, claims or evidence" (Lai, 2011, p. 9).
	10. I questioned the matters that did not make sense.	"Questioning the matters that do not make sense" is an activity or ability of critical thinking (Salmon, 2013, p. 4).
	11. I obtained the information required to make decisions.	"Marshalling relevant information (evidence) when this is needed to support some statement" is an activity or ability of critical thinking (Salmon, 2013, p. 4).
Planning Planning is a prospective self-regulatory strategy that involves mental formulations of dealing with problems (Sniehotta et al., 2005).	12. I devised a strategy on what to do.	"Planning is thinking about how to cope with a stressor. Planning involves coming up with action strategies, thinking about what steps to take and how best to handle the problem" (Carver et al., 1989, p. 268). Adapted from the COPE Inventory (Carver et al., 1989). Original item: "I try to come up with a strategy about what to do" (item loading = 0.73).
	13. I developed a plan of action.	Adapted from the COPE Inventory (Carver et al., 1989). Original item: "I make a plan of action" (item loading = 0.68).
Problem solving	14. I concentrated on solving the problem.	According to Babu (2014, p. 147), "problem-focused strategies will always be ready to

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
Problem solving measures include cognitions directed at solving the problem (Aldao et al., 2010).		concentrate on solving the problem itself". Harrington (2013, p. 309) argues that taking measures to remove or lessen a problem is a form of active coping.
	15. I viewed the situation as a challenge that had to be overcome.	According to Kazantzis et al. (2010), individuals who make use of problem-solving coping strategies perceive a stressful event as a challenge that must be overcome.
	16. I thought of more than one solution to solve the problem.	According to Kazantzis et al. (2010), individuals who make use of problem-solving coping strategies generate a variety of alternative solutions.
	17. I set realistic goals for myself to resolve the situation.	Individuals who make use of problem-solving coping strategies carefully define the problem and set realistic goals (Kazantzis et al., 2010). Khosla (2006) further posits that problem solving requires identifying situation-specific goals that engage an individual's attention.
Emotional coping strategy		
Emotional coping is the subjective, psychological and physiological expression and reaction to stressful encounters that are appraised as taxing or exceeding an individual's coping resources.		
Emotional expression Emotional expression, also known as emotional disclosure or expressive coping, is defined as the verbal and non-verbal expression of emotions (Stanton & Low, 2012).	1. I expressed my emotions freely about the situation.	Adapted from the Emotional Approach Coping Scale (Stanton et al., 2000). Original item: "I let my feelings come out freely" (item loading = 0.76) and "I feel free to express my emotions" (item loading = 0.71).
	2. I allowed myself to express my emotions about the situation.	Adapted from the Emotional Approach Coping Scale (Stanton et al., 2000). Original item: "I allow myself to express my emotions" (item loading = 0.80).
	3. I somehow managed to express how I felt about the situation.	According to Zerbe, Ashkanasy, and Härtel (2013, p. 251), venting is an emotion-focused coping strategy that is often operationalised through statements such as "I let my feelings out somehow". Individuals therefore view venting as a mechanism for emotional regulation. Similarly, according to Harrington (2013, p. 310), individuals focus on and vent emotions by expressing their feelings.
Emotional processing Emotional processing allows the individual to identify and think about his or her emotions in relation to a stressful experience (Stanton et al., 2002).	4. I realised that my feelings towards the situation were important.	Adapted from the Emotional Approach Coping Scale (Stanton et al., 2000). Original item: "I realise that my feelings are valid and important" (item loading = 0.80).
	5. I realised that my feelings about the situation were real.	Adapted from the Emotional Approach Coping Scale (Stanton et al., 2000). Original item: "I realise that my feelings are valid and important" (item loading = 0.80).
	6. I took time to figure out what I was feeling.	Adapted from the Emotional Approach Coping Scale (Stanton et al., 2000). Original item: "I take time to figure out what I'm really feeling" (item loading = 0.77).

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
	7. I explored my feelings to understand them.	Adapted from the Emotional Approach Coping Scale (Stanton et al., 2000). Original item: "I delve into my feelings to get a thorough understanding of them" (item loading = 0.77).
Social support coping strategy		
Social support coping is defined as the perceived support that individuals receive from their social network or personal relationships to regulate heightened emotions in response to environmental demands that are perceived as taxing or exceeding their coping resources. Important note: Social support can come from a variety of sources, including family, friends, partners, pets, community ties and co-workers or colleagues (Friedman, 2011).		
Network support The communication that affirms the individual's belongingness to a group or reminds him or her of the support available in that network (Chang, 2007; Mattson & Gibb Hall, 2011).	1. I relied on my social support network for support.	According to Hobfoll (2013), individuals cope with stressful situations or problems by relying on family and friends, professionals and themselves.
	2. I engaged in activities that my social network had to offer.	Network support or companionship support includes support that gives someone a sense of social belonging. This can be seen as the presence of companions to engage in shared social activities (Uchino, 2004).
Emotional support The perception that one is cared for, loved and valued as part of a social network of mutual relationships (Chang, 2007).	3. I sought comfort from my social support network.	Emotional support involves the perception that one is cared for, loved and valued as part of a social network (Chang, 2007). Emotional support involves, for example, acting as a confidant for someone.
	4. I sought sympathy from my social support network.	Emotional support involves the perception that one is cared for, loved and valued as part of a social network (Chang, 2007). Emotional support involves, for example, acting as a confidant for someone or seeking support, sympathy and understanding (Orzechowska, Zajęczkowska, Talarowska, & Galecki, 2013).
	5. I sought moral support from my social support network.	According to Spielberger and Sarason (2005), seeking emotional support includes, for example, moral support.
	6. I sought empathy from my social support network.	Emotional support is associated with sharing life experiences and includes the provision of empathy, love, trust and caring (University of Twente, 2016). Langford, Bowsher, Maloney, and Lillis (1997) further explain that emotional support includes offering empathy.
Informational support The information, advice, guidance and suggestions received from a member of one's social support network (Chang, 2007;	7. I asked for help from my social support network.	Informational support is the provision of advice, guidance, suggestions and/or useful information to others (Chang, 2007; Cohen, Underwood, & Gottlieb, 2000; Helgeson, & Cohen, 1996; Krause, 1986; Mattson & Gibb Hall, 2011; Wills, 1991).
	8. I requested the advice of my social support network to help me with the situation.	

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
Mattson & Gibb Hall, 2011).	9. I requested information from my social support network to help me with the situation.	
	10. I asked my social support network for suggestions to help me with the situation.	
Tangible support Any physical assistance provided by others (Mattson & Gibb Hall, 2011).	11. I sought physical aid from my social support network to help me with the situation.	Tangible support includes tangible components such as financial assistance and physical aid (Heitzmann & Kaplan, 1998).
	12. I sought the support of my social support network to assist me with my daily tasks.	Tangible or instrumental support is any physical assistance provided by others (Mattson & Gibb Hall, 2011).
Leisure coping strategy		
Leisure coping is defined as the physical activities that individuals voluntarily engage in to regulate heightened emotions in order to respond to environmental demands that are perceived as taxing or exceeding their coping resources.		
Passive leisure Passive leisure includes activities that are restful, restorative or recuperative in nature (Joudrey & Wallace, 2009).	1. I engaged in relaxing activities such as reading a book.	Passive leisure activities are those that require little effort or response from the person taking part in that activity (Hayward, 2000; Joudrey & Wallace, 2009; Kim & McKenzie, 2014). Passive leisure activities include, for example, watching television, reading or listening to music.
	2. I engaged in relaxing activities such as watching a movie or my favourite TV show.	
	3. I engaged in relaxing activities such as listening to music.	
	4. I engaged in hobbies and personal interests that relaxed me.	
Active leisure Active leisure involves some degree of physical exertion, and includes, for example, recreational activities such as running, walking, swimming and cycling (Joudrey & Wallace, 2009).	5. I engaged in sporting activities such as playing golf, tennis, squash and soccer.	Active leisure activities involve some degree of physical exertion and include, for example, playing sport, do-it-yourself (DIY), sightseeing and any other interest that requires active responses from the participants (Hayward, 2000, p. 2).
	6. I engaged in activities such as going to gym or exercising.	
	7. I engaged in activities such as sightseeing or visiting a tourist attraction.	
	8. I engaged in outdoor activities such as hunting, hiking, fishing and boating, camping or horseback riding.	

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
	9. I engaged in activities such as renovating a house or gardening.	
Social leisure or companionship Social leisure or companionship involves social interaction such as spending time with friends and attending a social function or party. Social leisure is thus related to interpersonal and intrapersonal relationships during leisure (Freire, 2013).	10. I socialised with family and friends.	Social leisure involves interaction such as spending time with friends and attending a social function or party (Joudrey & Wallace, 2009).
	11. I attended a social function or party to interact with people.	Social leisure includes, for example, attending a social function or party (Joudrey & Wallace, 2009, p. 199).
	12. I visited a club or bar to interact with people.	Social leisure includes social interaction such as attending parties or clubs (Kim & McKenzie, 2014).
Vacation time Vacation time may foster an individual's sense of control over his or her life because it can provide an opportunity for pursuing interests that are not work related (Joudrey & Wallace, 2009).	13. I took a vacation.	Vacations are defined as a break from work that also offers potential opportunities for recovery, protection and/or resiliency. This may be beneficial in coping with negative experiences (Joudrey & Wallace, 2009).
	14. I went away for the weekend.	According to Iwasaki (2003b), a breakthrough leisure, such as a weekend getaway or vacation, may afford individuals an opportunity to feel refreshed and regroup to better handle problems and stressful events. Similarly, Joudrey and Wallace (2009) explain that taking a vacation can foster the individual's sense of control over his or her life, because it allows him or her to pursue interests that are not work related.
Religious coping strategy		
Pargament and Raiya (2007, p. 743) define religious coping methods as "ways of understanding and dealing with negative life events that are related to the sacred".		
Positive religious coping subscale (Brief RCOPE)	1. I focused on my religion.	Adapted from the positive religious coping subscale from the Brief RCOPE (Pargament et al., 2011). Original item: "Focused on religion to stop worrying about my problems".
	2. I sought a stronger connection with a religious figure.	Adapted from the positive religious coping subscale from the Brief RCOPE (Pargament et al., 2011). Original item: "Looked for a stronger connection with God".
ORA Organisational religious activities are defined as the social dimension of religiousness, and include, for example, attending church, participating in prayer or Bible study groups and/or participating	3. I visited a place of worship.	Koenig et al. (2004) conceptualise organisational religious activities as the social dimension of religiousness and include, for example, attending church, participating in prayer or Bible study groups and/or participating in church functions.
	4. I participated in the activities offered by a religious support group.	
	5. I participated in religious activities	

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
in church functions (Koenig et al., 2004).	offered by the congregation.	
	6. I attended a prayer session offered by members of my congregation.	
NORA Non-organisational religious activities are defined as private and/or personal religious behaviours that are practised alone, such as prayer or meditation, reading the Bible or other religious literature, listening to a religious radio station or watching a religious television show (Koenig et al., 2004).	7. I prayed to get my mind off my problems.	Koenig et al. (2004) define non-organisational religious activities as private and/or personal religious behaviours that are practised alone, such as prayer or meditation, reading the Bible or other religious literature, listening to a religious radio station or watching a religious television show.
	8. I sought guidance in the scriptures.	
	9. I sought guidance in religious literature.	
	10. I listened to a religious radio station.	
	11. I watched a religious television show.	
Experiential avoidance coping strategy		
Experiential avoidance coping is conceptualised as an avoidance (or escape) coping strategy that individuals engage in to alter the form and frequency of any aversive experiences and distress (Hayes et al., 1999).		
Expressive suppression Expressive suppression is defined as the conscious inhibition or suppression of expressing emotions (Compas et al., 2014; Gross & Levenson, 1993; Vogt & De Houwer, 2014).	1. I tried to suppress my emotions.	Emotional or expressive suppression is defined as the conscious inhibition or suppression of expressing an emotion (Compas et al., 2014; Gross & Levenson, 1993; Vogt & Houwer, 2014).
	2. I hid my true feelings.	
	3. I kept my emotions to myself.	
Thought suppression Thought suppression is defined as a conscious cognitive avoidance coping strategy that individuals engage in when they actively attempt not to think about an unwanted thought or feeling that they are experiencing (Hetzl-Riggin & Wilber, 2010; Petkus et al., 2012).	4. I tried not to think of the situation.	Individuals engage in thought suppression when they actively attempt not to think about an unwanted thought or feeling that they are experiencing (Petkus et al., 2012).
	5. I thought of something else.	Individuals will suppress the unwanted thought or feeling by shifting their attention to another thought (Rassin et al., 2000).
	6. I purposefully avoided thoughts of the situation.	Thought suppression is conceptualised as an individual's purposeful attempt to control or avoid certain thoughts (Hetzl-Riggin & Wilber, 2010).
Avoidant coping Avoidant coping is broadly defined as individuals' cognitive and behavioural attempts to avoid or escape from having to	7. I avoided having to deal with the situation.	Avoidant coping is broadly defined as individuals' cognitive and behavioural attempts to avoid or escape from having to deal with a situation, person, emotion, thought or any other entity that causes harm (Stemmet, 2013).

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
deal with a situation, person, emotion, thought or any other entity that causes harm (Stemmet, 2013).	8. I ignored the situation.	Ottenbreit and Dobson (2004) define avoidance coping as a defensive response that involves ignoring, distorting or escaping from stimuli that are perceived as threatening.
<i>Self-destructive behaviour</i> Self-destructive behaviour is a maladaptive coping strategy that individuals engage in to redirect their attention away from the current problem (Nolen-Hoeksema et al., 2008).	9. I abused alcohol.	Self-destructive behaviour includes inherently dangerous or self-destructive activities, such as reckless driving, heavy drinking, drug abuse or aggressive behaviour, that may draw attention away from current problems in the short term, but are harmful in the long run (Nolen-Hoeksema et al., 2008).
	10. I abused substances such as drugs.	
	11. I became aggressive towards people.	
<i>Social disengagement</i> Social disengagement, also known as social withdrawal, includes avoiding contact with others (Gottlieb, 1997, p. 115).	12. I avoided contact with people.	Social disengagement, also known as social withdrawal, includes avoiding contact with others (Gottlieb, 1997, p. 115).
	13. I withdrew from my social support network.	
	14. I avoided contact with my social support network.	
<i>Behavioural disengagement</i> Behavioural disengagement is defined as reducing one's effort or giving up any attempt to deal with the stressor (Carver et al., 1989, p. 269).	15. I gave up any attempt to deal with the situation.	Behavioural disengagement is defined as reducing one's effort or giving up any attempt to deal with the stressor (Carver et al., 1989, p. 269).
	16. I withdrew any effort to deal with the situation.	
<i>Religious disengagement</i> Religious disengagement is defined as the loss of interest in things sacred (Pargament & Raiya, 2007, p. 127).	17. I withdrew from any religious activity.	Religious disengagement is defined as the loss of interest in things sacred (Pargament & Raiya, 2007, p. 127).
<i>Rumination</i> Rumination is defined as "a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms" (Nolen-Hoeksema et al., 2008, p. 400).	18. I thought about what had caused the situation instead of finding a solution.	Rumination is defined as "a mode of responding to distress that involves repetitively and passively focusing on symptoms of distress and on the possible causes and consequences of these symptoms" (Nolen-Hoeksema et al., 2008, p. 400). Nolen-Hoeksema et al. (2008, p. 400) further explain rumination as "the process of thinking perseveratively about one's feelings and problems rather than in terms of the specific content of thoughts". Rumination thus intensifies and prolongs distress through several mechanisms: (1) it enhances the effects of the depressed mood on thinking, making it more likely that people use their negative thoughts and memories activated by their depressed mood to understand their
	19. I thought about the consequences of the situation instead of finding a solution.	
	20. I continuously thought about how the situation made me feel instead of finding a solution.	
	21. I continuously thought about the problem instead of finding a solution.	

<i>Subdimension</i>	<i>Item</i>	<i>Theoretical verification</i>
		current circumstances; (2) it interferes with effective problem solving; and (3) it interferes with instrumental behaviour (Nolen-Hoeksema et al., 2008, p. 401).

Source: Author's own compilation

From table 6.3 it is evident that the origins of the items included in the six dimensions of the questionnaire are as follows:

- *Cognitive coping strategy.* The cognitive coping dimension was based on the work of Garnefski et al. (2001). These authors identified four adaptive cognitive coping strategies, namely positive reappraisal, refocus on planning, acceptance and putting into perspective. Two subdimensions, namely positive reappraisal and acceptance, were borrowed from these authors. The definition of *acceptance*, however, was obtained from the COPE Inventory (Carver et al., 1989) and two items were developed. Positive reappraisal was termed *cognitive restructuring* and four items were theoretically derived from the work of Anisman (2016) and Folkman (2011). Four items that measure *problem solving* were developed by the researcher. Problem solving was considered an important subdimension, because almost all the existing coping instruments contain a problem-focused dimension or problem-solving subdimension. Four items that measure *critical thinking* were theoretically developed and one item was adapted from the Coping Resources Inventory (CRI) (Moos, 1992). Lastly, two *planning* items were adapted from the COPE Inventory (Carver et al., 1989) (discussed in section 3.4.1.2).
- *Emotional coping strategy.* The emotional coping dimension was based on the theory and Emotional Approach Coping Scale (EACS) of Stanton et al. (2000). Two dimensions of the EACS, namely emotional expression and emotional processing, were identified as subdimensions that measure emotional coping. Two items that measure *emotional expression* were adapted from the EACS (Stanton et al., 2000) and one item was theoretically developed by the researcher. Four items that measure *emotional processing* were adapted from the EACS. The psychometric properties of the EACS are excellent, with alpha coefficients between 0.72 and 0.94 (discussed in section 3.4.1.10).
- *Social support coping strategy.* Twelve items that measure social support coping were developed by the researcher, based on the theoretical verification outlined in table 6.3. The theory discussed in section 3.4.3.9 served as a point of departure for identifying subdimensions that measure social support coping. The four social support categories described by Mattson and Gibb Hall (2011) were used as guidelines to develop items. The researcher developed two items that measure *network support*, four items that

measure *emotional support*, four items that measure *informational support* and two items that measure *tangible support*.

- *Leisure coping strategy*. Fourteen items that measure leisure coping were developed by the researcher. From the literature discussed in chapter 3, it is evident that leisure coping is not measured in any of the existing coping instruments discussed in section 3.4.1. Consequently, the theory discussed in section 3.4.3.10 served as a point of departure for identifying subdimensions that measure leisure coping. The four leisure categories identified by Kim and McKenzie (2014), and Joudrey and Wallace (2009) were used to develop items. The researcher developed four items that measure *passive leisure*, five items that measure *active leisure*, three items that measure *social leisure or companionship* and two items that measure *vacation time*.
- *Religious coping strategy*. The religious coping dimension was based on the work of Koenig et al. (2004) and Pargament et al. (2011). The religious coping items were constructed with due regard to the *positive religious coping strategies*, identified by Pargament et al. (2011), and the *organisational religious activity (ORA)* and *non-organisational religious activity (NORA)* dimensions proposed by Koenig et al. (2004). Two items that measure positive religious coping were adapted from the positive religious coping subscale from the Brief COPE. The researcher developed four items that measure organisational religious activities and five items that measure non-organisational religious activities.
- *Experiential avoidance coping strategy*. Twenty-one items that measure experiential avoidance coping were developed, based on the theoretical verification summarised in table 6.3. The dimensions and subdimensions of emotion regulation (discussed in section 3.5.2) were used as a point of departure for developing items that measure experiential avoidance. Consequently, three items that measure *expressive suppression*, three items that measure *thought suppression*, 11 items that measure *avoidant coping* and four items that measure *rumination* were theoretically developed by the researcher. The *avoidant* subdimension was further categorised into *self-destructive behaviour* (three items), *behaviour disengagement* (two items), *social disengagement* (three items) and *religious disengagement* (one item). These avoidance strategies were theoretically derived from the maladaptive coping strategies and avoidance dimension discussed in section 3.4.3.

From the discussion above, it is evident that the instrument was theoretically (or deductively) developed. A thorough literature review was conducted to conceptualise the constructs under investigation. The literature discussed in chapters 3 and 4, specifically the dimensions and

subdimensions discussed in sections 3.4.3 and 3.5.2 and critique of existing coping and emotion-regulation instruments, were used to develop dimensions and subdimensions that theoretically measure coping with occupational stress. After these dimensions and subdimensions had been identified and defined, eighty-two (82) items that adhered to the guidelines proposed by Bird (2009), Furr (2011), and Slavec and Dronovšek (2012) were developed to measure each dimension and subdimension. A six-point agreement (1 = *Strongly disagree*; 6 = *Strongly agree*) Likert scale was used to allow the respondents to discriminate meaningfully between the response options and reduce ambiguity. Very few items were borrowed or adapted from the coping and emotion regulation instruments discussed in chapter 3. Its composition, psychometric properties and the critique it received were, however, considered in constructing the new instrument to ensure that the conceptual and methodological issues identified were avoided.

6.2.2 Content adequacy assessment and item selection

Content validity refers to the extent to which an instrument is representative of the content domain of an instrument (Foxcroft & Roodt, 2009). The purpose of a content validity assessment in instrument development is to pretest the instrument to suggest content areas that have been omitted (DeVellis, 2012). For the purpose of this study, the content validity of the coping instrument was assessed to determine which items should be retained or deleted. An expert review and cognitive interviews were utilised for this purpose.

6.2.2.1 Expert review

A panel of experts was selected to validate the initial item pool. An expert review entails asking a number of subject experts to evaluate the content validity of the individual items, as well as the instrument (Olckers, 2011). An expert review was conducted to (1) confirm/invalidate the definitions or relevancy of the constructs; (2) evaluate the items' clarity and conciseness; (3) suggest possible items for inclusion; and (4) to evaluate the instrument's face validity. Ten experts who met the following criteria were selected. The experts had to

- have at least a master's degree in human resource management, industrial and organisational psychology, or any related field
- have at least five years' working experience in human resource management, industrial and organisational psychology or any related field
- have at least one published article in an accredited journal or have presented a research paper at a conference

- be registered with a professional body, such as the Health Professions Council of South Africa (HPCSA), Society for Industrial and Organisational Psychology South Africa (SIOPSA), the South African Board of People Practices (SABPP), or equivalent.

After the experts had been selected, a questionnaire was electronically mailed to them. A copy of the conceptual model and definitions of the proposed dimensions and subdimensions was attached to the electronic mail. The experts were instructed to validate the initial item pool in terms of its item content, content style and comprehensiveness. They were also asked to complete a biographical questionnaire, which was used to determine whether the experts met the selection criteria outlined above. Information, such as age, highest qualification, field of study, work experience in applied psychology or related fields, and professional registration, was obtained.

Nine out of the ten experts who were invited to serve as content specialists completed the questionnaire. The biographical information of these experts is summarised in table 6.4.

Table 6.4

Biographical information of the content experts

No.	Age	Race & Gender	Highest qualification	Job title, industry & years of experience	Publications in accredited journals	Professional registration	Selection criteria met
1	45	White, male	Master's degree (IOP)	Industrial psychologist, self-employed, 22 years	Yes	HPCSA SIOPSA	Yes
2	34	White, female	Doctorate (IOP)	Leadership advisor, utility industry, 10 years	No	HPCSA	Yes
3	43	White, female	Doctorate (IOP)	SHE advisor, manufacturing, 20 years	Yes	No	Yes
4	61	White, female	Doctorate (Information sciences and OB)	Management consultant, professional service, 22 years	Yes	No	Yes
5	53	White, female	Doctorate (Management sciences)	Professor, higher education, 0 years	Yes	No	Yes
6	49	Coloured, male	Master's degree (IOP)	Senior lecturer, higher education, 17 years	Yes	SIOPSA	Yes

No.	Age	Race & Gender	Highest qualification	Job title, industry & years of experience	Publications in accredited journals	Professional registration	Selection criteria met
7	43	White, female	Master's degree (Leadership and management development)	Lecturer, higher education, 15 years	Yes	HPCSA SIOPSA	Yes
8	46	White, female	Doctorate (IOP)	Professor, higher education, 20 years	Yes	SABPP	Yes
9	50	White, female	Doctorate (HRM)	Professor, higher education, 30 years	Yes	SABPP	Yes

Source: Author's own compilation

From table 6.4 it is evident that the selected reviewers were qualified to validate the instrument. All the reviewers had at least obtained a master's degree in industrial and organisational psychology, human resource management, or related fields. Six had obtained doctoral degrees and three master's degrees. Five reviewers were employed in higher education, with three being professors, one a senior lecturer and one a lecturer. The other four reviewers were employed as an industrial psychologist, management consultants and a health and safety officer. Eight reviewers had a minimum of 10 years' working experience in applied psychology, while only one reviewer's expertise fell within management sciences or business management. Six reviewers were registered with a professional association such as the HPCSA, SIOPSA and SABPP. With the exception of one, all the reviewers had articles published in accredited journals, and five had presented papers at international conferences. With a median age of 47, an assumption was made that the reviewers were an experienced group of individuals. In summary, all nine reviewers met the selection criteria outlined above and therefore qualified as content experts.

The content experts were asked to judge the relevance and clarity of each item related to the specific dimension and subdimension of coping with occupational stress. They were also asked to comment on the comprehensiveness of the dimensions and the addition or deletion of items.

a *Item content*

The reviewers were asked to indicate the relevance of each dimension, subdimension and item with regard to its contribution to coping with occupational stress. The definitions for each dimension and subdimension were provided, and the reviewers had to indicate whether it was essential or not essential to the content domain. The reviewers also had to indicate if the items were clear or unclear. The information obtained was then used to calculate the interrater agreement (IRA) and content validity index (CVI).

i *Interrater agreement (IRA)*

The interrater agreement or interrater reliability is the level of agreement between the reviewers. If all the reviewers agree, then the IRA is 1.00 (100%), and if everyone disagrees the IRA is zero (0%). Agreement therefore measures how frequently two or more reviewers assign the same rating. The IRA was calculated by determining the percentage of absolute agreement. The percentage of absolute agreement was calculated by dividing the number of ratings in agreement by the number of items. The results of the IRA calculations are summarised in table 6.5.

Table 6.5
Interrater agreement (IRA)

<i>Reviewer</i>	<i>Essential</i>	<i>Percentage (%)</i>	<i>Items are clear</i>	<i>Percentage (%)</i>
1	1.00	100%	0.99	99%
2	0.44	44%	0.85	85%
3	0.98	98%	0.99	99%
4	0.87	87%	0.87	87%
5	0.59	59%	0.59	59%
6	0.93	93%	0.88	88%
7	0.63	63%	0.93	93%
8	0.40	40%	0.87	87%
9	0.95	95%	0.90	90%
<i>Percentage of absolute agreement</i>	<i>0.75</i>	<i>75%</i>	<i>0.87</i>	<i>87%</i>

Source: Author's own compilation

According to Graham, Milanowski, and Miller (2012), when using the percentage of absolute agreement, values from 75% to 90% demonstrate an acceptable level of agreement. The results in table 6.5 first reveal that the reviewers were 75% in agreement that the dimensions, subdimensions and items were essential to the content domain. The results further indicate

that the reviewers were 87% in agreement that the item pool was clear. One could thus conclude that: (1) the percentage of absolute agreement was acceptable; (2) the reviewers agreed over the content domain; and (3) the dimensions and subdimensions were essential to the content domain and the items were clear and measurable.

ii Content validity index (CVI)

The content validity of the instrument was determined by calculating the CVI, as discussed in section 5.6.2.1. The CVI was determined by first calculating the overall content validity of the individual items (I-CVI). The I-CVI was determined by dividing the number of experts who had indicated that the content domain was essential by the number of experts. The I-CVI expresses the proportion of agreement on the relevancy of each item, which is between zero and one (Zamanzadeh et al., 2015). Thereafter, the content validity of the overall instrument (S-CVI) was determined. The S-CVI is defined as the proportion of items that achieved a rating of one (essential) by the content experts (Zamanzadeh et al., 2015). Two methods are used to calculate the S-CVI, namely the S-CVI/UA (universal agreement approach) and S-CVI/AVE (average at item-level approach). In the S-CVI/UA, the number of items considered essential by the reviewers (or number of items with a CVI equal to 1) is divided by the number of items. In the CVI/AVE approach, the sum of the I-CVI scores is divided by the total number of items. The content validity results are presented table 6.6.

Table 6.6

Results of the content validity assessment

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
1	COGNITIVE COPING						
1.1	Acceptance						
1.1.1	I accepted that the situation was real.	8	0.89*	9	1.00*		Delete. The item is similar to item 1.1.2.
1.1.2	I accepted that the situation had to be dealt with.	8	0.89*	9	1.00*		Retain.
1.2	Cognitive restructuring						
1.2.1	I tried to make sense of the situation.	7	0.78*	9	1.00*		Retain.
1.2.2	I re-evaluated the situation so that it would appear more positive.	5	0.56	6	0.67	Items 1.2.2 and 1.2.3 seem similar and unclear. I would have to evaluate the situation before I can focus on the positive aspects. It is important to use plain language. Respondents have to be able to relate to the question and understand it easily.	Revise. I tried to replace negative thoughts with more positive ones. <i>Source:</i> Positive reappraisal is concerned with replacing negative thoughts with more rational thoughts (Folkman, 2011).
1.2.3	I focused on the positive aspects of the situation.	8	0.89*	8	0.89*	What is the difference between items 1.2.3 and 1.2.4?	Delete.
1.2.4	I considered the bright side of the situation.	3	0.33	6	0.67		Retain. Similar to item 1.2.3 which was deleted.
1.3	Critical thinking						
1.3.1	I thought of different methods to deal with the situation.	8	0.89*	9	1.00*	Find a synonym for "methods".	Revise. I thought of different ways to deal with the situation.

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
1.3.2	I applied reasoning to the situation.	7	0.78*	6	0.67	Some people may not understand what is meant by "I applied reasoning".	Revise. I tried to find a solution to the problem by considering possible options.
1.3.3	I analysed the situation critically.	8	0.89*	8	0.89*		Retain.
1.3.4	I questioned the matters that did not make sense.	7	0.78*	6	0.67	Perhaps a different phrase for "the matters".	Revise. I questioned aspects of the stressor that did not make sense.
1.3.5	I obtained the information required to make decisions.	9	1.00*	8	0.89*		Revise. I gathered information so that I could make better decisions.
1.4	Planning						
1.4.1	I devised a strategy on what to do.	6	0.67	9	1.00*		Revise. I developed a strategy on what to do.
1.4.2	I developed a plan of action.	9	1.00*	9	1.00*		Retain.
1.5	Problem solving						
1.5.1	I concentrated on solving the problem.	7	0.78*	7	0.78*	Items 1.5.1 and 1.5.2 are very similar.	Revise. I focused on solving the problem.
1.5.2	I viewed the situation as a challenge that had to be overcome.	8	0.89*	8	0.89*		Retain.
1.5.3	I thought of more than one solution to solve the problem.	7	0.78*	9	1.00*		Delete.
1.5.4	I set realistic goals for myself to resolve the situation.	8	0.89*	8	0.89*		Retain.
2	EMOTIONAL COPING						
2.1	Emotional expression						
2.1.1	I expressed my emotions freely about the situation.	7	0.78*	7	0.78*	Not advisable for all situations. My answer can possibly be that, yes, I freely express my emotions, but in a safe	Delete. Combined with 2.1.2. Individuals often become irritable, frustrated and aggressive in the workplace. It

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
						environment. Not in the workplace.	would be interesting to see if individuals express their emotions in the workplace, even if it is to a lesser extent.
2.1.2	I allowed myself to express my emotions about the situation.	5	0.56	8	0.89*	Subtle difference between 2.1.1 and 2.1.2. Sounds like authorisation.	Revise. Combine 2.1.1 and 2.1.2. I allowed myself to express my emotions about the situation.
2.1.3	I somehow managed to express how I felt about the situation.	7	0.78*	8	0.89*	Suggestion: I find it difficult to talk with others about the situation.	Retain. Discard suggestion. Might become avoidance coping if individuals find it difficult to talk to others. Emotional expression is about expressing emotions/feelings.
2.2	Emotional processing						
2.2.1	I realised that my feelings towards the situation were important.	8	0.89*	9	1.00*		Retain.
2.2.2	I realised that my feelings about the situation were real.	6	0.67	6	0.67	Not clear. When are our feelings "unreal"?	Delete.
2.2.3	I took time to figure out what I was feeling.	6	0.67	6	0.67		Retain.
2.2.4	I explored my feelings to understand them.	5	0.56	7	0.78*	What is the difference between item 2.2.3 and 2.2.4?	Delete.
3	SOCIAL SUPPORT COPING						
3.1	Network support						
3.1.1	I relied on my social support network for support.	9	1.00*	9	1.00*		Retain.
3.1.2	I engaged in activities that my social network had to offer.	6	0.67	7	0.78*	Suggestion: I engaged in activities that my social network	Retain.

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
						had to offer to take my mind off the situation.	
3.2	Emotional support						
3.2.1	I sought comfort from my social support network.	9	1.00*	9	1.00*		Retain.
3.2.2	I sought sympathy from my social support network.	3	0.33	6	0.67	Not clear what the differences are between items 3.2.2, 3.2.3 and 3.2.4.	Revise. I sought compassion from my social support network.
3.2.3	I sought moral support from my social support network.	4	0.44	7	0.78*		Revise. I sought support from my social support network.
3.2.4	I sought empathy from my social support network.	4	0.44	6	0.67	I had to think hard during this section. Maybe it is just me or the questions are very similar.	Delete.
3.3	Informational support						
3.3.1	I asked for help from my social support network.	5	0.56	5	0.56	Suggestion: I asked for advice from individuals in my social-support network.	Retain.
3.3.2	I requested the advice of my social support network to help me with the situation.	6	0.67	6	0.67	Suggestion: I asked for advice from knowledgeable people in my social network.	Revise. I asked for advice from individuals in my social support network.
3.3.3	I requested information from my social support network to help me with the situation.	3	0.33	5	0.56		Delete.
3.3.4	I asked my social support network for suggestions to help me with the situation.	4	0.44	5	0.56	Clarify the terms: advice, information, suggestions. In asking for advice I might be given suggestions. What is the difference? What type of information would I request and how is it different to requesting	Delete.

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
						advice and suggestions? Item not clear.	
3.4	Tangible support						
3.4.1	I sought physical aid from my social support network to help me with the situation.	4	0.44	5	0.56		Delete.
3.4.2	I sought the support of my social support network to assist me with my daily tasks.	3	0.33	5	0.56	In my opinion, asking others to help you with your daily tasks at work is not an effective coping strategy. This can happen occasionally, for example, until a big project is finished. Or does it refer to daily tasks in your personal life so that you have more time to resolve the issues at work?	Delete.
4	LEISURE COPING						
4.1	Passive leisure						
4.1.1	I engaged in relaxing activities such as reading a book.	6	0.67	9	1.00*	I think items 4.1.1 to 4.1.3 can be combined into one. It does not matter what type of relaxing activity the respondent likes. The important aspect is that the respondent engages in some kind of activity.	Revise. I engaged in relaxing activities.
4.1.2	I engaged in relaxing activities such as watching a movie or my favourite TV show.	7	0.78*	9	1.00*		Delete.
4.1.3	I engaged in relaxing activities such as listening to music.	7	0.78*	9	1.00*		Delete.
4.1.4	I engaged in hobbies and personal interests that relaxed me.	7	0.78*	7	0.78*		Retain.

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
4.2	Active leisure						
4.2.1	I engaged in sporting activities such as playing golf, tennis, squash and soccer.	6	0.67	8	0.89*	What is the difference between items 4.2.1, 4.2.2 and 4.2.5?	Retain.
4.2.2	I engaged in activities such as going to gym or exercising.	8	0.89*	8	0.89*		Retain.
4.2.3	I engaged in activities such as sightseeing or visiting a tourist attraction.	7	0.78*	9	1.00*		Retain.
4.2.4	I engaged in outdoor activities such as hunting, hiking, fishing and boating, camping or horseback riding.	8	0.89*	9	1.00*		Retain.
4.2.5	I engaged in activities such as renovating a house or gardening.	8	0.89*	9	1.00*		Retain.
4.3	Social leisure or companionship						
4.3.1	I socialised with family and friends.	9	1.00*	9	1.00*	What is the difference between items 4.3.1 and 4.3.2?	Retain.
4.3.2	I attended a social function or party to interact with people.	8	0.89*	8	0.89*	Items 4.3.2 and 4.3.3 are not clear. What is meant by a "club"?	Retain.
4.3.3	I visited a club or bar to interact with people.	6	0.67	8	0.89*		Delete.
4.4	Vacation time						
4.4.1	I took a vacation.	7	0.78*	8	0.89*		Retain.
4.4.2	I went away for the weekend.	7	0.78*	9	1.00*		Retain.
5	RELIGIOUS COPING						
5.1	I focused on my religion.	7	0.78*	6	0.67		Retain.

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
5.2	I sought a stronger connection with a religious figure.	6	0.67	7	0.78*		Retain.
5.3	Organisational religious activities						
5.3.1	I visited a place of worship.	5	0.56	7	0.78*		Retain. Important definition of religious activities.
5.3.2	I participated in the activities offered by a religious support group.	6	0.67	8	0.89*		Retain.
5.3.3	I participated in religious activities offered by the congregation.	6	0.67	6	0.67		Retain.
5.3.4	I attended a prayer session offered by members of my congregation.	5	0.56	8	0.89*		Delete.
5.4	Non-organisational religious activities						
5.4.1	I prayed to get my mind off my problems.	8	0.89*	8	0.89*		Retain.
5.4.2	I sought guidance in the scriptures.	6	0.67	8	0.89*	Is there a general term used by different religious affiliations?	Retain.
5.4.3	I sought guidance in religious literature.	7	0.78*	8	0.89*		Delete. Similar to item 5.4.2.
5.4.4	I listened to a religious radio station.	6	0.67	8	0.89*	I think items 5.4.4 and 5.4.5 should be combined into one question.	Retain. If item is combined, it might create confusion as it becomes a double-barrelled question.
5.4.5	I watched a religious television show.	5	0.56	8	0.89*		Retain.

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
6	EXPERIENTIAL AVOIDANCE COPING						
6.1	Expressive suppression						
6.1.1	I tried to suppress my emotions.	9	1.00*	9	1.00*		Retain.
6.1.2	I hid my true feelings.	8	0.89*	9	1.00*		Retain.
6.1.3	I kept my emotions to myself.	7	0.78*	9	1.00*	This does not mean I do not allow myself to feel these emotions. I just do not express my emotions to others?	Delete. Similar to item 6.1.2.
6.2	Thought suppression						
6.2.1	I tried not to think of the situation.	7	0.78*	8	0.89*		Retain.
6.2.2	I thought of something else.	7	0.78*	8	0.89*		Retain.
6.2.3	I purposefully avoided thoughts of the situation.	8	0.89*	8	0.89*	What is the difference between items 6.2.1, 6.2.2 and 6.2.3?	Delete.
6.3	Avoidant coping						
6.3.1	I avoided having to deal with the situation.	8	0.89*	9	1.00*		Retain.
6.3.2	I ignored the situation.	8	0.89*	9	1.00*		Retain.
6.4	Self-destructive						
6.4.1	I abused alcohol.	9	1.00*	9	1.00*		Retain.
6.4.2	I abused substances such as drugs.	9	1.00*	9	1.00*		Retain.
6.4.3	I became aggressive towards people.	9	1.00*	9	1.00*		Revised. I became verbally aggressive towards people. AND I became physically aggressive towards people.
6.5	Social disengagement						

Dimensions, subdimensions and items		Number of experts in agreement and I-CVI for each item				Reviewers' comments	Researcher's decision
		Essential	Item I-CVI	Clarity	Item I-CVI		
6.5.1	I avoided contact with people.	6	0.67	8	0.89*	It is a good strategy as it gives perspective and prevents an explosion.	Retain.
6.5.2	I withdrew from my social support network.	9	1.00*	9	0.89*		Retain.
6.5.3	I avoided contact with my social support network.	6	0.67	9	0.89*		Retain.
6.6	Behavioural disengagement						
6.6.1	I gave up any attempt to deal with the situation.	7	0.78*	9	1.00*		Retain.
6.6.2	I withdrew any effort to deal with the situation.	8	0.89*	8	0.89*	What is the difference between items 6.6.1 and 6.6.2?	Retain.
6.7	Religious disengagement						
6.7.1	I withdrew from any religious activity.	8	0.89*	9	1.00*		Retain.
6.8	Rumination						
6.8.1	I thought about what had caused the situation instead of finding a solution.	7	0.78*	9	1.00*		Retain.
6.8.2	I thought about the consequences of the situation instead of finding a solution.	7	0.78*	8	0.89*		Retain.
6.8.3	I continuously thought about how the situation made me feel instead of finding a solution.	7	0.78*	9	1.00*	Suggestion: I continuously think of how the situation makes me feel instead of trying to find a solution.	Retain.
6.8.4	I continuously thought about the problem instead of finding a solution.	6	0.67	9	0.89*		Retain.
S-CVI/AVE			0.75		0.87		

Note:

Source: Author's own compilation

I-CVI, item-level content validity index; S-CVI, scale-level content validity index; scale-level content validity index, averaging method (S-CVI/AVE): essential = 0.75; clarity = 0.87; average portion of items judged relevant across the nine experts: essential = 0.75; clarity = 0.87

* Acceptable I-CVI

Grant and Davis (1997) propose that researchers should consider an 80% agreement or higher among content experts for a new instrument. Judgement on each item, according to Zamanzadeh et al. (2015), is made as follows:

- If the I-CVI is higher than 79%, then the item is appropriate.
- If the I-CVI is between 70% and 79%, then it needs to be revised.
- If the I-CVI is lower than 70%, then it needs to be deleted.

According to the results summarised in table 6.6, the majority of items were regarded as content valid, except for two items from: the *cognitive restructuring* subdimension (I-CVI between 0.33 and 0.56; one item was revised and one retained); one item from the *planning* (I-CVI was 0.67; item was revised) and *emotional expression* (I-CVI was 0.56; item was revised) subdimensions; three items from the *emotional processing* subdimension (I-CVI between 0.56 and 0.67; two items were removed and one item was retained); one item from the *network support* subdimension (I-CVI was 0.67; item was retained); three items from the *emotional support* subdimension (I-CVI between 0.33 and 0.44; two items were revised and one item was removed); the *informational support* subdimension (I-CVI between 0.33 and 0.67; one item was retained, one was revised and two were removed); the *tangible support* subdimension (I-CVI was 0.44; two items were removed); one item from the *passive leisure* (I-CVI was 0.67; item was revised), *active leisure* (I-CVI was 0.67; item was retained) and *social leisure or companionship* (I-CVI was 0.67; item was removed) subdimension; one item from the *religious coping* dimension (I-CVI was 0.67; item was retained); the *organisational religious activities* subdimension (I-CVI between 0.56 and 0.78; three items were retained and one was removed); three items from the *non-organisational religious activities* subdimension (I-CVI between 0.56 and 0.67; items were retained); two items from the *social disengagement* subdimension (I-CVI was 0.67; items were retained); and one item from the *rumination* subdimension (I-CVI is 0.67; item was retained). In sum, 31 items had an I-CVI between 0.33 and 0.67. Seven of these items were revised, 15 were retained and nine were removed from the item pool.

As for the scale-level content validity, the CVI/AVE was calculated which yielded a score of 0.75. According to Polit et al. (2007), an S-CVI/AVE of 0.90 or higher suggests excellent content validity, but an S-CVI of 0.80 is adequate for new instruments. If the standard of 0.80 is applied, then one could conclude that the content validity of the 82-item instrument was not adequate. As discussed above, the items with a poor I-CVI had to be modified or removed to improve the content validity of the instrument. See table 6.6 for a summary of items that were retained, revised and removed.

b Item style

The content experts were also asked to review the clarity and conciseness of the individual items to possibly improve the construction and wording of the items. Unclear or vague items were highlighted and suggestions for improvement were made, as indicated in table 6.6. These items were revised and clarified.

c Comprehensiveness

The reviewers were moreover instructed to evaluate the instrument for comprehensiveness to determine whether the items sufficiently represented the content domain. Suggestions from this review allowed the researcher to identify items that needed to be included, rephrased or deleted. The reviewers agreed that the dimensions and subdimensions of the desired construct domain had been included in the instrument. However, in reviewing the instrument, some reviewers suggested possible items for inclusion. These suggestions are summarised in table 6.7.

Table 6.7
Items proposed by the content experts

<i>Dimension</i>	<i>Subdimension</i>	<i>Proposed new item</i>
Cognitive coping	Cognitive restructuring	I obtained information to clarify and change the way I think about the situation.
Experiential avoidance coping	Self-destructive behaviour	I eat more than usual.
		I eat less than usual.

Source: Author's own compilation

Of the 82 original items that were subjected to an expert review, 51 items were retained, 13 were revised, 18 items were removed and four new items were included. It was decided to retain certain items with a poor I-CVI (e.g. "I visited a place of worship"), because these items are essential to the content domain as discussed in the literature chapters. It was further decided to revise certain items with a good I-CVI score to improve the items' clarity and conciseness (e.g. "I thought of different methods to deal with the situation"). However, the majority of items that were revised had a poor I-CVI (between 0.33 and 0.68) (e.g. "I sought sympathy from my social support network"). Lastly, the items that were deleted had a poor I-CVI (0.56 and lower), were unclear or duplicated items (e.g. "I asked my social support network for suggestions to help me with the situation"). The expert review therefore resulted in a revised item pool of 68 items, which were subjected to a cognitive interview. Table 6.8 provides a

summary of the original number of items compared with the number of items retained after the expert review.

Table 6.8

Comparison between the original number of items and items retained after an expert review

<i>Dimension</i>	<i>Subdimension</i>	<i>Number of original items</i>	<i>Number of retained items*</i>
Cognitive coping	Acceptance	2	1
	Cognitive restructuring	4	4
	Critical thinking	5	5
	Planning	2	2
	Problem solving	4	3
	Subtotal	17	15
Emotional coping	Emotional expression	3	2
	Emotional processing	4	2
	Subtotal	7	4
Social support coping	Network support	2	2
	Emotional support	4	3
	Informational support	4	2
	Tangible support	2	0
	Subtotal	12	7
Leisure coping	Passive leisure	4	2
	Active leisure	5	5
	Social leisure or companionship	3	2
	Vacation time	2	2
	Subtotal	14	11
Religious coping	Positive religious coping	2	2
	Organisational religious activities	4	3
	Non-organisational religious activities	5	4
	Subtotal	11	9
Experiential avoidance coping	Expressive suppression	3	2
	Thought suppression	3	2
	Avoidant coping	2	2
	<i>Self-destructive behaviour</i>	3	6
	<i>Social disengagement</i>	3	3
	<i>Behavioural disengagement</i>	2	2
	<i>Religious disengagement</i>	1	1
	Rumination	4	4
	Subtotal	21	22
Total		82	68

Note: * The number of retained items was calculated by adding the number of retained, revised and new items, and subtracting the deleted items.

Source: Author's own compilation

6.2.2.2 *Cognitive interviewing*

The 68-item questionnaire was subjected to a cognitive interview. As discussed in section 5.6.2.1, cognitive interviewing allows for direct input from participants on the item content, format of the instrument and understandability of the items (Irwin et al., 2009). Cognitive interviewing was thus used to further refine the instrument.

a Sampling and data collection

The cognitive interviews were conducted among a sample of 11 academics. Informed consent was obtained and the researcher explained that the purpose of the cognitive interview was to improve the instrument by identifying items that were unclear and/or difficult to answer. The participants were instructed to complete the instrument according to the instructions provided. Respondent debriefing was utilised to obtain specific information about unclear and/or difficult items. The participants were further asked to provide open-ended feedback on the clarity and comprehensibility of the instructions, the meaning of individual items, the response format and the relevance of each item. Throughout the interview, the researcher made use of cognitive probing to gain a better understanding of the participants' interpretation of the items. The participants' answers were electronically recorded on a spreadsheet.

b Data analysis

Quantitative, qualitative and/or a combination of approaches may be used to analyse cognitive interviewing data. A quantitative approach would, for example, count the frequencies of various interpretations or difficulties and rate each participant's understanding as adequate or inadequate (García, 2011). By contrast, a qualitative approach identifies patterns of problems or recurrent themes (Willis, 2005). A qualitative approach was followed, because the researcher compiled a summary of each item and respondents' comments to identify patterns or recurrent themes that needed to be addressed.

c Findings

The findings of the cognitive interviews were mostly positive. Most participants indicated that they understood what was expected of them, the instructions were clear, and the questionnaire was quick and easy to complete. Some participants, however, offered suggestions for

improving the clarity of the instructions and the individual items. The most significant suggestions and/or comments are summarised in table 6.9.

Table 6.9

Cognitive interviews: Most significant findings

<i>Instructions and general suggestions</i>	
Suggestion/comment	Action taken by researcher
One does not <i>engage in</i> coping strategies, but rather one <i>adopts</i> a coping strategy.	Revised.
Section A1: Source of occupational stress	
Question A1.1: The difference between a stressor and stressful situation is unclear.	A definition of <i>stressor</i> was added to the list of definitions.
Question A1.2: The scale should be in relation to the instruction of thinking of a recent stressful situation. A 10-point scale might be a better indication of stress experienced without being too exact.	The five-point scale was replaced with a 10-point scale; where 1 represents <i>slightly stressful</i> and 10 are <i>extremely stressful</i> .
Suggestion: Include a question to categorise the stressor explained in question A1.1. Is the stressor described in question A 1.1 thus academic, administrative or research related?	The suggestion was accepted.
Question 2.1: Instruction: To emphasise that the participant should focus on his or her specific situation, the phrase “your chosen stressful situation” should thus be in bold. Also, consider rephrasing this sentence to “Take a few minutes to think about your job-specific stressor again”.	The suggestion was accepted.
Question 2.1: Response format: A level of agreement scale is used, but the question asks one to indicate if the coping strategy was used or not. Rather use a 10-point scale or dichotomous scale.	The suggestion was rejected. A dichotomous scale would not allow for factor analysis.
Question 2.1: Items: I see three types of statements in this questionnaire: 1. Those statements that relate to action only (e.g. I socialised with my family and friends); 2. Those that deal with outcome only (e.g. I tried to make sense of the situation); and 3. Those where action and outcome are combined (e.g. [I prayed] [to get my mind off the situation]).	The items were amended to match option 1. Strategies are adopted to modulate a felt emotion in response to environmental demands.
Suggestion: Perhaps include a question after the items where participants should describe any other coping strategy that they have used to deal with the situation.	The suggestion was accepted. Another question was included where participants had to indicate the extent to which the coping strategies (items 1 to 69) helped them to cope with the stressor they identified in question A1.1 (also known as <i>coping success</i>).
Section B: Biographical information	
Question B4: Include post-matric certificate, post-matric diploma, and so forth.	The suggestion was accepted.
Question B5: Include “Other, please specify” for participants who are, for example, professors and managers.	The suggestion was accepted.

<i>Item style and comprehensibility</i>			
No.	Item	Suggestion/comment	Action taken by researcher
2.1.2	I allowed myself to express my emotions about the situation.	To whom? To a person or stressor?	Retained.
2.1.3	I somehow managed to express how I felt about the situation.	Express to whom?	Retained.
2.2.1	I realised that my feelings towards the situation were important.	What if my feelings do not matter? I just had to do it.	Retained.
3.1.1	I relied on my social support network.	Define social support network.	A definition of social support network was included in the questionnaire.
3.2.3	I sought support from my social support network.	Who is the social support network? My family and friends and colleagues are separate. I share different things with colleagues than with my partner.	Revised: "I sought support from my family and friends."
4.2.1	I engaged in sporting activities such as playing golf, tennis, squash and soccer.	There are many more sporting activities. Restrictive.	Revised: "I engaged in sporting activities."
4.2.4	I engaged in outdoor activities such as hunting, hiking, fishing and boating, camping or horseback riding.	Only use outdoor activities. The examples are restrictive.	Revised: "I engaged in outdoor activities."
4.3.1	I socialised with my family and friends.	This item is unclear. Does socialise mean like a braai?	Retained.
4.4.1	I took a vacation.	What about short getaway?	Retained.
5.3.1	I visited a place of worship.	Immediately after? Just for the purpose of the situation? That weekend?	Retained.
5.3.3	I participated in religious activities offered by the congregation.	What/who is the congregation?	Revised. "I participated in religious activities."
5.4.1	I prayed to get my mind off the situation.	What about mediation? I do not think people pray to get their mind off something, but rather to get strength to endure the situation.	New item: "I meditated." Revised: "I prayed."
6.4.1	I abused alcohol.	Rather "I used alcohol" instead of abuse. Abused make it sound like the person became drunk versus having a glass of wine to relax.	Revised: "I used alcohol."
6.4.2	I abused substances such as drugs.	Same as previous comment. Used rather than abused.	Revised: "I used substances such as drugs."
6.8.4	I continuously thought about the problem instead of finding a solution.	Yes, I thought about the problem, but I did not need to find a solution. Double-barrelled item?	Revised: "I continuously thought about the stressor."

Source: Author's own compilation

From table 6.9 it is evident that valuable input was obtained from the cognitive interviews. Not only was the researcher able to revise some of the unclear/problematic items, but the overall comprehensiveness and relevance of the questionnaire were also improved. In addition to the suggestions outlined in the table above, a question was also included to determine how the job-specific stressor that the participant identified made them feel. As discussed in the literature, an individual elicits an emotion when a stressor is appraised as a threat, challenge and/or harmful to his or her health and wellbeing. Secondly, the instructions and items were revised from “specific stressful situation” to “job-specific stressor” to eliminate ambiguity. Eight items were revised and one new item was included. Lastly, two variables were deleted from the biographical questionnaire (race, and college and department). Upon reviewing the research objectives, a conclusion was drawn that these variables did not add value to the study and were thus removed. In South Africa, the Protection of Personal Information Act 4 of 2013 further provides several principles to protect the right to privacy regarding personal information. The Act indicates several specific terms that research participants must agree to. The following one is specifically applicable to study: Information about a person’s race or ethnic origin must be necessary (Section 29(a)). The researcher could thus not justify the inclusion of items enquiring about race.

6.2.2.3 Summary

Assessing an instrument’s content validity is a critical step in enhancing its construct validity. To ensure that the instrument was content valid, a thorough literature review was conducted to generate items, which were subjected to an expert review and cognitive interviews. Expert reviews were conducted to evaluate the CVI of the individual items and the instrument, and the items that endured the expert review were subjected to cognitive interviews to further refine the instrument.

The content experts were asked to validate the items in terms of their item content, content style and comprehensiveness. The results of the expert review revealed that the reviewers were 75% in agreement that the dimensions, subdimensions and items were essential to measuring the content domain. The results further indicated that the reviewers were 87% in agreement that the item pool was clear and measurable. It was thus concluded that the IRA was acceptable. Secondly, the content validity index (CVI) of the instrument was calculated. The results revealed that 31 items had an I-CVI between 0.33 and 0.67, and had to be revised or removed from the instrument. The content validity of the instrument (S-CVI), however, yielded a score of 0.75. These results show that the content validity of the instrument was not

adequate and items had to be revised or removed to improve the validity of the instrument. Thirdly, unclear or vague items were highlighted and suggestions for improvement made. These suggestions were used to further identify items that had to be included, rephrased or removed. Lastly, of the 82 items that had been subjected to an expert review, 51 were retained, 13 revised, 18 deleted and four new items included.

Sixty-eight (68) items were subjected to a cognitive interview. The findings of the interviews revealed that the instructions were clear and the questionnaire was easy and quick to complete. However, suggestions for improvement were made. Consequently, eight items were revised and one new item was included. Sixty-nine (69) items were included in the final construct measure of coping with occupational stress. Figure 6.1 summarises the item development and selection process.

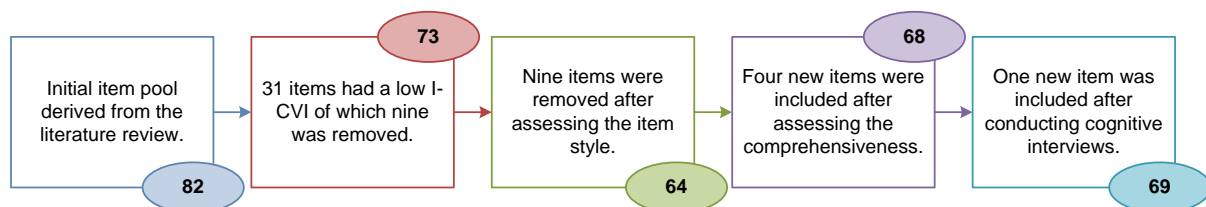


Figure 6.1. Item development and selection process

Source: Author's own compilation

6.2.3 Instrument purification

6.2.3.1 Pilot test

The questionnaire consisting of 69 items was administered by paper and pencil to a sample of academics ($n = 30$) that was representative of the actual population. The purpose of the pilot study was to (1) provide insight into unclear or misleading items; (2) determine whether the instrument's theoretical framework was measuring the intended dimensions; (3) determine whether items should be included or removed before final testing; and (4) to test for evidence of reliability.

a Preliminary results of the pilot study

Several respondents still expressed concern about the meaning of the concept "social support network". Respondents indicated that their social support network at home differed from their network in the workplace. However, the researcher decided to retain the items. According to

previous research, social support comes from a variety of sources, such as family, friends, partners, and co-workers or colleagues (Friedman, 2011; Gottlieb & Bergen, 2010). If the items had been revised to include only co-workers or colleagues, they would have become restrictive. A comprehensive definition of “social support network” was thus included in the questionnaire.

The internal consistency and item reliability for the respective dimensions of the instrument were calculated. The Cronbach alpha coefficients for each dimension and the mean inter-item correlations are reported in table 6.10. As discussed in section 5.6.7 and outlined in table 5.9, a large Cronbach alpha provides an indication of a strong item covariance. This means that the higher the Cronbach alpha, the more reliable the item or instrument is. Conversely, inter-item correlation examines the extent to which scores on one item are related to scores on the other items in the scale (Piedmont, 2014). It provides an assessment of item redundancy (Cohen & Swerdlik, 2005). Ideally, the average inter-item correlation for a set of items should be between 0.20 and 0.40, suggesting that while the items are reasonably homogeneous, they do not contain unique variance to not be isomorphic with each other (Piedmont, 2014). Thus, when values are 0.20 and lower, the items are not representative of the same content domain. If values are greater than 0.40, the items may only capture a small bandwidth of the construct.

Table 6.10

Cronbach alpha values and inter-item correlations for the pilot study per dimension

<i>Dimension</i>	<i>Number of items</i>	<i>Cronbach alpha</i>	<i>Mean inter-item correlations</i>
Cognitive coping	15	0.78	0.23
Emotional coping	4	0.75	0.44
Social support coping	7	0.93	0.63
Leisure coping	11	0.73	0.22
Religious coping	10	0.83	0.38
Experiential avoidance coping	22	0.91	0.34
Total	69		

Source: Author’s own compilation

The Cronbach alpha values of the six dimensions were higher than 0.70 (Hinkin, 1998; DeVellis, 2012), which indicated a strong item covariance. The Cronbach alpha values of the pilot study were considered adequate for the purposes of the current study.

The inter-item correlation mean scores for the cognitive (0.23), leisure (0.22), religion (0.38) and experiential avoidance (0.34) coping dimensions fell within the suggested threshold of

0.20 and 0.40. However, the emotional (0.44) and social support (0.63) coping dimensions fell above the 0.40 suggested threshold, which suggests that the items might have only captured a small bandwidth of the construct (Cohen & Swerdlik, 2005).

It was concluded that the items measured the proposed dimensions outlined in chapter 4. The psychometric properties of the instrument were deemed acceptable as per the discussion above.

6.2.4 Administration of the instrument

The instrument was administered via a self-administered, online questionnaire to a diverse group of adults who were permanently employed in a higher education institution in the Gauteng Province of South Africa (N = 4 016). A non-probability convenience sample of 305 usable questionnaires was returned, yielding a response rate of 7.6%. The sample size generated (n = 305) was considered an important characteristic of this empirical study. More specifically, a sufficient sample size contributed towards data stability and enhanced the power of analysis when conducting significant testing. The profile of the sample is described according to the following demographic variables: age, gender, highest qualification, job level and years of experience in higher education (job tenure). The composition of the sample (n = 305) is presented in table 6.11 and discussed below.

Table 6.11

Composition of the sample (n = 305)

<i>Variable</i>	<i>Category</i>	<i>Frequency</i>	<i>Percentage (%)</i>	<i>Cumulative percentage</i>
Age	25–39	98	32.1	32.1
	40–55	135	44.3	76.4
	56–65	72	23.6	100.0
	Total	305	100.0	
Gender	Male	109	35.7	35.7
	Female	196	64.3	100.0
	Total	305	100.0	
Highest qualification	Grade 12/higher certificate/ diploma	36	11.8	11.8
	Bachelor's degree	20	6.6	18.4
	Honours degree	35	11.5	29.8
	Master's degree	109	35.7	65.6
	Doctoral degree	105	34.4	100.0
	Total	305	100.0	
Job level	Academic support staff	104	34.1	34.1
	Junior lecturer	16	5.2	39.3

<i>Variable</i>	<i>Category</i>	<i>Frequency</i>	<i>Percentage (%)</i>	<i>Cumulative percentage</i>
	Lecturer	74	24.3	63.6
	Senior lecturer	65	21.3	84.9
	Associate professor	21	6.9	91.8
	Professor	25	8.2	100.0
	Total	305	100.0	
Tenure	1–9 years	116	38.0	38.0
	10 years +	189	62.0	100.0
	Total	305	100.0	

Table 6.11 indicates that 98 (32.1%) respondents were between the ages of 25 and 39, and 72 (23.6%) between the ages of 56 and 65. Although the distribution of the different age categories was fairly even, there was a peak at the 40 to 55 age group (44.3%). The median age of the sample was 45.5 years. Of the participants, 196 (64.3%) were females and 109 (35.7%) males. The majority (81.6%) of the sample had obtained a postgraduate qualification. Of the sample, 34.4% had obtained a doctoral degree, 35.7% a master's degree and 11.5% an honours degree. A small portion had obtained a bachelor's degree (6.6%), or a diploma, higher certificate or matric certificate (11.8%). Overall, the sample consisted predominantly of participants who had completed their doctoral and master's degrees. The distribution of the sample further shows that 34.1% of the sample were employed as academic support staff and 65.9% as academics. The academic component comprised 16 (5.2%) junior lecturers, 74 (24.3%) lecturers, 65 (21.3%) senior lecturers, 21 (6.9%) associate professors and 25 (8.2%) professors. Overall, the sample consisted predominantly of academics who were employed as lecturers and senior lecturers. Lastly, the sample consisted of participants who had predominantly been employed for ten years or more (62.0%), while 38.0% had been employed for between one and nine years.

In summary, the biographical profile obtained indicates that the sample of 305 participants were predominantly female (64.3%) academics (65.9%) with a median age of 45.5 who had been employed in the higher education sector for more than ten years (62.0%). These academics were further employed as either lecturers (24.3%) or senior lectures (21.3%) who had obtained a master's (35.7%) or doctoral (34.4%) degree.

A sample size of 305 was used to further optimise the instrument and for further analysis.

6.2.5 Preparing the data for analysis

The first phase in the data analysis process involves cleaning and organising the data. The three steps outlined in section 5.6.5 were followed to prepare the data for analysis.

The data was reviewed to ensure that all the questions were answered and the items rated. Since there were no missing values, the data was deemed complete and sufficient for analysis. Next, the frequency statistics for each of the items were calculated and these were scrutinised in terms of minimum and maximum values as well as means and standard deviations. These calculations were conducted to determine if there were any outliers. Outliers in this study were detected by visually examining the box plots of standardised normal scores for each item. No outliers were detected.

The data was further scrutinised for unresponsive and unengaged responses. No cases were identified that showed no variation across the items. In other words, there were no items with a standard deviation of zero or below 0.5 (min = 0.53). All the responses were thus included for further analysis.

Lastly, the data were assessed for normality and kurtosis. The ratios of kurtosis were reviewed against the standard error of the kurtosis, and all ratios larger than three were identified and the distribution of responses inspected. Overall, the data was deemed within acceptable limits of deviations, except for two items that showed excessive ratios of 68.01 (item 55) and 21.89 (item 64). These items were further assessed in terms of face and/or construct validity and appropriateness. Although a decision was made to retain the items for further analysis, it was anticipated that these items would be deleted from the instrument. In addition, given the fact that the sample size was considered large ($n > 100$), the underlying sampling distribution was deemed to be normally distributed in line with the central limit theorem (Field, 2009).

6.2.6 Optimising the instrument

The statistical processes explained below were used to evaluate the performance of the individual items and to further refine the instrument.

6.2.6.1 *Exploratory factor analysis (EFA)*

EFA is used to reduce a large number of items into smaller sets of factors. For the purposes of the current study, EFA was conducted to (1) explore the underlying dimensionality of the items; and to (2) further refine the instrument. EFA therefore allows the researcher to identify items that do not measure a proposed dimension or items that are multidimensional. These items should be removed from the instrument because they are poor indicators of the construct under investigation. The process proposed by Hair et al. (2010) (discussed in section 5.6.6.1) was followed in this study.

a EFA of the 69-item instrument

Prior to factor extraction, the following tests were performed to assess the data's suitability for factor analysis:

i Sample size

Firstly, the sample size of 305 was in accordance with the guidelines established by DeVellis (2012), Tabachnick and Fidell (2013) and Worthington and Whittaker (2006), in that a sample size of at least 300 is sufficient for factor analysis and developing instruments (Barry et al., 2011).

ii Factorability of the correlation matrix

Secondly, the strength of the intercorrelations among the items were determined by assessing the factorability of the correlation matrix. The visual inspection of the correlation matrix revealed evidence of coefficients equal to or greater than 0.30 (Hair et al., 2010; Tabachnick & Fidell, 2013). It was concluded that factor analysis was appropriate for the current study.

iii Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity

Thirdly, KMO and Bartlett's test for sphericity were used to assess the adequacy of the correlation matrices for factor analysis (Lance, Butts, & Michels, 2006). As indicated in table 6.12, a statistically significant Bartlett's test for sphericity ($p \leq 0.05$) showed that significant correlations existed among the items to proceed with a factor analysis. The KMO measure of

sample adequacy of 0.845, which was well above the guideline of 0.60 (Tabachnick & Fidell, 2013), confirmed that the overall significance of the correlations within the correlation matrix was suitable for factor analysis.

Table 6.12

KMO and Bartlett's test results (69 items)

Kaiser-Meyer-Olkin measure of sampling		0.845
Bartlett's test of sphericity	Approx. chi-square	12824.088
	Df	2346
	Sig.	0.000

In the EFA, the responses to the 69 items were correlated and rotated using maximum-likelihood extraction with oblique rotation (promax). An initial analysis was conducted to obtain the cumulative percentage of variance, eigenvalues for each factor (Kaiser's criterion) and a scree plot to determine the number of factors to retain for rotation.

The scree plot and parallel analysis in figure 6.2 indicate that 15 significant factors from the originally defined six dimensions could be identified from the 69 items. The scree plot begins to level out after the fifteenth eigenvalue, explaining 67.54% of the total variance (see table 6.13). The total variance explained is in accordance with the guidelines established by Hair et al. (2010), namely that a solution that accounts for 60% of the total variance, was satisfactory.

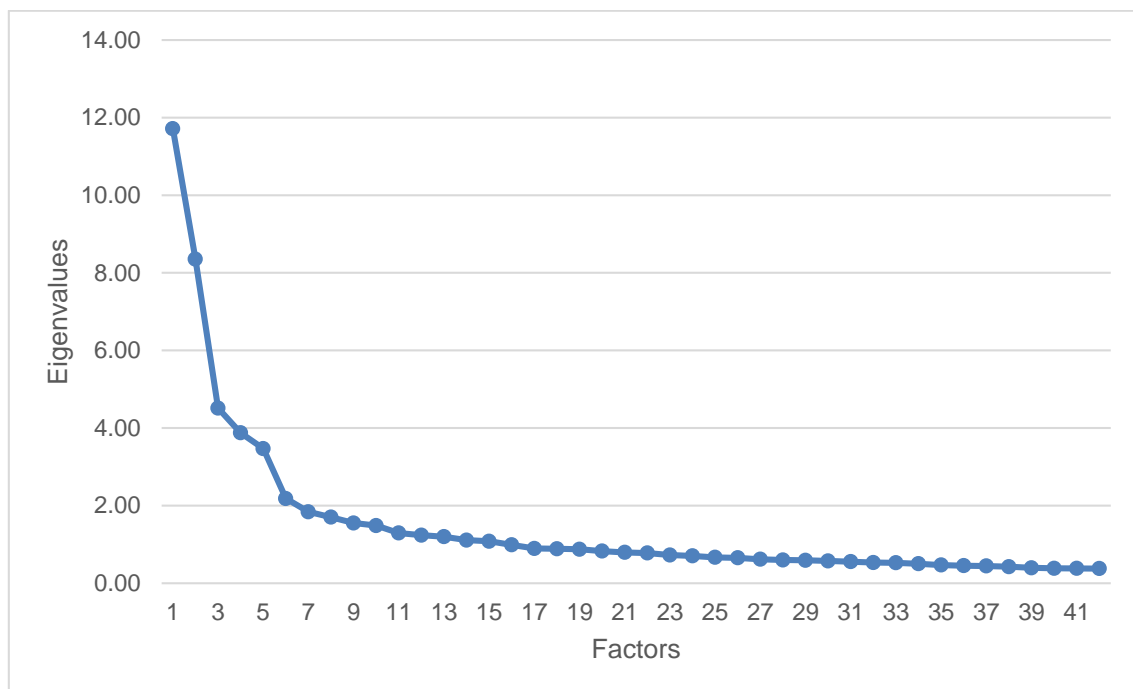


Figure 6.2. Scree plot for 69 items

Table 6.13

Total variance explained for the 69 items

Factor	Initial eigenvalues			Factor	Initial eigenvalues		
	Total	% of variance	Cumulative %		Total	% of variance	Cumulative %
1	11.714	16.977	16.977	36	0.452	0.655	88.124
2	8.352	12.104	29.082	37	0.443	0.642	88.767
3	4.513	6.541	35.622	38	0.424	0.614	89.381
4	3.875	5.616	41.239	39	0.396	0.574	89.955
5	3.468	5.026	46.265	40	0.383	0.555	90.510
6	2.181	3.161	49.426	41	0.382	0.553	91.063
7	1.840	2.667	52.094	42	0.376	0.546	91.609
8	1.701	2.466	54.559	43	0.356	0.516	92.125
9	1.550	2.246	56.805	44	0.342	0.496	92.621
10	1.485	2.151	58.957	45	0.333	0.483	93.103
11	1.294	1.875	60.832	46	0.316	0.457	93.561
12	1.238	1.794	62.626	47	0.307	0.445	94.006
13	1.198	1.737	64.363	48	0.295	0.427	94.433
14	1.111	1.609	65.972	49	0.291	0.422	94.855
15	1.080	1.565	67.538	50	0.273	0.396	95.250
16	0.988	1.431	68.969	51	0.267	0.386	95.637
17	0.896	1.299	70.267	52	0.259	0.375	96.012
18	0.888	1.286	71.554	53	0.245	0.355	96.367
19	0.874	1.267	72.821	54	0.237	0.344	96.711
20	0.827	1.198	74.019	55	0.235	0.341	97.052
21	0.795	1.152	75.171	56	0.210	0.304	97.356
22	0.778	1.128	76.299	57	0.200	0.289	97.645
23	0.725	1.050	77.349	58	0.188	0.272	97.917
24	0.704	1.020	78.369	59	0.177	0.256	98.173
25	0.666	0.965	79.334	60	0.167	0.241	98.414
26	0.655	0.949	80.283	61	0.162	0.235	98.649
27	0.617	0.894	81.177	62	0.152	0.220	98.870
28	0.599	0.867	82.044	63	0.144	0.209	99.078
29	0.589	0.854	82.899	64	0.127	0.183	99.262
30	0.572	0.830	83.728	65	0.123	0.179	99.440
31	0.555	0.804	84.533	66	0.112	0.162	99.602
32	0.531	0.770	85.303	67	0.099	0.143	99.745
33	0.526	0.762	86.065	68	0.095	0.138	99.883
34	0.502	0.727	86.792	69	0.081	0.117	100.000
35	0.468	0.678	87.470				

Note: Extraction method: Maximum likelihood

The rotated pattern matrix for the 69-item instrument is summarised in table 6.14. The promax with Kaiser normalisation rotation with 15 factors explained 67.54% of the variance.

Table 6.14

Rotated pattern matrix for the 15-factor model

Item nr.	Factor														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
v57	0.921														
v62	0.769														
v65	0.697														
v34	0.688														
v54	0.688														
v46	0.643														
v26	0.587														
v7	0.528														
v61	0.453													0.412	
v50	0.439												- 0.352		
v1	0.379														
v15	0.321														
v48		0.868													
v41		0.861													
v53		0.835													
v21		0.812													
v30		0.808													
v40		0.751													
v11		0.737												- 0.318	
v4		0.636												- 0.507	
v67		0.429													
v69															
v17			0.977												
v9			0.882												
v59			0.880												
v28			0.854												
v2			0.712												
v36			0.662												
v47			0.630												
v3			0.493												
v63				0.807											
v23				0.774											
v32				0.762											
v56				0.547											
v64				0.528											
v43				0.519											
v68				0.447											
v29					0.942										
v37					0.936										
v19					0.825										

Item nr.	Factor														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
v18					0.568										0.506
v22						0.776									
v42						0.773									
v12						0.614									
v44						0.570									
v5						0.455									
v39							0.940								
v20							0.860								
v51							0.766								
v45								0.753							
v33								0.604							
v60								0.600							
v14								0.459							
v24	0.303							- 0.366							
v35									0.650						
v27									0.485						
v6									0.443						
v8										0.635					
v16										0.616					
v66															
v49											0.669				
v31											0.604				
v52												0.743			
v58												0.353			
v55													0.463		
v13													0.369		
v38													0.325		
v10															0.549
v25															0.330

Note: Extraction method: Maximum likelihood.
Rotation method: Promax with Kaiser normalisation.^a
^a. Rotation converged in 16 iterations.

When compared to the dimensions proposed in chapter 4, the results of the initial EFA clearly overestimated the number of factors for the dataset. Therefore, in the first round of EFA on the 15-factor model, items with low factor loadings (≤ 0.35) as well as high cross-loadings (less than 0.20 difference) in each factor were removed (Hair et al., 2010). Only 42 items were retained, which were subjected to a second round of EFA. This constituted an item reduction exercise because the items that were considered insignificant to the underlying dimensions were removed.

Cognitive coping items

Although 17 items and five subdimensions were written to capture the dimension of cognitive coping, only eight items survived the stages of scale development. The items that were removed either cross-loaded or loaded on factors that were theoretically inconsistent with the dimension. Two items (v15 and v24) from the *cognitive restructuring* subdimension, for example, obtained factor loadings below 0.35 and one item (v6) cross-loaded with items that measured *emotional coping*. Cognitive restructuring, as explained in chapter 4, allows individuals to become aware of their own thoughts and through thought reorganisation change how they think about a stressor. It might be that the respondents in the sample were not conditioned to investigate and develop a habit to slow down their thinking process and/or they did not have time to change how they think about a stressor. Items such as “I accepted that the stressor had to be dealt with” (*acceptance*; v1) and “I questioned aspects of the stressor that did not make sense” (*critical thinking*; v25) were also removed because they obtained loadings below 0.35. The conclusion could be drawn that the respondents preferred to adopt coping strategies that required an action, such as focusing on solving the problem (factor loading = 0.807), developing a plan of action (factor loading = 0.799) and considering various options to find a solution (factor loading = 0.709).

Emotional coping items

Two subdimensions with two items each were developed to measure emotional coping, but only one subdimension (*emotional expression*) survived the EFA. The two items (v27 and v35), which theoretically measured the proposed subdimension of *emotional processing* were removed because they cross-loaded with items that measured cognitive and religious coping. *Emotional processing*, as discussed in chapter 4, was defined as an emotional approach to coping, in which individuals attempt to identify and think about their emotions in relation to a stressful event. The conclusion was drawn that the respondents in the sample were not interested in processing their emotions, but rather expressing how they felt about the specific occupational stressor.

Social support coping items

One item (v66) that was designed to measure *social support coping* was removed, because it cross-loaded with items that measured cognitive and religious coping.

Leisure coping items

In the 15-factor solution, three (v10, v38 and v58) of the 11 leisure coping items cross-loaded over four different factors. For example, “I attended a social function or party to interact with

people” (v38) cross-loaded strongly with *social support coping*. It could be concluded that the respondents in the sample might have regarded a social function or interaction with people as a form of social support (network support) that affirms the individual’s belongingness to a group (Mattson & Gibb Hall, 2011). These items were removed because they were considered theoretically inconsistent with the proposed dimension.

Religious coping items

During the cognitive interviews, a suggestion was made to revise the item “I prayed to get my mind off the situation” and to add “I meditated” (v67) to the *non-organisational religious coping* subdimension. Although these items theoretically measured religious coping, they cross-loaded on other factors or loaded on dimensions that were theoretically inconsistent with the factor. These items (v4 and v67) were removed.

Experiential avoidance coping items

Of the 22 items and eight subdimensions that were developed to measure experiential avoidance, only 10 items and six subdimensions survived the stages of scale development. Either the items that were removed obtained low factor loadings (≤ 0.35) or loaded on dimensions that were theoretically inconsistent with the dimension.

- The six items (v13, v43, v55, v64, v68 and v69) that constituted the *self-destructive behaviour* subdimension were removed, because they obtained factor loadings below 0.35. Self-destructive behaviour, according to Nolen-Hoeksema et al. (2008), is a maladaptive coping strategy that individuals adopt to redirect their attention away from a stressor and includes behaviours such as reckless driving, excessive drinking, drug abuse or aggressive behaviour. It was concluded that the respondents either did not adopt self-destructive behaviour as a mechanism of coping with occupational stress (the mean for the subdimension was 1.94), or the items were of such a sensitive nature that the respondents answered the question dishonestly even though anonymity and confidentiality were assured. According to De Schrijver (2012), respondents answer questions dishonestly because of socially desirable and socially undesirable behaviour. Socially undesirable behaviour is often under-reported and includes behaviour such as the use of substances and alcohol consumption.
- One item (v14) of the *ruminatation* subdimension was removed because it obtained factor loadings below 0.35. Upon reviewing the face validity of the item, the researcher realised that it was a double-barrelled item (“I thought about what had caused the stressor instead of finding a solution”). The item therefore touched on more than one issue, but only

allowed for one answer (Babbie & Benaquisto, 2009). This may have resulted in inaccuracies in the construct being measured.

- The following items were removed because they obtained factor loadings below 0.35 or either cross-loaded or loaded on dimensions that were theoretically inconsistent with the dimension: v31 and v49, which constituted the *expressive suppression* subdimension; v52 of the *thought suppression* subdimension; and v5 (*behavioural disengagement*) and v56 (*religious disengagement*) of the *avoidant* subdimension. The conclusion was drawn that the respondents in the sample were not interested in suppressing their emotions and thoughts, but rather in expressing how they felt about a specific stressor.

In summary, after the initial EFA, only 42 items were retained that were subjected to further analysis.

b EFA of the 42-item instrument

The EFA process proposed by Hair et al. (2010) was repeated to further refine the instrument. The factorability of the correlation matrix was assessed. The visual inspection of the correlation matrix revealed evidence of coefficients equal to or greater than 0.30 (Hair et al., 2010; Tabachnick & Fidell, 2013). Bartlett's test of sphericity ($p \leq 0.05$) and the KMO measure of sample adequacy (0.859) confirmed that the overall significance of the correlations within the correlation matrix was suitable for factor analysis. The results of Bartlett's test of sphericity and the KMO measure of sample adequacy are summarised in table 6.15.

Table 6.15

KMO and Bartlett's test results (42 items)

Kaiser-Meyer-Olkin measure of sampling		0.859
Bartlett's test of sphericity	Approx. chi-square	8189.224
	Df	861
	Sig.	0.000

Principal axis factoring (PAF) with oblique rotation (promax) was conducted on the 42-item instrument. An initial analysis was conducted to obtain the cumulative percentage of variance, eigenvalues for each factor (Kaiser's criterion) and a scree plot to determine the number of factors to retain for rotation.

The scree plot and parallel analysis in figure 6.3 indicated that nine significant factors from the originally defined six dimensions could be identified from the 42 items. The scree plot begins

to level out after the ninth factor. The eigenvalues and variance explained in table 6.16 indicate that the first five factors (eigenvalues ≥ 2.0) explain 57.27% of the total variance. The sixth, seventh, eighth and ninth factors had eigenvalues just over one and explained 13.11% of the total variance. The nine significant factors explained 70.38% of the total variance, which is in accordance with the guidelines established by Hair et al. (2010), namely that a solution that accounts for 60% of the total variance is satisfactory. The nine-factor solution was preferred because (1) of the theoretical support offered by existing literature; (2) the minimum cumulative percentage of variance explained was higher than 60% (Plonsky & Gonulal, 2015); (3) the nine factors' eigenvalues were greater than 1.0; and (4) the scree plot started decreasing and straightened after the ninth factor.

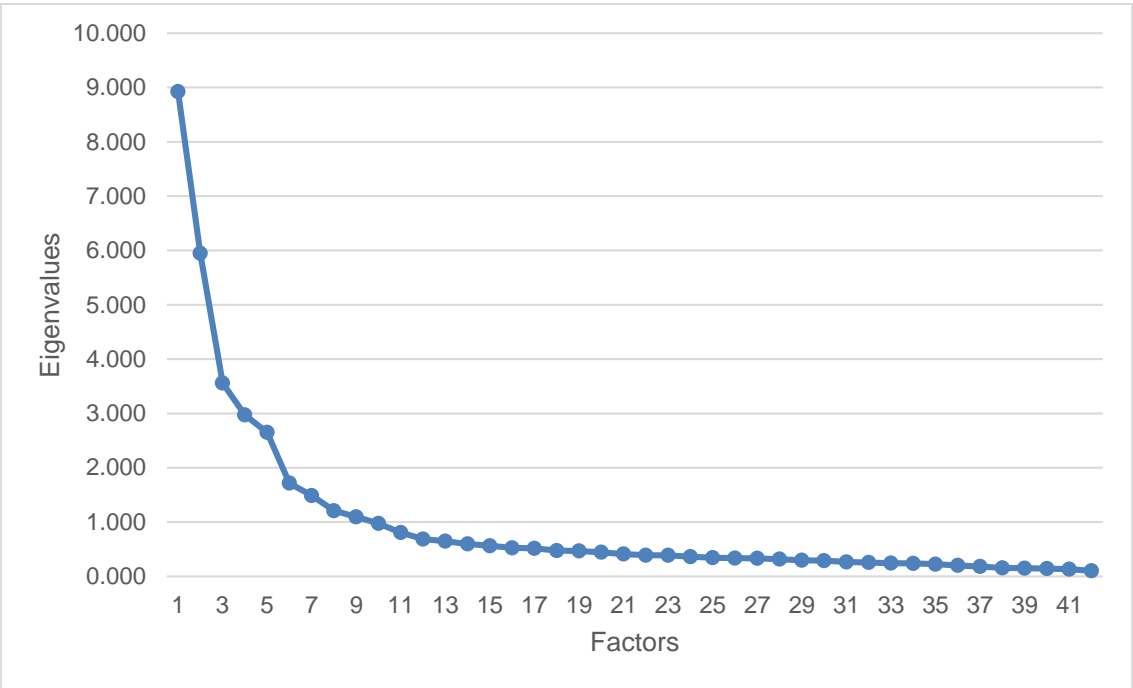


Figure 6.3. Scree plot for the 42 items

Table 6.16

Total variance explained for the 42 items

Factor	Initial eigenvalues		
	Total	% of variance	Cumulative %
1	8.926	21.251	21.251
2	5.948	14.161	35.413
3	3.558	8.471	43.884
4	2.971	7.075	50.958
5	2.650	6.310	57.268
6	1.716	4.087	61.355
7	1.488	3.543	64.897

Factor	Initial eigenvalues		
	Total	% of variance	Cumulative %
8	1.208	2.876	67.773
9	1.095	2.608	70.381
10	0.974	2.319	72.699
11	0.806	1.919	74.619
12	0.686	1.633	76.252
13	0.646	1.538	77.789
14	0.597	1.421	79.211
15	0.563	1.340	80.550
16	0.524	1.248	81.798
17	0.515	1.227	83.025
18	0.474	1.129	84.154
19	0.466	1.110	85.264
20	0.443	1.054	86.318
21	0.411	0.977	87.296
22	0.389	0.927	88.223
23	0.388	0.923	89.146
24	0.362	0.862	90.008
25	0.343	0.816	90.824
26	0.335	0.797	91.622
27	0.331	0.788	92.409
28	0.316	0.753	93.162
29	0.296	0.704	93.866
30	0.289	0.687	94.553
31	0.265	0.631	95.184
32	0.255	0.606	95.790
33	0.242	0.577	96.367
34	0.239	0.568	96.935
35	0.224	0.533	97.468
36	0.201	0.478	97.947
37	0.181	0.432	98.379
38	0.156	0.372	98.750
39	0.149	0.356	99.106
40	0.143	0.341	99.447
41	0.132	0.314	99.761
42	0.101	0.239	100.000

Note: Extraction method: Principal axis factoring

A promax with Kaiser normalisation rotation provided the best-defined factor structure, with nine factors explaining 70.38% of the variance. All the items had factor loadings of 0.40 and higher, indicating the significance of these items for interpretative purposes. The rotated pattern matrix for the 42-item instrument is summarised in table 6.17.

Table 6.17

Rotated pattern matrix for the nine-factor model

Item no.	Factor								
	1	2	3	4	5	6	7	8	9
v17	0.933								
v28	0.889								
v59	0.830								
v9	0.818								
v2	0.703								
v36	0.699								
v47	0.636								
v3	0.526								
v21		0.857							
v30		0.837							
v53		0.834							
v48		0.817							
v41		0.802							
v11		0.778							
v40		0.757							
v57			0.816						
v62			0.810						
v65			0.746						
v54			0.683						
v34			0.674						
v46			0.626						
v61			0.557						
v26			0.549						
v29				0.866					
v19				0.858					
v37				0.856					
v18				0.652					
v42					0.768				
v22					0.746				
v12					0.705				
v44					0.566				
v32						0.833			
v63						0.748			
v23						0.742			
v39							0.857		
v20							0.797		
v51							0.772		
v45								0.770	
v60								0.670	
v33								0.632	
v8									0.762
v16									0.592

Note: Extraction method: Principal axis factoring.
Rotation method: Promax with Kaiser normalisation^a.
^a. Rotation converged in 7 iterations.

Eight items loaded on factor 1, seven on factor 2, eight on factor 3, four on factor 4, four on factor 5, three on factor 6, three on factor 7, three on factor 8 and two on factor 9. The factors were labelled according to the content of their significant related items. The nine factors of the instrument were labelled as follow:

- Factor 1:** Social support coping (SOC)
- Factor 2:** Religious coping (REL)
- Factor 3:** Cognitive coping (COG)
- Factor 4:** Active leisure coping (ACT LEI)
- Factor 5:** Avoidant coping (AVOID)
- Factor 6:** Social disengagement (SOC DIS)
- Factor 7:** Vacation time (VAC TIME)
- Factor 8:** Rumination (RUM)
- Factor 9:** Emotional coping (EMO)

The factor correlation matrix summarised in table 6.18 shows low or weak correlations (between 0.30 and 0.50) between the factors. One could thus conclude that the factors are not interrelated (Hair et al. 2010). Factors 5 (*avoidant coping*; $R = 0.451$) and 6 (*social disengagement*; $R = 0.458$), however moderately correlated with factor 8 (*rumination*), indicating that these constructs were interrelated. Similarly, factor 4 (*active leisure coping*; $R = 0.419$) moderately correlated with factor 7 (*vacation time*).

Table 6.18
Factor correlation matrix for the nine-factor model

Factor	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7	Factor 8	Factor 9
Factor 1	1.000								
Factor 2	0.385	1.000							
Factor 3	0.201	0.074	1.000						
Factor 4	0.348	0.398	0.124	1.000					
Factor 5	-0.020	0.129	-0.432	-0.032	1.000				
Factor 6	-0.179	-0.042	-0.211	-0.106	0.370	1.000			
Factor 7	0.253	0.302	0.049	0.419	0.173	-0.007	1.000		
Factor 8	0.055	-0.105	-0.210	-0.123	0.451	0.458	0.037	1.000	
Factor 9	0.387	0.143	0.415	0.169	-0.226	-0.216	0.036	-0.249	1.000

Note: Extraction method: Principal axis factoring.

Evidence of internal consistency is provided in table 6.19. In this study, reliability was calculated using Cronbach alpha estimates. The 42-item instrument obtained a Cronbach alpha coefficient of 0.87 (high), which was deemed adequate for the purposes of the current study (Hair et al., 2010). Alphas for each subscale were satisfactory, ranging between 0.71 and 0.93, and well above the absolute minimum of 0.70 (DeVellis, 2012).

Table 6.19
Cronbach alpha estimates for the 42-item instrument

	<i>Correlated item-total correlation</i>	<i>Cronbach alpha if item deleted</i>
Factor 1: Social support coping (SOC)		
v2	0.65	0.91
v3	0.57	0.92
v9	0.76	0.91
v17	0.83	0.90
v28	0.82	0.90
v36	0.72	0.91
v47	0.70	0.91
v59	0.79	0.90
Scale reliability:	0.92	
Factor 2: Religious coping (REL)		
v11	0.74	0.92
v21	0.84	0.91
v30	0.80	0.92
v40	0.75	0.92
v41	0.82	0.92
v48	0.70	0.93
v53	0.81	0.92
Scale reliability:	0.93	
Factor 3: Cognitive coping (COG)		
v26	0.59	0.86
v34	0.58	0.86
v46	0.66	0.85
v54	0.64	0.86
v57	0.73	0.85
v61	0.49	0.87
v62	0.78	0.84
v65	0.60	0.86
Scale reliability:	0.87	

	<i>Correlated item-total correlation</i>	<i>Cronbach alpha if item deleted</i>
Factor 4: Active leisure coping (ACT LEI)		
v18	0.65	0.88
v19	0.80	0.83
v29	0.77	0.84
v37	0.77	0.84
Scale reliability	0.88	
Factor 5: Avoidant coping (AVOID)		
v12	0.67	0.74
v22	0.58	0.79
v42	0.61	0.77
v44	0.66	0.75
Scale reliability:	0.81	
Factor 6: Social disengagement (SOC DIS)		
v23	0.71	0.79
v32	0.74	0.76
v63	0.70	0.80
Scale reliability:	0.85	
Factor 7: Vacation time (VAC TIME)		
v20	0.72	0.81
v39	0.77	0.77
v51	0.70	0.83
Scale reliability:	0.86	
Factor 8: Rumination (RUM)		
v33	0.53	0.77
v45	0.63	0.65
v60	0.65	0.64
Scale reliability:	0.77	
Factor 9: Emotional coping		
v8	0.56	-
v16	0.56	-
Scale reliability:	0.71	
Total scale reliability:	0.87	

In summary, EFA was used to explore the underlying dimensionality of the items and to further refine the instrument. The data's suitability for EFA was determined and it was concluded that EFA was appropriate for the current study. An initial analysis of the 69-item instrument resulted

in 15 significant factors that explained 67.54% of the total variance. However, it was concluded that the results of the initial EFA overestimated the number of factors in the dataset. Consequently, 27 items with low factor loadings (≤ 0.35) as well as high cross-loadings (less than 0.20 difference) in each factor were removed. The remaining 42 items were subjected to a second round of EFA. Through principal axis factoring with oblique rotation (promax), nine significant factors that explained 70.38% of the total variance were extracted. The nine-factor solution was preferred, because

- (1) of the theoretical support offered by existing literature
- (2) the minimum cumulative percentage of variance explained was higher than 60% (Plonsky & Gonulal, 2015)
- (3) the nine factors' eigenvalues were greater than 1.0 (Yong & Pearce, 2013)
- (4) the correlation matrix showed low or weak correlations between the factors
- (5) the 42-item instrument obtained a Cronbach alpha coefficient of 0.87, which was above the absolute minimum of 0.70 (DeVellis, 2012).

The 42-item instrument was subjected to confirmatory factor analysis.

6.2.6.2 Confirmatory factor analysis (CFA)

CFA was used to (1) confirm the factor structure outlined in section 6.2.6.1; (2) obtain the final estimates for the model parameters; (3) examine the nature of and relations between the latent constructs; and (4) assess the internal consistency of the instrument.

The original model for the nine dimensions underlying the Coping Strategies Questionnaire is depicted in table 6.20 and figure 6.4, respectively. Table 6.21 further outlines the standard regression weights (or factor loadings) between the nine coping strategies and the individual items, as well as the correlations between the coping strategies.

Table 6.20

Model fit for the original model (42 items)

<i>Goodness of fit (GOF) statistic</i>	<i>Original model</i>	<i>Prescribed threshold</i>
Absolute fit indices		
Chi-square (CMIN)	1808.927	
Degrees of freedom (DF)	783	
Chi-square/df (CMIN/DF)	2.31	< 3 = Good < 5 = Sometimes permissible
Goodness-of-fit index (GFI)	0.78	> 0.90

<i>Goodness of fit (GOF) statistic</i>	<i>Original model</i>	<i>Prescribed threshold</i>
Adjusted goodness-of-fit index (AGFI)	0.75	> 0.90
Root mean square error of approximation (RMSEA)	0.07	≤ 0.06
Root mean square residual (RMR)	0.16	< 0.02
Standardised root mean square residual (SRMR)	0.69	≤ 0.08
PCLOSE	0.000	< 0.05
Relative fit indices		
Normed fit index (NFI)	0.79	≥ 0.90
Relative fit index (RFI)	0.77	≥ 0.90
Tucker Lewis index (TLI)	0.85	≥ 0.90
Comparative fit index (CFI)	0.87	> 0.95 = Great > 0.90 = Traditional > 0.80 = Sometimes permissible

Source: Author's own compilation

The results in table 6.20 provide an overview of the model fit, which includes the CMIN value (1808.93), together with its degrees of freedom (783) and probability value (0.00). In SEM, a relatively small chi-square value (CMIN) supported the proposed theoretical model being tested. In the original model, the CMIN value was 1808.93 and was small compared to the value of the independence model (8609.31). Hence, the CMIN value was good.

Although the CMIN value appeared to be good, it was also deemed appropriate to assess the CMIN/DF value, because the CMIN value is sensitive to sample sizes (Garson, 2002). Hence, the CMIN/DF value is suggested as a better fit metric (Bentler & Bonett, 1980). It is recommended that this metric not exceed five for models with good fit (Bentler, 1989). For the current model, as shown in table 6.20, the CMIN/DF value was 2.31, suggesting an acceptable fit (CMIN/DF ≤ 5.0).

The goodness-of-fit index (GFI) obtained was 0.78 as against the recommended value of above 0.90, and the adjusted goodness-of-fit index (AGFI) was 0.75 as against the recommended value of above 0.90. The normed fit index (NFI), relative fit index (RFI), comparative fit index (CFI), and Tucker Lewis index (TLI) were 0.79, 0.77, 0.87 and 0.85, respectively, compared to the recommended level of above 0.90.

RMSEA was 0.07, which was above the recommended limit of 0.06, and the root mean square residual (RMR) also above the recommended threshold of 0.02 at 0.16. The model therefore explained the correlation within an average error of 0.16 (Hu & Bentler, 1990). Hence, the

original model indicated a mediocre to poor fit. There was thus a significant discrepancy between the correlations proposed and the correlations observed. The theorised model therefore did not fit well with the observed data.

The modification indices were assessed to remedy the discrepancies between the proposed and estimated model. Modifications provide important diagnostic information about the potential cross-loadings that could exist if specified. The size of the modification index determines if a relevant parameter should be revised. Hair et al. (2010), however, advise against making model changes based solely on the modification indices. The standardised residual covariances (SRCs) were therefore assessed to identify item pairs for which the specified measurement model did not accurately predict the observed covariance between those two items. Residuals greater than 2.5 suggested an unacceptable degree of error and resulted in the deletion of items (Field, 2016). Nine additional items (v61, v22, v54, v3, v33, v36, v47, v18 and v11) with residuals equal to or greater than 2.5 were removed to account for the correlations between variables in the dataset.

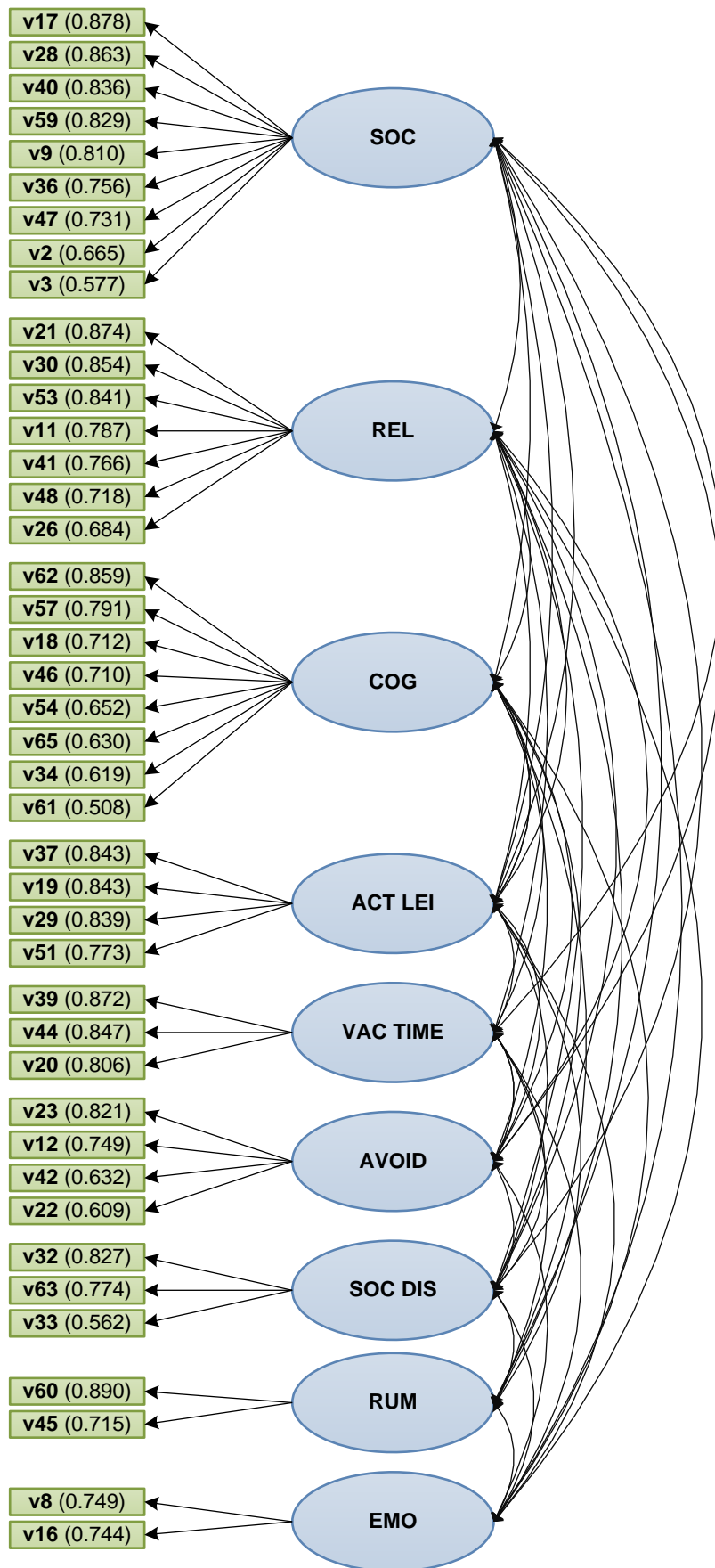


Figure 6.4. Baseline model for the Coping Strategies Questionnaire

Table 6.21

Standardised regression weights and correlations for the original model (42 items)

<i>Standardised regression weights</i>				<i>Correlations</i>			
			Estimate				Estimate
v17	←	SOC	0.878	SOC	↔	REL	0.387
v28	←	SOC	0.863	SOC	↔	COG	0.163
v40	←	SOC	0.836	SOC	↔	ACT LEI	0.319
v59	←	SOC	0.829	SOC	↔	VAC TIME	0.262
v9	←	SOC	0.810	SOC	↔	AVOID	-0.058
v36	←	SOC	0.756	SOC	↔	SOC DIS	-0.191
v47	←	SOC	0.731	SOC	↔	RUM	0.052
v2	←	SOC	0.665	SOC	↔	EMO	0.496
v3	←	SOC	0.577	REL	↔	COG	0.056
v21	←	REL	0.874	REL	↔	ACT LEI	0.404
v30	←	REL	0.854	REL	↔	VAC TIME	0.315
v53	←	REL	0.841	REL	↔	AVOID	0.082
v11	←	REL	0.787	REL	↔	SOC DIS	-0.057
v41	←	REL	0.766	REL	↔	RUM	-0.093
v48	←	REL	0.718	REL	↔	EMO	0.196
v26	←	REL	0.684	COG	↔	ACT LEI	0.097
v62	←	COG	0.859	COG	↔	VAC TIME	0.033
v57	←	COG	0.791	COG	↔	AVOID	-0.497
v18	←	COG	0.712	COG	↔	SOC DIS	-0.255
v46	←	COG	0.710	COG	↔	RUM	-0.345
v54	←	COG	0.652	COG	↔	EMO	0.501
v65	←	COG	0.630	ACT LEI	↔	VAC TIME	0.459
v34	←	COG	0.619	ACT LEI	↔	AVOID	-0.081
v61	←	COG	0.508	ACT LEI	↔	SOC DIS	-0.087
v37	←	ACT LEI	0.843	ACT LEI	↔	RUM	-0.105
v19	←	ACT LEI	0.843	ACT LEI	↔	EMO	0.224
v29	←	ACT LEI	0.839	VAC TIME	↔	AVOID	0.085
v51	←	ACT LEI	0.773	VAC TIME	↔	SOC DIS	0.014
v39	←	VAC TIME	0.872	VAC TIME	↔	RUM	-0.011
v44	←	VAC TIME	0.847	VAC TIME	↔	EMO	0.119
v20	←	VAC TIME	0.806	AVOID	↔	SOC DIS	0.516
v23	←	AVOID	0.821	AVOID	↔	RUM	0.678
v12	←	AVOID	0.749	AVOID	↔	EMO	-0.275
v42	←	AVOID	0.632	SOC DIS	↔	RUM	0.556
v22	←	AVOID	0.609	SOC DIS	↔	EMO	-0.281
v32	←	SOC DIS	0.827	RUM	↔	EMO	-0.161
v63	←	SOC DIS	0.774				
v33	←	SOC DIS	0.562				
v60	←	RUM	0.890				
v45	←	RUM	0.715				
v8	←	EMO	0.749				
v16	←	RUM	0.744				

The revised model for the nine dimensions underlying the Coping Strategies Questionnaire is depicted in table 6.22 and figure 6.5, respectively. Table 6.23 further outlines the standard regression weights between the nine coping strategies and the individual items, as well as the correlations between the coping strategies.

Table 6.22

Model fit for the revised model (33 items)

<i>Goodness-of-fit (GOF) statistic</i>	<i>Revised model</i>	<i>Prescribed threshold</i>
Absolute fit indices		
Chi-square (CMIN)	820.752	
Degrees of freedom (DF)	459	
Chi-square/df (CMIN/DF)	1.79	< 3 = Good < 5 = Sometimes permissible
Goodness-of-fit index (GFI)	0.87	> 0.90
Adjusted goodness-of-fit index (AGFI)	0.84	> 0.90
Root mean square error of approximation (RMSEA)	0.05	≤ 0.06
Root mean square residual (RMR)	0.11	< 0.02
Standardised root mean square residual (SRMR)	0.05	≤ 0.08
PCLOSE	0.000	< 0.05
Relative fit indices		
Normed fit index (NFI)	0.87	≥ 0.90
Relative fit index (RFI)	0.85	≥ 0.90
Tucker Lewis index (TLI)	0.93	≥ 0.90
Comparative fit index (CFI)	0.94	> 0.95 = Great > 0.90 = Traditional > 0.80 = Sometimes permissible

Source: Author's own compilation

The results of the fit for the revised model is summarised in table 6.22. The result of the chi-square (CMIN) statistic was 820.75, based upon 459 degrees of freedom ($p = 0.00$). The CMIN value was not significant and small compared to the value of the independence model (6240.74). The CMIN/DF ratio was 1.79 ($\text{CMIN/DF} \leq 5.0$), which indicates a good model fit (Garson, 2002). According to these guidelines, the revised model appeared to fit the data well. Bentler (2007), however, advises that the CMIN value should be used with caution and other fit indices, such as the CFI, RMSEA and SRMR, should be used to assess the model's fit.

The revised model yielded a CFI value of 0.94 (> 0.90), and a RMSEA and SRMR value of 0.05. The RMSEA and SRMR values were in accordance with the guidelines established by Hair et al. (2010) in that RMSEA values between 0.05 and 0.08 and SRMR values of less than

0.05 are indicative of an acceptable model fit. The CMIN/DF value, CFI, RMSEA and SRMR values therefore met the minimum requirements for model fit. Since the data should not be viewed in isolation, the validity and reliability of the revised model were evaluated for each dimension, as shown in table 6.24.

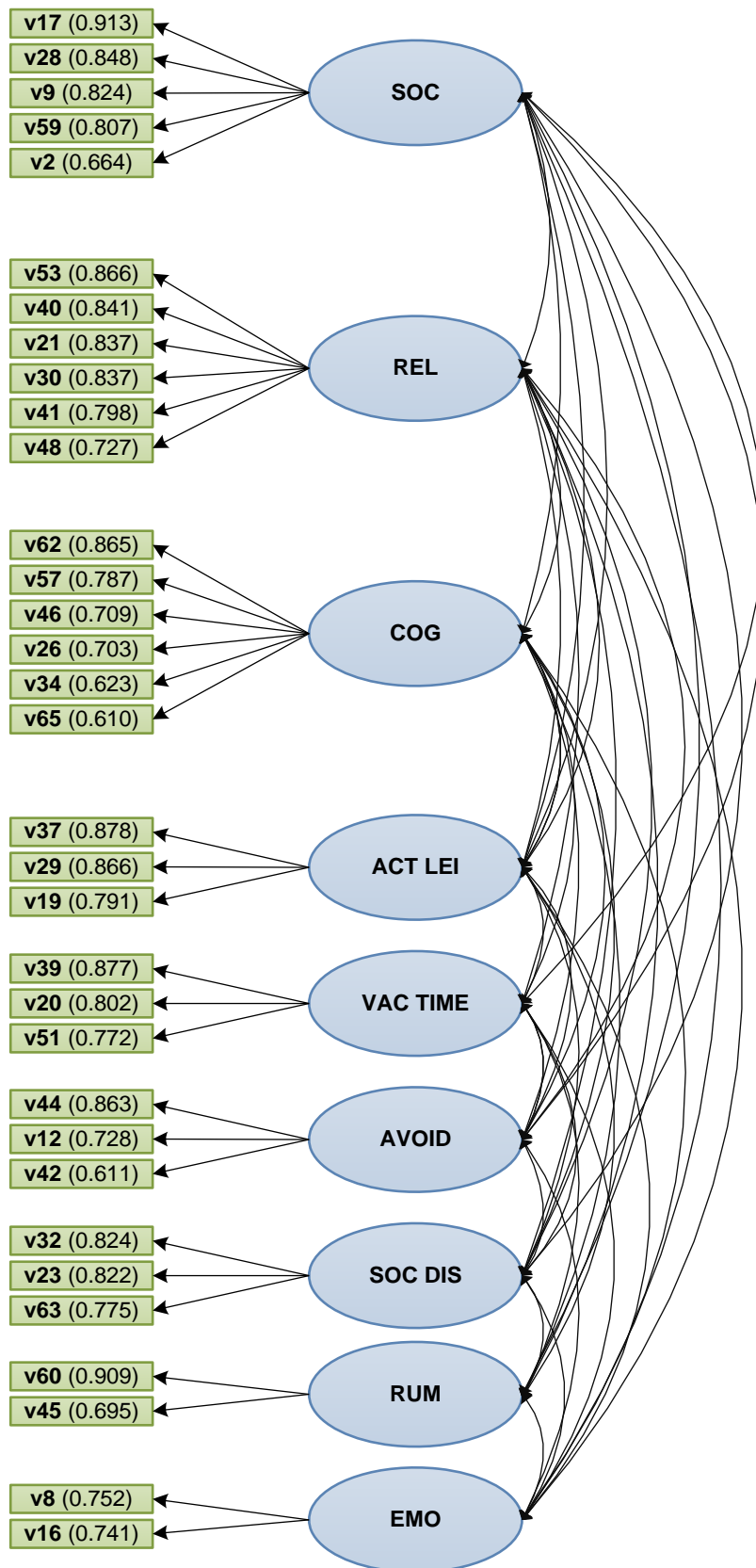


Figure 6.5. Revised model for the Coping Strategies Questionnaire

Table 6.23

Standardised regression weights and correlations for the revised model (33 items)

<i>Standardised regression weights</i>				<i>Correlations</i>			
			Estimate				Estimate
v17	←	SOC	0.913	SOC	↔	AVOID	-0.063
v28	←	SOC	0.848	SOC	↔	VAC TIME	0.223
v9	←	SOC	0.824	SOC	↔	COG	0.084
v59	←	SOC	0.807	SOC	↔	ACT LEI	0.253
v2	←	SOC	0.664	SOC	↔	REL	0.341
v53	←	REL	0.866	SOC	↔	SOC DIS	-0.175
v40	←	REL	0.841	SOC	↔	RUM	0.060
v21	←	REL	0.837	SOC	↔	EMO	0.490
v30	←	REL	0.837	REL	↔	COG	0.030
v41	←	REL	0.798	REL	↔	ACT LEI	0.404
v48	←	REL	0.727	REL	↔	VAC TIME	0.345
v62	←	COG	0.865	REL	↔	AVOID	0.070
v57	←	COG	0.787	REL	↔	SOC DIS	-0.057
v46	←	COG	0.709	REL	↔	RUM	-0.055
v26	←	COG	0.703	REL	↔	EMO	0.182
v34	←	COG	0.623	COG	↔	ACT LEI	0.069
v65	←	COG	0.610	COG	↔	VAC TIME	-0.004
v37	←	ACT LEI	0.878	COG	↔	AVOID	-0.545
v29	←	ACT LEI	0.866	COG	↔	SOC DIS	-0.269
v19	←	ACT LEI	0.791	COG	↔	RUM	-0.400
v39	←	VAC TIME	0.877	COG	↔	EMO	0.481
v20	←	VAC TIME	0.802	ACT LEI	↔	VAC TIME	0.424
v51	←	VAC TIME	0.772	ACT LEI	↔	AVOID	-0.119
v44	←	AVOID	0.863	ACT LEI	↔	SOC DIS	-0.100
v12	←	AVOID	0.728	ACT LEI	↔	RUM	-0.101
v42	←	AVOID	0.611	ACT LEI	↔	EMO	0.206
v32	←	SOC DIS	0.824	VAC TIME	↔	AVOID	0.071
v23	←	SOC DIS	0.822	VAC TIME	↔	SOC DIS	0.013
v63	←	SOC DIS	0.775	VAC TIME	↔	RUM	0.010
v60	←	RUM	0.909	VAC TIME	↔	EMO	0.119
v45	←	RUM	0.695	AVOID	↔	SOC DIS	0.535
v8	←	EMO	0.752	AVOID	↔	RUM	0.703
v16	←	EMO	0.741	AVOID	↔	EMO	-0.320
				SOC DIS	↔	RUM	0.531
				SOC DIS	↔	EMO	-0.281
				RUM	↔	EMO	-0.164

Table 6.24

Reliability and validity for the revised model (33 items)

	<i>CR</i>	<i>AVE</i>	<i>MSV</i>	<i>ASV</i>
RUM	0.79	0.66	0.49	0.85
SOC	0.91	0.67	0.24	0.95
REL	0.92	0.67	0.16	0.97
COG	0.87	0.52	0.30	0.98
ACT LEI	0.88	0.72	0.18	0.98
VAC TIME	0.86	0.67	0.18	0.98
AVOID	0.78	0.55	0.49	0.98
SOC DIS	0.85	0.65	0.29	0.99
EMO	0.72	0.56	0.24	0.99

Note: Refer to page 272 for the factor labels. CR = composite reliability; AVE = average variance extracted; MSV = maximum shared variance; ASV = average shared variance

Table 6.24 indicates the reliability and validity statistics for the revised model. The dimensions were retained because the reliability (CR) for all the dimensions was above the recommended threshold of 0.70 (Hair et al., 2010). The convergent reliability (AVE) for the dimensions was above the recommended 0.50 threshold prescribed by Hair et al. (2010), and was thus retained. The discriminant validity (MSV and ASV) for all the dimensions fell within the recommended threshold, where $MSV < AVE$ and $ASV < AVE$ (Hair et al., 2010). Taking into account the goodness-of-fit results in table 6.22 and reliability and validity results in table 6.24, the revised model (as presented in figure 6.5) was accepted. The results provided supportive evidence for research objective 1, namely to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress. Hypothesis H_a1, however, was rejected because a six-factor structure did not emerge from the EFA and CFA.

6.3 DESCRIPTIVE STATISTICS

This section provides the results for the descriptive statistics to gain an initial impression of the characteristics of the data that was collected. A description of the occupational stressors that the participants in the sample perceived as stressful (research objective 2) and the coping strategies that the sample adopted in response to occupational stress (research objective 3) are discussed in this section.

6.3.1 Thematic analysis

Thematic content analysis (Braun & Clarke, 2006; Elo & Kyngäs, 2008) was used to address research objective 2 of the empirical study. The three phases of thematic content analysis proposed by Elo and Kyngäs (2008) were followed.

6.3.1.1 Phase 1: Preparing

The researcher read through the responses until a sufficient level of familiarisation was achieved and she had a good understanding of the data. At this stage, the researcher had already started noting patterns and writing down ideas and possible coding schemas.

6.3.1.2 Phase 2: Organising

A theoretical or deductive approach was followed to code the data into categories. The literature discussed in chapter 2, specifically sections 2.3.3 and 2.4.2, was used to categorise the data. The data was thus compared to the sources of occupational stress, and more specifically to the stressors that academics experience in higher education institutions. The sources of occupational stress were used to compile a categorisation matrix (Elo & Kyngäs, 2008). The categorisation matrix is presented in table 6.25.

Table 6.25

Categorisation matrix

<i>Occupational stressor</i>	<i>Main category</i>	<i>Sub-category</i>
1. Organisation-specific stressors	1.1 Inadequate salaries	
	1.2 Job insecurity	
	1.3 Leadership style	1.3.1 Poor leadership skills 1.3.2 Poor communication
	1.4 Organisational change	
	1.5 Organisational culture	
	1.6 Organisational structure	
	1.7 Physical work environment	1.7.1 Poor work environment 1.7.2 Changing office locations
	1.8 Policies and procedures	
	1.9 Protest action	
	1.10 Wellbeing of the institution	
2. Job-specific stressors	2.1 Factors intrinsic to the job	2.1.1 Work overload 2.1.2 Administrative tasks

<i>Occupational stressor</i>	<i>Main category</i>	<i>Sub-category</i>
		2.1.3 Lack of or inadequate resources 2.1.4 Demanding students 2.1.5 Uncooperative students 2.1.6 Pressure to publish 2.1.7 Time pressure
	2.2 Organisational roles	2.2.1 Role ambiguity 2.2.2 Role conflict 2.2.3 Routine work 2.2.4 Conflict 2.2.5 Managing a group of individuals
	2.3 Career development or progression	2.3.1 Over-promotion 2.3.2 Under-promotion 2.3.3 Employee recognition 2.3.4 Progression with own studies
	2.4 Interpersonal relationships	2.4.1 Poor interpersonal relationship with management 2.4.2 Poor interpersonal relationship with colleagues
	2.5 Lack of support	2.5.1 Lack of support from management 2.5.2 Lack of support from colleagues 2.5.3 Lack of support from support departments
	2.6 Isolation and unfair treatment	2.6.1 Harassment 2.6.2 Discrimination 2.6.3 Threats of violence 2.6.4 Bullying
	2.7 The work-home interface	2.7.1 Work-family conflict
	2.8 Other	

Source: Author's own compilation

After the categorisation matrix had been developed, the data was reviewed for content and coded according to the identified categories. This process was followed until the 305 responses had been coded and categorised.

6.3.1.3 Phase 3: Reporting

Frequencies were calculated to determine the prevalence of the codes across the dataset and in relation to each category and subcategory. The participants in the sample were also required to classify their identified stressors as academic, administrative or research related

(classification of the stressor), and indicate (on a sliding scale of 1 to 10, where 1 is *slightly stressful* and 10 is *extremely stressful*) how stressful the stressor was for them (intensity of the stressor). These results are presented in table 6.26.

Table 6.26

Results of the thematic analysis

Occupational stressor	Classification of the stressor					Intensity of the stressor	
	Academic	Admin	Research	Other	Total	Mean*	SD
Organisation-specific stressors							
1.1 Inadequate salaries	.	1 (0.70%)	.	.	1 (0.30%)	9	.
1.2 Job insecurity	.	1 (0.70%)	.	1 (1.70%)	2 (0.70%)	9.5	0.707
1.3 Leadership style	.	.	.	.	.	.	.
1.3.1 Poor leadership skills	2 (3.10%)	4 (2.60%)	.	1 (1.70%)	7 (2.30%)	7.71	1.496
1.3.2 Poor communication	3 (4.70%)	8 (5.30%)	1 (3.20%)	1 (1.70%)	13 (4.30%)	8.15	1.144
1.4 Organisational change	.	1 (0.70%)	.	.	1 (0.30)	7	.
1.5 Organisational culture	.	.	.	.	.	.	.
1.6 Organisational structure	1 (1.60%)	1 (0.70%)	.	.	2 (0.70%)	10	0
1.7 Physical work environment	.	.	.	.	.	.	.
1.7.1 Poor work environment	.	2 (1.30%)	.	4 (6.80%)	6 (2.00%)	9	0.894
1.7.2 Changing office locations	.	1 (0.70%)	.	1 (1.70%)	2 (0.70%)	8.5	0.707
1.8 Policies and procedures	.	7 (4.60%)	.	.	7 (2.30%)	7.86	1.676
1.9 Protest action	1 (1.60%)	8 (5.30%)	.	3 (5.10%)	12 (3.90%)	8.75	1.545
1.10 Wellbeing of the institution	.	1 (0.70%)	.	.	1 (0.30%)	9	.
Subtotal	7 (11.00%)	35 (23.30%)	1 (3.20%)	11 (18.70%)	54 (17.80%)		
Job-specific stressors							
2.1 Factors intrinsic to the job	.	.	.	.	.	.	.
2.1.1 Work overload	15 (23.4%)	27 (17.9%)	10 (32.3%)	21 (35.6%)	73 (23.90%)	7.73	1.66
2.1.2 Administrative tasks	4 (6.30%)	19 (12.60%)	.	1 (1.70%)	24 (7.90%)	8.13	1.296
2.1.3 Lack of or inadequate resources	.	6 (4.00%)	.	2 (3.40%)	8 (2.60%)	8.25	1.669
2.1.4 Demanding students	4 (6.30%)	5 (3.30%)	.	1 (1.70%)	10 (3.30%)	7.3	3.302

Occupational stressor	Classification of the stressor					Intensity of the stressor	
	Academic	Admin	Research	Other	Total	Mean*	SD
2.1.5 Uncooperative students	1 (1.60%)	.	.	.	1 (0.30%)	7	.
2.1.6 Pressure to publish	2 (3.10%)	.	1 (3.20%)	.	3 (1.00%)	7	2.646
2.1.7 Time pressure	17 (26.60%)	15 (9.90%)	3 (9.70%)	5 (8.50%)	40 (13.10%)	7.43	1.796
2.2 Organisational roles	.	.	.	.	.	.	.
2.2.1 Role ambiguity	.	.	.	.	.	.	.
2.2.2 Role conflict	.	1 (0.70%)	.	1 (1.70%)	2 (0.70%)	9	1.414
2.2.3 Routine work	.	.	.	1 (1.70%)	1 (0.30%)	7	.
2.2.4 Conflict	.	.	.	1 (1.70%)	1 (0.30%)	8	.
2.2.5 Managing a group of individuals	.	.	1 (3.20%)	.	1 (0.30%)	9	.
2.3 Career development or progression	.	.	.	.	.	.	.
2.3.1 Over-promotion	1 (1.60%)	4 (2.60%)	2 (6.50%)	.	7 (2.30%)	6.29	1.799
2.3.2 Under-promotion	.	1 (0.70%)	.	1 (1.70%)	2 (0.70%)	5.5	2.121
2.3.3 Employee recognition	4 (6.30%)	1 (0.70%)	1 (3.20%)	.	6 (2.00%)	7.5	2.429
2.3.4 Progression with own studies	2 (3.10%)	1 (0.70%)	10 (32.30%)	.	13 (4.30%)	8.31	1.251
2.4 Interpersonal relationships	.	1 (0.70%)	.	.	1 (0.30%)	8	.
2.4.1 Poor interpersonal relationship with management	1 (1.60%)	4 (2.60%)	.	4 (6.80%)	9 (3.00%)	8.56	1.74
2.4.2 Poor interpersonal relationship with colleagues	.	2 (1.30%)	.	.	2 (0.70%)	7	0
2.5 Lack of support	.	2 (1.30%)	.	.	2 (0.70%)	8.5	2.121
2.5.1 Lack of support from management	.	7 (4.60%)	1 (3.20%)	.	8 (2.60%)	8.25	1.669
2.5.2 Lack of support from colleagues	3 (4.70%)	3 (2.00%)	.	1 (1.70%)	7 (2.30%)	7.14	1.952
2.5.3 Lack of support from support departments	2 (3.10%)	13 (8.60%)	1 (3.20%)	1 (1.70%)	17 (5.60%)	7.59	1.46
2.6 Isolation and unfair treatment	.	.	.	.	.	.	.
2.6.1 Harassment	.	.	.	.	.	.	.
2.6.2 Discrimination	.	.	.	1 (1.70%)	1 (0.30%)	10	.
2.6.3 Threats of violence	.	.	.	.	.	.	.
2.6.4 Bullying	1 (1.60%)	4 (2.60%)	.	3 (5.10%)	8 (2.60%)	9.13	0.835
2.7 The work-home interface	.	.	.	.	.	.	.

Occupational stressor	Classification of the stressor					Intensity of the stressor	
	Academic	Admin	Research	Other	Total	Mean*	SD
2.7.1 Work-family conflict	.	.	.	2 (3.40%)	2 (0.70%)	8.5	2.121
2.8 Other	.	.	.	2 (3.40%)	2 (0.70%)	7	2.828
Subtotal	57 (89.30%)	116 (76.80%)	30 (96.80%)	48 (81.50%)	251 (82.50%)		
Total	64 (100%)	151 (100%)	31 (100%)	59 (100%)	305 (100%)	7.88	1.713

Note: * The intensity of the stressor was measured on a 10-point sliding scale.

Table 6.26 indicates the frequency distribution and mean scores of the job-specific stressors that the participants in the sample recently perceived as stressful in their institutions. The results show that 17.8% (sub-total of stressors 1.1 to 1.10) of the participants perceived *organisation-specific stressors* as stressful (group mean = 8.59), while the majority (82.5%) (subtotal of stressors 2.1 to 2.8) perceived *job-specific stressors* as demands that taxed or exceeded their coping resources (group mean = 7.84). Two participants' (0.70%) responses were classified as "Other" (occupational stressor 2.8) because the stressors they had identified could not be grouped under the subcategories identified in table 6.26. More specifically, 6.6% of the participants indicated that they perceived the leadership style of their supervisor or manager (poor leadership skills [2.3%] and poor communication [4.3%]) as a potential source of stress (group mean = 7.93), which had caused them to become frustrated (80%) with management. Secondly, the #FeesMustFall protest action on university campuses in South Africa during 2016 had caused 3.9% of the participants to experience occupational stress (group mean = 8.75), which had caused them to feel anxious (83%), frustrated (75%) and helpless (75%). The results further revealed that the *organisation-specific stressors* were mostly administration related (64.81%).

Concerning the *job-specific stressors*, 52.10% of the participants in the sample indicated that factors intrinsic to the job, especially work overload (23.9%), time pressure (13.1%), and administrative tasks (7.9%) had caused them to experience occupational stress. The results further revealed that these stressors were perceived as moderately stressful (group means = 7.73, 7.43, and 8.13, respectively) and mostly administration related (45.28%). Twenty-eight (9.3%) participants in the sample further indicated that career development or progression, especially progression with their own studies (4.30%), had caused them to experience high levels of occupational stress (group mean = 8.31), which was mostly research related (46.43%). Thirty-four (11.2%) of the participants indicated that the lack of support, especially from support departments (5.6%) (such as information technology [IT] and administration and

assessment divisions) and management (2.6%) had resulted in moderate to high (group means = 7.59 and 8.25, respectively) occupational stress that was mostly administration related (73.5%). Lastly, 4.0% of the participants indicated that poor relationships, especially with management (3.0%), had caused them to experience occupational stress (group mean = 8.56). The results further revealed that the *job-specific stressors* had caused the participants to experience frustration (63%), anxiousness (57%), anger (38%), irritability (37%) and helplessness (34%).

The results provided supportive evidence for research objective 2 and hypotheses H_a2.1 and H_a2.2, namely that academics are confronted with occupational stressors that are organisation and job specific.

6.3.2 Reporting of means and standard deviations

This section provides the descriptive information on the Coping Strategies Questionnaire and the nine dimensions that were identified in section 6.2.6.2. The means, standard deviations, minimums and maximums for each of the nine dimensions were calculated and are reported in table 6.27.

Table 6.27

Descriptive statistics of the dimensions of the Coping Strategies Questionnaire (n = 305)

<i>Factor</i>	<i>Mean</i>	<i>SD</i>	<i>Minimum</i>	<i>Maximum</i>
SOC	3.38	1.36	1.00	6.00
REL	2.55	1.41	1.00	6.00
COG	4.51	0.98	1.00	6.00
ACT LEI	3.36	1.52	1.00	6.00
AVOID	2.39	1.24	1.00	6.00
SOC DIS	2.38	1.25	1.00	6.00
VAC TIME	2.35	1.39	1.00	6.00
RUM	2.82	1.32	1.00	6.00
EMO	4.16	1.22	1.00	6.00

Note: See page 272 for the factor labels.

The mean scores ranged from 2.35 to 4.51 for the dimensions of the Coping Strategies Questionnaire. The sample of participants obtained the highest scores on the *cognitive coping* dimension (mean = 4.51; SD = 0.98), and the lowest scores on the *vacation time* dimension (mean = 2.35; SD = 1.39). The standard deviations of the dimensions ranged from 0.98 to 1.52.

For the purposes of this study, a baseline mean of 3.0 was used to interpret the mean scores, since a six-point agreement Likert scale (1 = *Strongly disagree*; 6 = *Strongly agree*) was used to explore which coping strategies academics adopt in response to occupational stress. A mean score below the threshold of 3.0 (e.g. 2.9) would therefore indicate that academics did not use the strategy to regulate their emotions in response to occupational stress, whereas a mean score of 3.0 and higher would indicate that the participants in the sample adopted the coping strategy in response to the occupational stressor.

The mean scores of the *social support*, *cognitive*, *active leisure*, and *emotional coping* strategies were all above the proposed threshold of 3.0, which suggests that the participants in the sample adopted adaptive coping strategies to regulate heightened emotions in response to occupational stressors that were perceived as taxing or exceeding their coping resources. *Religious coping* and *vacation time* had mean scores below 3.0 (2.55 and 2.35, respectively), which suggests that the participants did not use these strategies to regulate their emotions even though it was theoretically classified as an adaptive coping strategy. Lastly, the mean scores of the maladaptive coping strategies (namely *avoidant coping*, *social disengagement* and *ruminating*) were below the threshold of 3.0 (2.39, 2.38 and 2.82, respectively) indicating that the participants did not adopt maladaptive coping strategies to regulate heightened emotions in response to occupational stressors.

The results provided supportive evidence for research objective 3 and hypotheses H_{a3}, namely that academics adopt adaptive coping strategies to regulate heightened emotions in response to occupational stressors that are perceived as taxing or exceeding their coping resources.

6.4 INFERENCE STATISTICS

Inferential statistics were used to draw inferences or conclusions about the population from the sample data. Inferential statistics were used to

- (1) determine whether the coping strategies positively and significantly predicted coping success by means of a standard multiple regression analysis (research objective 4)
- (2) determine whether there was a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model by means of structural equation modelling (SEM) (research objective 5)
- (3) test for measurement invariance across the different demographic groups by means of a multigroup or multisample SEM analysis (research objective 6)

- (4) test for significant mean differences to empirically investigate whether significant differences exist between the groups of demographic variables (research objective 7)

6.4.1 Standard multiple regression analysis

Standard multiple regression analysis was performed to determine whether the coping strategies that academics adopt successfully modulate (coping success) the heightened emotions that they perceive when they were exposed to an occupational stressor. The F-test was used to test whether there was a significant regression between the independent variables (coping strategies) and dependent variable (coping success). Prior to conducting the various regression analyses, collinearity diagnostics were examined to ensure that the variance inflation factors did not exceed 10, that the condition index was well below 15, and that the tolerance values were close to 1.0 (Field, 2009).

Table 6.28 summarises the significant results of the multiple regression analysis that was conducted. This table shows that one regression model was performed. The model was statistically significant ($Fp \leq 0.05$), with the model accounting for 33% ($R^2 = 0.33$) of the variance in coping success. These results were moderate to large in practical effect. In terms of relative importance, coping success was mostly explained by *cognitive coping* ($\beta = 0.249$; $p = 0.000$), *social support coping* ($\beta = 0.172$; $p = 0.002$), and there was an inverse relationship with *avoidant coping* ($\beta = -0.146$; $p = 0.019$) and *social disengagement* ($\beta = -0.140$; $p = 0.011$).

Table 6.28

Multiple regression analysis

Variable	Standardised coefficient			Collinearity statistics		ANOVA	Model fit
	Beta (β)	t	p-value	Tolerance	VIF	F (p)	R ²
SOC	0.172	5.544	0.002**	0.737	1.357	16.674 (0.000***)	0.337
REL	0.024	3.121	0.664	0.770	1.299		
COG	0.249	0.435	0.000*	0.727	1.376		
ACT LEI	0.000	4.477	0.996	0.764	1.310		
VAC TIME	0.100	0.005	0.058***	0.808	1.237		
AVOID	-0.146	1.905	0.019**	0.591	1.692		
SOC DIS	-0.140	-2.368	0.011**	0.745	1.342		
RUM	-0.115	-2.549	0.055***	0.635	1.574		
EMO	0.073	-1.927	0.193	0.709	1.410		

Notes: n = 305; * $p \leq 0.001$, ** $p \leq 0.05$; *** $p \leq 0.10$

The highest coefficients (and thus the strongest relationships) were evident between the *cognitive coping*, *social support coping* and *vacation time* variables and coping success. In addition, negative (inverse) relationships were observed between *avoidant coping*, *social disengagement* and *ruminating* and coping success. These results imply that academics who adopt adaptive (*cognitive*, *social support* and *vacation time*) coping strategies are able to modulate the felt emotions so that their perception of the stressor was changed. The results above provided supportive evidence for the research hypothesis H_a4.1: The adaptive coping strategies positively and significantly predict coping success. Research hypothesis H_a4.2, namely that the maladaptive coping strategies positively and significantly predict coping success, was rejected.

6.4.2 Structural equation modelling (SEM)

The structural equation model for the nine dimensions underlying the Coping Strategies Questionnaire is outlined and briefly discussed in this section. The results of the fit for the revised model are summarised in table 6.21 and outlined in figure 6.5. It was concluded that the revised model fitted the data well with a chi-square of 820.75 (459 *df*); CMIN/DF = 1.79; *p* = 0.00; RFI = 0.85; IFI = 0.94; TLI = 0.93; CFI = 0.94; RMSEA = 0.05; and SRMR = 0.05.

Apart from the model fit statistics, the magnitude of the standardised path coefficient estimates between the independent and dependent variables in the structural part of the revised model and the results of the standard multiple regression were also considered. The standardised path coefficient estimates between the nine coping strategies and the individual items, and the correlations between the coping strategies, are summarised in table 6.29 and depicted in figure 6.6. The path diagram with parameter estimates produced by the Coping Strategies Questionnaire was based on the nine-factor results of the EFA. The nine one-way arrows are indicative of regression coefficients that show the hypothesised effects of the independent variables on the dependent variable, whereas the two-way arrows represent the correlation or covariance between the variables.

Table 6.29

Standardised regression weights and correlations

<i>Standardised regression weights</i>				<i>Correlations</i>			
			Estimate				Estimate
v17	←	SOC	0.913	SOC	↔	REL	0.341
v28	←	SOC	0.848	SOC	↔	COG	0.083
v9	←	SOC	0.824	SOC	↔	ACT LEI	0.253

Standardised regression weights				Correlations			
			Estimate				Estimate
v59	←	SOC	0.807	SOC	↔	VAC TIME	0.223
v2	←	SOC	0.666	SOC	↔	AVOID	-0.063
v53	←	REL	0.867	SOC	↔	SOC DIS	-0.175
v40	←	REL	0.841	SOC	↔	RUM	0.06
v30	←	REL	0.837	SOC	↔	EMO	0.491
v21	←	REL	0.837	REL	↔	COG	0.03
v41	←	REL	0.798	REL	↔	ACT LEI	0.404
v48	←	REL	0.726	REL	↔	VAC TIME	0.345
v62	←	COG	0.862	REL	↔	AVOID	0.07
v57	←	COG	0.790	REL	↔	SOC DIS	-0.057
v46	←	COG	0.710	REL	↔	RUM	-0.055
v26	←	COG	0.703	REL	↔	EMO	0.182
v34	←	COG	0.623	COG	↔	ACT LEI	0.069
v65	←	COG	0.610	COG	↔	VAC TIME	-0.005
v37	←	ACT LEI	0.878	COG	↔	AVOID	-0.544
v29	←	ACT LEI	0.866	COG	↔	SOC DIS	-0.268
v19	←	ACT LEI	0.791	COG	↔	RUM	-0.4
v39	←	VAC TIME	0.877	COG	↔	EMO	0.481
v20	←	VAC TIME	0.801	ACT LEI	↔	VAC TIME	0.424
v51	←	VAC TIME	0.772	ACT LEI	↔	AVOID	-0.119
v44	←	AVOID	0.864	ACT LEI	↔	SOC DIS	-0.099
v12	←	AVOID	0.731	ACT LEI	↔	RUM	-0.101
v42	←	AVOID	0.606	ACT LEI	↔	EMO	0.206
v32	←	SOC DIS	0.827	VAC TIME	↔	AVOID	0.071
v23	←	SOC DIS	0.820	VAC TIME	↔	SOC DIS	0.013
v63	←	SOC DIS	0.774	VAC TIME	↔	RUM	0.01
v60	←	RUM	0.908	VAC TIME	↔	EMO	0.118
v45	←	RUM	0.696	AVOID	↔	SOC DIS	0.534
v8	←	EMO	0.755	AVOID	↔	RUM	0.704
v16	←	EMO	0.738	AVOID	↔	EMO	-0.319
Coping success	←	SOC	0.172	SOC DIS		RUM	0.531
Coping success	←	REL	0.024	SOC DIS		EMO	-0.281
Coping success	←	COG	0.249	RUM		EMO	-0.164
Coping success	←	ACT LEI	0.000				
Coping success	←	VAC TIME	0.100				
Coping success	←	AVOID	-0.146				
Coping success	←	SOC DIS	-0.140				
Coping success	←	RUM	-0.115				
Coping success	←	EMO	0.073				

The model fit (shown in figure 6.6) revealed that the model explains an estimated 33% ($R^2 = 0.33$) of the variance in coping success. In terms of relative importance, coping success was mostly explained by *cognitive coping* (25%) and *social support coping* (17%), and an inverse

relationship was observed between *avoidant coping* (15%) and *social disengagement* (14%) and coping success.

The model in figure 6.6 indicated a good overall fit between the theoretically proposed coping strategies and the empirically derived structural model. The results provided supportive evidence for research objective 5 and hypothesis H_a5: The theoretically hypothesised model indicated a good fit with the empirically manifested structural model.

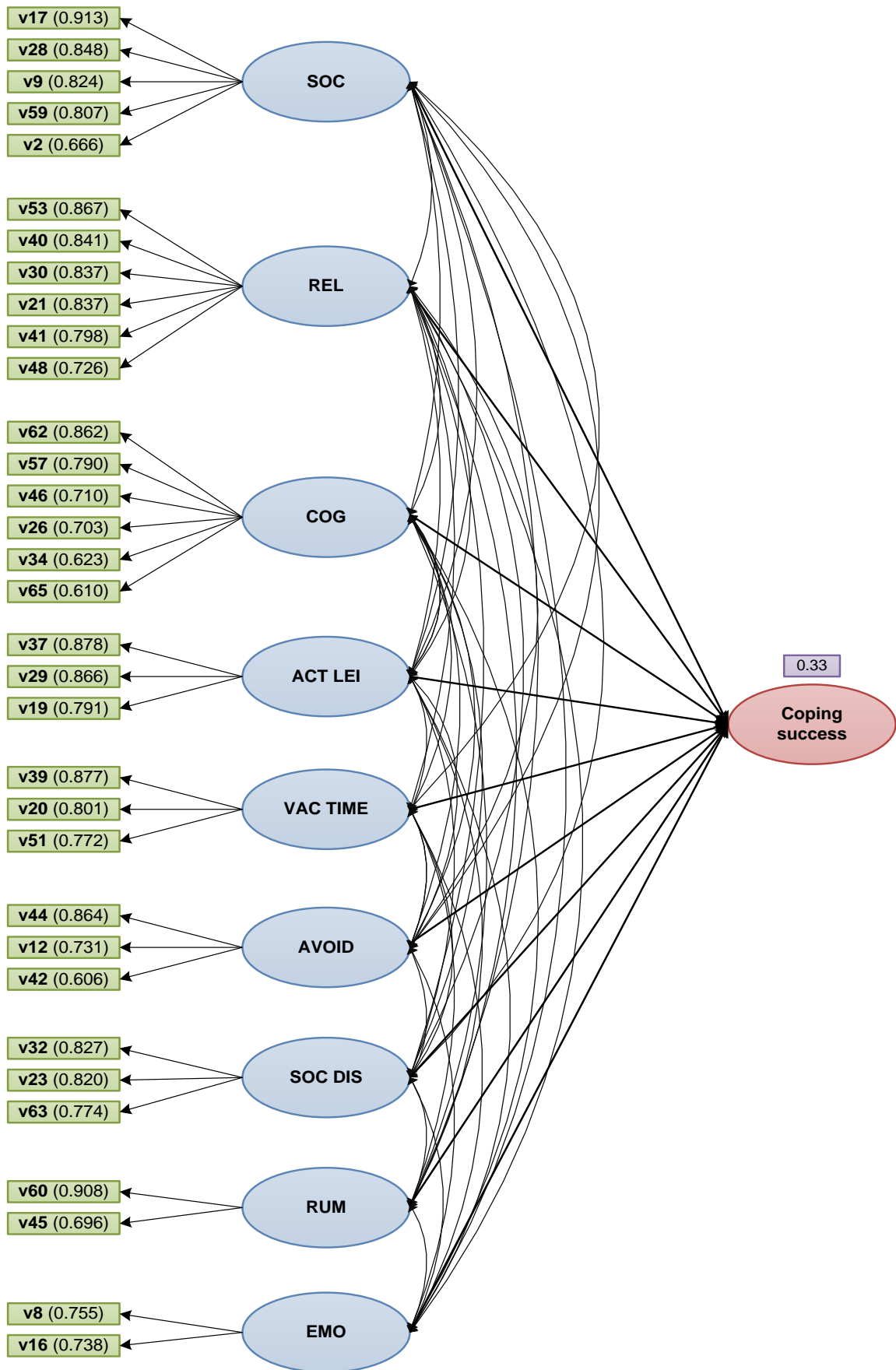


Figure 6.6. Structural equation model with standardised path coefficient estimates

6.4.3 Testing for measurement invariance across different demographic groups

As discussed in section 5.8.3, multigroup or multisample SEM analysis was used to determine whether the revised model for the Coping Strategies Questionnaire (figure 6.5) was applicable across the different demographic groups in the sample. The results of the multiple group analysis are depicted in table 6.30.

Table 6.30

Multiple group analysis (n = 305)

	<i>Chi-square</i>	<i>df</i>	<i>p-value</i>	<i>Variant/invariant</i>
Gender				
Unconstrained	1557.5	918	-	
Fully constrained	1600.1	951	-	
Difference	42.6	33	0.122	Invariant
Age				
Unconstrained	2174.8	1337	-	
Fully constrained	2241.1	1443	-	
Difference	66.3	66	0.466	Invariant
Highest qualification				
Unconstrained	2701.9	1377	-	
Fully constrained	2709.0	1443	-	
Difference	7.1	66	1.000	Invariant
Job level				
Unconstrained	3063.5	1836	-	
Fully constrained	3151.4	1935	-	
Difference	87.9	99	0.780	Invariant
Tenure				
Unconstrained	1512.2	918	-	
Fully constrained	1553.6	951	-	
Difference	41.4	33	0.150	Invariant

The results in table 6.30 reveal that the conceptual foundation and factorial structure of the revised model of the Coping Strategies Questionnaire were invariant across the different demographic groups. The results provided supportive evidence for research objective 6 and hypothesis H_{a6}: The model does apply across groups and indicates measurement invariance.

6.4.4 Test for group mean differences

The purpose of this section is to address research objective 7, namely to assess whether significant differences exist between academics from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress. The groups of demographic variables also acted as significant moderators between the independent and dependent variables. The results of the independent sample t-test, ANOVAs and mean scores investigating the relationships between the demographic variables and independent variables are summarised below.

Independent sample t-tests and the analysis of variance (ANOVA) technique were conducted to assess whether academics varying in biographical variables (age, gender, highest qualification, job level and tenure) differed significantly with regard to the coping strategies they adopted in response to occupational stress. Independent sample t-tests were used to test whether significant differences existed between the means of two groups (gender and tenure), and ANOVAs were used to test whether significant differences existed between the means of three or more groups (age, highest qualification and job level) (Pallant, 2016).

6.4.4.1 Gender

Results of the independent t-test (as displayed in table 6.31) indicated that there were significant differences between males and females with regard to *coping success* ($p = 0.03$) and the *emotional coping* strategy ($p = 0.00$). The extent to which the coping strategies regulated the heightened emotions (coping success) for the female participants (mean = 6.56) was slightly greater than for the male participants (mean = 6.04). Females (mean = 4.36) also seemed to adopt *emotional coping* strategies more to regulate heightened emotions in response to occupational stress than their male (mean = 3.78) colleagues.

Table 6.31

Independent sample t-test: Gender

<i>Variable</i>	<i>Demographic variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>t-value</i>	<i>Sig. (2-tailed)</i>	<i>d</i>
Coping success	Male	109	6.04	2.12	-2.16	0.03*	-0.52
	Female	196	6.56	1.87			
SOC	Male	109	3.23	1.32	-1.38	0.17	-0.22
	Female	196	3.46	1.38			
REL	Male	109	2.72	1.49	1.53	0.13	-0.12
	Female	196	2.45	1.36			

Variable	Demographic variable	N	Mean	SD	t-value	Sig. (2-tailed)	d
COG	Male	109	4.43	1.03	-1.04	0.30	-0.12
	Female	196	4.55	0.95			
ACT LEI	Male	109	3.52	1.42	1.37	0.17	0.25
	Female	196	3.27	1.57			
VAC TIME	Male	109	2.54	1.42	1.68	0.09	0.28
	Female	196	2.25	1.37			
AVOID	Male	109	2.55	1.29	1.66	0.10	0.55
	Female	196	2.30	1.21			
SOC DIS	Male	109	2.48	1.30	1.09	0.28	0.45
	Female	196	2.32	1.21			
RUM	Male	109	2.95	1.33	1.28	0.20	0.51
	Female	196	2.75	1.31			
EMO	Male	109	3.78	1.25	-4.08	0.00*	-0.30
	Female	196	4.36	1.15			

Note: * T-test significant at the 0.05 level (2-tailed). Coping success was measured on a 10-point Likert scale.

6.4.4.2 Tenure

The results of the independent t-test (as displayed in table 6.32) indicated that there were significant differences between academics with less than 10 (n = 116) and more than 10 (n = 189) years' experience in higher education with regard to the *social support coping* strategy ($p = 0.05$). Employees with less than 10 years' experience (mean = 3.58) seemed to adopt *social support coping* strategies more than employees with more than 10 years' working experience in higher education (mean = 3.26).

Table 6.32

Independent sample t-test: Tenure

Variable	Demographic variable	N	Mean	SD	t-value	Sig. (2-tailed)	d
Coping success	1-9 years	116	6.56	1.90	1.29	0.20	0.30
	10 years +	189	6.26	2.02			
SOC	1-9 years	116	3.58	1.37	2.01	0.05*	0.32
	10 years +	189	3.26	1.34			
REL	1-9 years	116	2.40	1.31	-1.42	0.16	-0.24
	10 years +	189	2.64	1.46			
COG	1-9 years	116	4.46	0.97	-0.63	0.53	-0.07
	10 years +	189	4.53	0.99			
ACT LEI	1-9 years	116	3.29	1.65	-0.61	0.54	-0.11
	10 years +	189	3.40	1.43			
VAT TIME	1-9 years	116	2.22	1.42	-1.28	0.20	-0.21
	10 years +	189	2.43	1.37			
AVOID	1-9 years	116	2.39	1.28	0.04	0.97	0.01

Variable	Demographic variable	N	Mean	SD	t-value	Sig. (2-tailed)	d
	10 years +	189	2.38	1.22			
SOC DIS	1-9 years	116	2.29	1.18	-0.91	0.36	-0.13
	10 years +	189	2.43	1.28			
RUM	1-9 years	116	2.86	1.35	0.39	0.69	0.06
	10 years +	189	2.80	1.30			
EMO	1-9 years	116	4.06	1.36	-1.07	0.28	-0.16
	10 years +	189	4.22	1.12			

Note: * T-test significant at the 0.05 level (2-tailed). Coping success was measured on a 10-point Likert scale.

6.4.4.3 Age

A one-way between-groups analysis of variance was conducted to explore the impact of age on the coping strategies that academics adopt in response to occupational stress, as measured by the Coping Strategies Questionnaire. Participants were divided into three groups according to their age (Group 1: between 25 and 39; Group 2: between 40 and 55; Group 3: between 56 and 65). There was a statistically significant difference at $p \leq 0.05$ level between the three age groups and the *avoidant coping* ($F = 3.14$, $p = 0.04$), *social disengagement* ($F = 3.57$; $p = 0.03$) and *ruminantion* ($F = 4.43$; $p = 0.01$) dimensions. Despite achieving statistical significance, the actual differences in mean scores between the groups were quite small (Cohen, 1988). The effect size, calculated using eta squared, was between 0.2 and 0.3.

A Benferroni and Games-Howell *post hoc* test was conducted to determine exactly where the differences lay. Concerning *avoidant coping*, the *post hoc* test indicates that the mean score for Group 1 (mean = 2.62, SD = 1.30) was significantly different from group 2 (mean = 2.21, SD = 1.20). Group 3 (mean = 2.39, SD = 1.20) did not differ significantly from either Groups 1 or 2. Individuals between the ages of 25 and 39 therefore seemed to adopt *avoidant coping* strategies more than those in the 40 to 55 age category. Secondly, regarding *social disengagement*, the *post hoc* test indicated that the mean score for Group 3 (mean = 2.61, SD = 1.36) differed significantly from Group 2 (mean = 2.17, SD = 1.16). Group 1 (mean = 2.49, SD = 1.25) did not differ significantly from either Groups 2 or 3. The conclusion was drawn that individuals between the ages of 56 and 65 adopted more *social disengagement* strategies than those in the 40 to 55 age category to regulate heightened emotions in response to occupational stressors. Lastly, the *post hoc* test indicated that the mean score for Group 1 (mean = 3.09, SD = 1.38) differed significantly from Group 2 (mean = 2.58, SD = 1.28) with regard to the adoption of *ruminantion* as a strategy to regulate heightened emotions. Group 3 (mean = 2.90, SD = 1.26) did not differ significantly from either Groups 1 or 2. The participants between the

ages of 25 and 39 therefore adopted *ruminatio*n to regulate heightened emotions in response to occupational stressors more than the participants in the 40 to 55 age category. The ANOVA results that were statistically significant ($p \leq 0.05$) are provided in table 6.33.

Table 6.33

ANOVA and post hoc test: Age

<i>Factor</i>	<i>F-value</i>	<i>Sig.</i>	<i>Demographic variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Partial eta squared</i>
AVOID	3.14	0.04	25-39	98	2.62	1.30	0.02
			40-55	135	2.21	1.20	
			56-65	72	2.39	1.20	
			Total	305	2.39	1.24	
SOC DIS	3.57	0.03	25-39	98	2.49	1.25	0.02
			40-55	135	2.17	1.16	
			56-65	72	2.61	1.36	
			Total	305	2.38	1.25	
RUM	4.43	0.01	25-39	98	3.09	1.38	0.03
			40-55	135	2.58	1.28	
			56-65	72	2.90	1.26	
			Total	305	2.82	1.32	

Note: $p \leq 0.05$

6.4.4.4 Highest qualification

A one-way between-groups analysis of variance was conducted to explore whether there were significant differences between the employees' highest qualification and the coping strategies they adopted in response to occupational stress. The participants were divided into five groups according to their highest level of education (Group 1: grade 12/higher certificate/diploma; Group 2: bachelor's degree; Group 3: honours degree; Group 4: master's degree; Group 5: doctoral degree). There were statistically significant ($p \leq 0.05$) differences between the participants' level of highest education and *coping success* ($F = 3.26$; $p = 0.01$), the *religious* ($F = 4.96$; $p = 0.00$), *active leisure* ($F = 4.66$; $p = 0.00$) and *avoidant coping* ($F = 3.94$; $p = 0.00$) dimensions. Partial eta squared showed small to medium effect size values (0.04, 0.99, 0.44 and 1.32, respectively).

The Benferronin and Games-Howell tests for *post hoc* comparisons were conducted to determine exactly where the differences between the groups lay. With regard to *coping success*, academics with a master's degree (Group 4) (mean = 6.61; SD = 1.90) differed significantly from academics with a bachelor's degree (Group 2) (mean = 5.15; SD = 2.85). The conclusion was drawn that the proposed coping strategies helped academics with a

postgraduate master's degree more than academics with a bachelor's degree to regulate their heightened emotions in response to a job-specific stressor.

Concerning *religious coping*, employees with a grade 12 certificate, higher certificate and/or diploma (Group 1) (mean = 3.46; SD = 1.63) differed significantly from academics with a bachelor's degree (Group 2) (mean = 2.29; SD = 1.30), master's degree (Group 4) (mean = 2.33; SD = 1.19) and/or doctoral degree (Group 5) (mean = 2.47; SD = 1.46). Individuals with a grade 12 certificate, higher certificate and/or diploma therefore seemed to adopt *religious coping* strategies more than academics with a bachelor's degree, master's degree and/or doctoral degree to regulate heightened emotions in response to occupational stressors.

Academics with a doctoral degree (Group 5) (mean = 3.76; SD = 1.42) engaged more in *active leisure* activities than academics with a master's degree (Group 4) (mean = 2.97; SD = 1.57) in response to occupational stressors.

Lastly, with regard to *avoidant coping*, academics with a bachelor's degree (Group 2) (mean = 3.33; SD = 1.54) differed significantly from academics with a master's (Group 4) (mean = 2.38; SD = 1.22) and/or doctoral degree (Group 5) (mean = 2.17; SD = 1.10). Academics with a bachelor's degree seemed to adopt avoidance coping strategies more than academics with a master's and/or doctoral degree. The results of the ANOVAs that were statistically significant ($p \leq 0.05$) are shown in table 6.34.

Table 6.34
ANOVA and post hoc test: Highest qualification

<i>Factor</i>	<i>F-value</i>	<i>Sig.</i>	<i>Demographic variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Partial eta squared</i>
Coping success	3.26	0.01	Grade 12/HC/diploma	36	5.83	1.92	0.04
			Bachelor's degree	20	5.15	2.85	
			Honours degree	35	6.60	1.99	
			Master's degree	109	6.61	1.90	
			Doctoral degree	105	6.47	1.78	
			Total	305	6.37	1.98	
REL	4.96	0.00	Grade 12/HC/diploma	36	3.46	1.63	0.99
			Bachelor's degree	20	2.29	1.30	
			Honours degree	35	2.67	1.40	
			Master's degree	109	2.33	1.19	
			Doctoral degree	105	2.47	1.46	
			Total	305	2.55	1.41	

Factor	F-value	Sig.	Demographic variable	N	Mean	SD	Partial eta squared
ACT LEI	4.66	0.00	Grade 12/HC/ diploma	36	3.67	1.43	0.44
			Bachelor's degree	20	2.92	1.45	
			Honours degree	35	3.30	1.44	
			Master's degree	109	2.97	1.57	
			Doctoral degree	105	3.76	1.42	
			Total	305	3.36	1.52	
AVOID	3.94	0.00	Grade 12/HC/ diploma	36	2.40	1.08	1.32
			Bachelor's degree	20	3.33	1.54	
			Honours degree	35	2.51	1.45	
			Master's degree	109	2.38	1.22	
			Doctoral degree	105	2.17	1.10	
			Total	305	2.39	1.24	

Note: $p \leq 0.05$. Coping success was measured on a 10-point Likert scale.

6.4.4.5 Job level

A one-way between-groups analysis of variance was conducted to explore the impact of the participants' job level on the coping strategies they adopted in response to occupational stress. The participants were divided into six groups according to their job level (Group 1: Academic support staff; Group 2: Junior lecturer; Group 3: Lecturer; Group 4: Senior lecturer; Group 5: Associate professor; Group 6: Professor). Table 6.35, however, indicates that there were no significant differences between the participants' job level and the independent variables.

Table 6.35

ANOVA and post hoc test: Job level

Factor	F-value	Sig.	Demographic variable	N	Mean	SD	Partial eta squared
Coping success	0.65	0.66	Academic support staff	104	6.20	2.13	0.01
			Junior lecturer	16	6.88	1.96	
			Lecturer	74	6.57	1.84	
			Senior lecturer	65	6.42	2.13	
			Associate professor	21	6.43	1.16	
			Professor	25	6.04	1.90	
			Total	305	6.37	1.98	
SOC	1.04	0.40	Academic support staff	104	3.31	1.35	0.02
			Junior lecturer	16	2.94	1.62	
			Lecturer	74	3.56	1.27	
			Senior lecturer	65	3.24	1.44	
			Associate professor	21	3.62	1.40	
			Professor	25	3.58	1.21	

<i>Factor</i>	<i>F-value</i>	<i>Sig.</i>	<i>Demographic variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Partial eta squared</i>
			Total	305	3.38	1.36	
REL	1.62	0.15	Academic support staff	104	2.82	1.45	0.03
			Junior lecturer	16	2.22	1.22	
			Lecturer	74	2.31	1.23	
			Senior lecturer	65	2.58	1.51	
			Associate professor	21	2.52	1.39	
			Professor	25	2.25	1.49	
			Total	305	2.55	1.41	
COG	0.52	0.76	Academic support staff	104	4.51	1.00	0.01
			Junior lecturer	16	4.32	1.15	
			Lecturer	74	4.48	0.94	
			Senior lecturer	65	4.56	1.04	
			Associate professor	21	4.75	0.71	
			Professor	25	4.36	0.99	
			Total	305	4.51	0.98	
ACT LEI	1.02	0.41	Academic support staff	104	3.57	1.48	0.02
			Junior lecturer	16	3.06	1.80	
			Lecturer	74	3.23	1.49	
			Senior lecturer	65	3.13	1.64	
			Associate professor	21	3.51	1.46	
			Professor	25	3.49	1.28	
			Total	305	3.36	1.52	
VAC TIME	0.22	0.96	Academic support staff	104	2.40	1.44	0.00
			Junior lecturer	16	2.25	1.68	
			Lecturer	74	2.28	1.34	
			Senior lecturer	65	2.29	1.43	
			Associate professor	21	2.52	1.17	
			Professor	25	2.48	1.32	
			Total	305	2.35	1.39	
AVOID	0.87	0.50	Academic support staff	104	2.50	1.33	0.01
			Junior lecturer	16	2.71	1.72	
			Lecturer	74	2.18	1.09	
			Senior lecturer	65	2.41	1.21	
			Associate professor	21	2.24	0.95	
			Professor	25	2.43	1.23	
			Total	305	2.39	1.24	
SOC DIS	0.30	0.91	Academic support staff	104	2.28	1.28	0.01
			Junior lecturer	16	2.46	1.46	
			Lecturer	74	2.41	1.21	
			Senior lecturer	65	2.49	1.26	
			Associate professor	21	2.27	0.99	
			Professor	25	2.43	1.31	
			Total	305	2.38	1.25	
RUM	1.07	0.37	Academic support staff	104	2.66	1.33	0.02
			Junior lecturer	16	2.56	1.50	
			Lecturer	74	2.86	1.33	
			Senior lecturer	65	3.11	1.41	
			Associate professor	21	2.71	1.22	
			Professor	25	2.86	0.90	

<i>Factor</i>	<i>F-value</i>	<i>Sig.</i>	<i>Demographic variable</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>Partial eta squared</i>
			Total	305	2.82	1.32	
EMO	1.88	0.10	Academic support staff	104	4.20	1.24	0.03
			Junior lecturer	16	3.28	1.62	
			Lecturer	74	4.15	1.16	
			Senior lecturer	65	4.29	1.16	
			Associate professor	21	4.17	0.90	
			Professor	25	4.20	1.26	
			Total	305	4.16	1.22	

Note: Coping success was measured on a 10-point Likert scale.

The results provided supportive evidence for research objective 7 and hypothesis H_{a7}: There are significant mean differences between the groups of biographical variables and the independent variables.

6.5 INTEGRATION OF EMPIRICAL RESEARCH

The empirical findings of this research provided the researcher with vital and insightful information on the development of a measuring instrument and on the coping strategies that academics adopt in response to occupational stress. This section discusses and integrates all the results in terms of each of the stated empirical research objectives.

6.5.1 Biographical profile of the sample and frequencies

The biographical profile obtained from the sample showed that the sample consisted predominantly of female academics between the ages of 40 and 55. These academics had been employed in the higher education sector for 10 years or more as either lecturers or senior lecturers who had obtained a master's or doctoral degree.

6.5.2 Research objective 1

Research objective 1 was to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress.

The instrument development process proposed by various scale development authors (Barry et al., 2011; DeVellis, 2012; Du Preez et al., 2008a; 2008b; Netemeyer et al., 2003; Schmiedel et al., 2014; Slavec & Dronovšek, 2012; Worthington & Whittaker, 2006) was followed in developing the Coping Strategies Questionnaire.

During the first step (conceptualisation and item generation) of the instrument development process, a literature review was conducted to gain an understanding of the constructs under investigation and their theoretical context. The literature review served as the foundation on which the conceptual model with six proposed dimensions and subdimensions were developed. Through a deductive approach, 82 items that measured the proposed dimensions and subdimensions were developed.

The second step (content adequacy) involved evaluating the content validity of the instrument. An expert review and cognitive interviews were utilised for this purpose. The 82-item questionnaire and supporting documentation were electronically mailed to ten content experts who were instructed to validate the item pool in terms of its item content, content style and comprehensiveness. Nine completed questionnaires were returned, which were used to calculate the interrater agreement (IRA) and content validity index (CFI) of the initial questionnaire. The results of the expert review revealed that the reviewers were 75% in agreement that the dimensions, subdimensions and items were essential for measuring the content domain, and 87% of the reviewers agreed that the item pool was clear and measurable. The results of the CVI further revealed that 31 items had to be revised or removed from the instrument. Consequently, 51 items were retained, 13 revised, 18 deleted and four new items included. The remaining 68 items were subjected to a cognitive interview. The cognitive interviews were conducted among a sample of 11 academics who were instructed to complete the questionnaire according to the instructions provided. Respondent debriefing and cognitive probing were used to obtain specific information about unclear and/or difficult items. The findings of the interviews revealed that the instructions were clear and the questionnaire was quick and easy to complete. However, suggestions for improvement were made, which resulted in eight items being revised and one new item included.

During step 3 (pilot study), the retained 69-item questionnaire was subjected to a pilot study for further purification and to test for evidence of reliability. Further suggestions for improvement were made, and the Cronbach alpha values of the six dimensions were higher than 0.70, which was considered adequate for the purpose of the study.

The instrument was then administered to a group of adults who were permanently employed in a higher education institution in the Gauteng Province of South Africa. A non-probability convenience sample of 305 was used to further optimise the instrument and for further analysis.

The third phase (steps 4, 5 and 6) involved the statistical analysis and validation of the instrument. The first phase in the data analysis process involved cleaning and organising the data. The data was thus scrutinised for missing values, outliers and unengaged responses. The data was further assessed for normality and kurtosis. EFA and CFA (step 4) were then performed to evaluate the performance of the 69 individual items and to further refine the instrument. Prior to factor extraction, a number of tests were performed to assess the suitability of the data for factor extraction. The results of Bartlett's test of sphericity and the KMO measure of sample adequacy confirmed that the data was suitable for factor analysis. The scree plot and parallel analysis signified 15 significant factors that explained 67.54% of the total variance. It was concluded that the results of the initial EFA had overestimated the number of factors for the dataset. Consequently, during the first round of EFA, items with low factor loadings and high cross-loadings were removed. Only 42 items were retained, and these were subjected to a second round of EFA. The results of the scree plot and parallel analysis signified nine significant factors that were labelled *social support coping (SOC)*, *religious coping (REL)*, *cognitive coping (COG)*, *active leisure coping (ACT LEI)*, *avoidant coping (AVOID)*, *social disengagement (SOC DIS)*, *vacation time (VAC TIME)*, *ruminantion (RUM)* and *emotional coping (EMO)*. The nine factors retained explained 70.38% ($\geq 60\%$) of the total variance of the dataset. The nine-factor structure was thus accepted and subjected to CFA.

CFA was used to confirm the factor structure, and goodness-of-fit indices were utilised to determine the degree to which the theoretical model was consistent with the empirical data. The original model for the nine dimensions underlying the Coping Strategies Questionnaire showed mediocre to poor fit. There was thus a significant discrepancy between the correlations proposed and the correlations observed. Modification indices were assessed to remedy the discrepancies between the proposed and estimated model. Consequently, nine items with residuals equal to or greater than 4.0 were removed. The revised model for the nine dimensions underlying the Coping Strategies Questionnaire was indicative of an acceptable model fit with a chi-square of 820.75 (459 *df*), $CMIN/DF = 1.79$, $p = 0.00$, $NFI = 0.87$, $RFI = 0.85$, $TLI = 0.93$, $CFI = 0.94$, $RMSEA = 0.05$, and $SRMR = 0.05$.

In the fifth step, the validity and reliability of the revised model were evaluated for each dimension. The results revealed that reliability (CR) for all the dimensions was above the recommended threshold of 0.70, the convergent reliability (AVE) was above the recommended 0.50 threshold, and discriminant validity (MSV and ASV) for all the dimensions fell within the recommended threshold, where $MSV < AVE$ and $ASV < AVE$. Considering the goodness-of-fit and reliability and validity results, the revised model was accepted.

6.5.3 Research objective 2

Research objective 2 was to explore which occupational stressors academics are confronted with in their institutions.

A number of stressors that were mostly administration related (49.5%) were highlighted. The major stressors that the participants in the sample perceived as stressful included factors intrinsic to the job (52.1%), namely work overload (23.9%), inappropriate deadlines and time pressures (13.1%) and administrative demands (7.9%). Other sources, such as career development and progression (9.3%), lack of support from support departments (5.6%), poor leadership and management practices (2.6%) and poor interpersonal relationships with management (3.0%) were also identified in this study. The *job-specific* stressors that the participants in the sample perceived as extremely stressful were isolation and unfair treatment (group mean = 9.57) and their roles in the organisation (group mean = 8.25).

These results corroborate findings by Ablanedo-Rosas et al. (2011), Biron et al. (2008), Devonport et al. (2008) and Gillespie et al. (2001), who also found that the major source of occupational stress among university employees was work overload. Subsequently, previous researchers also found that stressors such as inappropriate deadlines and time constraints (Barkhuizen & Rothmann, 2008; Devonport et al., 2008), a substantial number of administrative tasks (Devonport et al., 2008; Gillespie et al., 2001), poor interpersonal relationships (Archibong et al., 2010; Sliškovčić & Maslic Seršič, 2011), poor leadership and management practices (Kinman, 2001; Winefield et al., 2003); and increased pressure to publish research (Abouserie, 1996; Bezuidenhout, 2015) resulted in psychological and physiological distress among employees at academic institutions.

6.5.4 Research objective 3

Research objective 3 was to explore which coping strategies academics adopt to regulate heightened emotions to respond to occupational stressors that are perceived as taxing or exceeding their coping resources.

The mean scores for the adaptive coping strategies, namely *social support coping*, *cognitive coping*, *active leisure* and *emotional coping*, were above the proposed threshold of 3.0, which suggests that the participants adopted adaptive coping strategies to cope with occupational stress. These findings were synonymous with the findings of previous research in that

academics mostly adopt adaptive coping strategies, such as active planning (Ladebo & Oloruntoba, 2005), problem solving (Odirile et al., 2009; Mate Siakwa, 2014), seeking social support (Devonport et al., 2008; Mate Siakwa, 2014), and exercises (Holton et al., 2015) to cope with occupational stress. In addition, these researchers also found that academics adopt maladaptive coping strategies, such as using alcohol (Holton et al., 2015), avoidance coping (Odirile et al., 2009; Mate Siakwa, 2014) and social disengagement (Ladebo & Oloruntoba, 2005) to cope with stress. The results of the current study, however, revealed that the participants rarely (mean = 2.53) used maladaptive coping strategies to cope with occupational stress. Maladaptive coping strategies are associated with poor modulation skills (Newman & Llera, 2011), increased psychological distress (Holahan et al., 2005), and occupational stress (Pasillas et al., 2006).

6.5.5 Research objectives 4 and 5

Research objective 4 was to determine whether the coping strategies positively and significantly predicted coping success, while research objective 5 was to determine whether there was a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model.

The results show that the revised model (figure 6.5) explained 33% of the variance in coping success. In terms of relative importance, coping success was mostly explained by *cognitive coping*, *avoidant coping* and *social support coping*. The highest coefficients, and thus the strongest relationships, were evident between the *cognitive coping*, *social support coping* and *vacation time* variables and coping success. In addition, negative (inverse) relationships were observed between the *avoidant coping*, *social disengagement* and *ruminating* variables and coping success. These results imply that academics who adopt adaptive (cognitive and social support and vacation time) coping strategies are able to modulate the felt emotions to change their perception of the stressor. Adaptive coping strategies are therefore associated with coping success, physical and mental health and wellbeing, and consequently organisational success (Aldao et al., 2010). In contrast, academics who adopt maladaptive (*avoidant coping*, *social disengagement* and *ruminating*) coping strategies are unable to change the aversive experiences or events that elicit negative emotions (Newman & Llera, 2011). Experiential avoidance involves avoiding, ignoring or escaping from psychological experiences and environmental demands that are perceived as taxing or exceeding the individual's coping resources. Individuals who adopt *experiential avoidance coping strategies* therefore do not remain in contact with aversive experiences and do not take action to change these aversive

experiences (Chawla & Ostafin, 2007). Individuals who adopt maladaptive coping strategies therefore continue to experience psychological distress because they are unable to regulate the emotion that elicits the stress response.

6.5.6 Research objective 6

Research objective 6 was to test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups. The results revealed that the invariance model tested achieved acceptable goodness-of-fit indices. Furthermore, the results show that the factorial structure of the Coping Strategies Questionnaire and the meaning of its underlying constructs were invariant across the different demographic groups.

6.5.7 Research objective 7

Research objective 7 was to assess whether there were significant differences between individuals from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress. Independent sample t-tests and the analysis of variance (ANOVA) technique were used to achieve this research objective. Significant differences were observed between males and females, the age groups and the participants' highest level of education. No significant differences were evident between the participants' job level and the independent variables.

6.5.7.1 Gender

With regard to gender, the extent to which the coping strategies regulated the heightened emotions (*coping success*) for female participants was slightly greater than for male participants. The coping strategy, in this sample, *emotional coping*, that females used to cope with occupational stress therefore modulated their heightened emotions. These findings were synonymous with previous research, in that women tend to adopt coping strategies aimed at changing their emotional response to a stressful situation (Endler & Parker, 1990; Kelly, Tyrka, Price, & Carpenter, 2008; Matud, 2004).

6.5.7.2 Tenure

The participants' years of experience (tenure) had an influence on the coping strategies that they adopt in response to occupational stress. Employees with less than 10 years' working

experience in higher education prefer *social support coping* strategies to cope with occupational stress.

6.5.7.3 Age

The age groups differed significantly regarding the coping strategies they adopt in response to occupational stress. Younger academics (between the ages of 25 and 39) seem to prefer *avoidant coping* and *ruminating* to cope with occupational stress, whereas the more experienced academics (between the ages of 56 and 65) prefer *social disengagement*. It is interesting to note that both age groups prefer strategies that have been categorised as experiential avoidance in the literature.

6.5.7.4 Highest qualification

The participants' highest level of education had an influence on the coping strategies they adopt in response to occupational stress. The results, firstly, revealed that the participants with a master's degree experienced more *coping success* than academics with an undergraduate degree. The proposed coping strategies therefore enabled these academics to modulate their heightened emotions in response to the occupational stressors that brought about distress. Chang and Taylor (2013) also found that higher education levels promoted the efficacy of coping in stress alleviation.

Secondly, the results revealed that participants with an undergraduate (grade 12 certificate, higher certificate and/or diploma) qualification adopted *religious coping* strategies, while academics with a bachelor's and doctoral degree, respectively, adopted *avoidant* and *active leisure coping* strategies to cope with the stressors in the workplace. In a study conducted by Odirile et al. (2009), the researchers found that academics with higher qualifications (such as a master's degree) used more avoidant coping and problem-solving strategies to cope with occupational stress than those with lower qualifications. However, in the present study, it seemed as if academics who had obtained a doctoral degree, preferred to engage in relaxing activities (*active leisure coping*) to disengage from the workplace and its stressors. Younger academics (between the ages of 25 and 39), who had obtained an undergraduate degree, seemed to favour *avoidant coping*, which is in contract with the results obtained by Odirile et al. (2009). It was concluded that junior (or young) academics, who still need to progress in their careers, chose to "buy time" and/or ruminate about the stressor before attempting to cope with it.

6.5.7.5 Job level

No significant differences were found between the participants' job level and the independent variables. Abbas and Roger (2013) and Ladebo and Oloruntoba (2005) reported similar results, namely that no significant differences were observed between senior academics (professors and associate professors) and less experienced faculty members (lecturers).

6.6 CONCLUSIONS REGARDING THE RESEARCH HYPOTHESES

Table 6.36 summarises the research hypotheses formulated for this study.

Table 6.36

Summary of the research hypotheses

<i>Research objective</i>	<i>Research hypotheses</i>		<i>Accepted/ Rejected</i>
Research objective 1: To construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress	H₀1	A six-factor structure is not expected to underlie the Coping Strategies Questionnaire in order to support the six proposed dimensions of the instrument.	Accepted
	H_a1	A six-factor structure is expected to underlie the Coping strategies Questionnaire in order to support the six proposed dimensions of the instrument.	Rejected
Research objective 2: To explore which occupational stressors academics are confronted with in their institutions	H₀2.1	Academics are not confronted with stressors that are organisation specific.	Rejected
	H_a2.1	Academics are confronted with stressors that are organisation specific.	Accepted
	H₀2.2	Academics are not confronted with stressors that are job specific.	Rejected
	H_a2.2	Academics are confronted with stressors that are job specific.	Accepted
Research objective 3: To explore which coping strategies academics adopt to regulate heightened emotions in response to occupational stressors that are perceived as taxing or exceeding their coping resources	H₀3	Academics do not adopt adaptive coping strategies to regulate heightened emotions in response to occupational stressors that are perceived as taxing or exceeding their coping resources.	Rejected
	H_a3	Academics adopt adaptive coping strategies to regulate heightened emotions in response to occupational stressors that are perceived as taxing or exceeding their coping resources.	Accepted
Research objective 4:	H₀4.1	The adaptive coping strategies do not positively and significantly predict coping success.	Rejected

<i>Research objective</i>	<i>Research hypotheses</i>		<i>Accepted/ Rejected</i>
To determine whether the coping strategies positively and significantly predict coping success	H_a4.1	The adaptive coping strategies positively and significantly predict coping success.	Accepted
	H₀4.2	The maladaptive coping strategies do not positively and significantly predict coping success.	Accepted
	H_a4.2	The maladaptive coping strategies positively and significantly predict coping success.	Rejected
Research objective 5: To determine whether there is a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model	H₀5	The theoretically hypothesised model does not have a good fit with the empirically manifested structural model.	Rejected
	H_a5	The theoretically hypothesised model has a good fit with the empirically manifested structural model.	Accepted
Research objective 6: To test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups	H₀6	The model does not apply across groups and indicates measurement variance.	Rejected
	H_a6	The model does apply across groups and indicates measurement invariance.	Accepted
Research objective 7: To assess whether significant differences exist between academics from different demographic backgrounds with regard to the coping strategies that they adopt in response to occupational stress	H₀7	There are no significant mean differences between the groups of biographical variables and the independent variables.	Rejected
	H_a7	There are significant mean differences between the groups of biographical variables the independent variables.	Accepted

Note: H₀: Null hypothesis; H_a: Alternative hypothesis

6.7 CONCLUSION AND CHAPTER SUMMARY

In this chapter, the statistical results of the study were outlined and discussed. The descriptive and inferential statistics of relevance to this research were reported, which included data cleaning and organising, instrument and model development, thematic analysis, testing for group mean differences and invariance testing. The results were interpreted to enable the researcher to integrate the findings of the literature review with the empirical research findings. The results provided supportive evidence for the formulated research objectives and hypotheses. The following empirical research objectives were achieved in this chapter:

Research objective 1: To construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress

- Research objective 2:** To explore which occupational stressors academics are confronted with in their institutions
- Research objective 3:** To explore which coping strategies academics adopt to regulate heightened emotions to respond to occupational stressors that are perceived as taxing or exceeding their coping resources
- Research objective 4:** To determine whether the proposed coping strategies positively and significantly predict coping success
- Research objective 5:** To determine whether there is a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model
- Research objective 6:** To test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups
- Research objective 7:** To assess whether significant differences exist between individuals from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress

Chapter 7 addresses research objectives 8 and 9, namely to develop an empirical model for coping with occupational stress and to make recommendations for industrial and organisational psychology practices based on the findings of this research study. The chapter also includes the conclusions, limitations and recommendations for the research.

CHAPTER 7

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

“Enough research will tend to support your conclusions.”

– Arthur Bloch

7.1 INTRODUCTION

This chapter addresses empirical research objectives 8 and 9, namely to develop an empirical model for coping with occupational stress for higher education institutions in South Africa, and to formulate conclusions based on the findings, to make recommendations to industrial and organisational psychology practices, specifically in higher education institutions, and for possible future research based on the findings of this research study. The chapter outlines the main conclusions of the study, discusses the research limitations and makes recommendations for the practical application of the findings and for possible future research studies.

7.2 CONCLUSIONS

The primary objective of this research was to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress. The study further aimed to determine whether individuals from different demographic backgrounds differ significantly with regard to the coping strategies they adopt in response to occupational stress. The pursuit of the primary objectives of the study was supported by setting several secondary objectives, as outlined in section 1.4.2. Conclusions were drawn about each of the specific outcomes, which are discussed in the sections below.

7.2.1 Conclusions regarding the literature review

This section focuses on the conclusions based on the literature review in accordance with the objectives formulated in chapter 1.

7.2.1.1 Research objective 1: To conceptualise the constructs of stress, occupational stress, emotion regulation and coping by means of a comprehensive literature review

The first research objective, namely to conceptualise the constructs of stress, occupational stress, emotion regulation and coping, was achieved in chapters 2, 3 and 4.

a Conclusions about the constructs of stress and occupational stress

The concept of stress, which is still a source of immense interest among psychologists, was defined as “the agitation, feeling of anxiety, and/or physical tension that occur when the demands placed on the individual are believed to exceed that person’s ability to cope” (Slocum & Hellriegel, 2007, p. 448). This definition was deemed appropriate for the study, because stress is perceived as a threat or challenge that is appraised as taxing or exceeding the individual’s coping resources. This definition is supported by the coping theory proposed by Lazarus and Folkman (1984, p. 141), who defined coping as the “constantly changing cognitive and behavioural efforts to manage specific internal and/or external demands that are appraised as taxing or exceeding the resources of the person”. From these definitions, it was concluded that (1) stress is a physiological and psychological state that occurs in response to a stressor; (2) individuals perceive stressors as a threat or challenge because they exceed their coping resources and endanger their health and wellbeing; and (3) individuals experience distress until they are able to cope with the stressor. Stress is thus process oriented and transactional, encompassing appraisals, coping and emotions.

Occupational stress is a major contributor to the health and performance problems of individuals, and leads to unwanted occurrences and costs for the organisation (Mostert et al., 2008; Ongori & Agolla, 2008). Occupational stress was defined as the perceived discrepancy between demands in the workplace and the individual’s ability to cope with these demands (Beheshtifar & Nazarian, 2013). It was concluded that employees experience occupational stress because of a poor fit between their abilities and their work requirements and conditions. Although various categories of determinants of occupational stress were identified, it was concluded that the organisation itself is a major source of stress for employees. Organisational stressors include, for example, factors intrinsic to the job, organisational roles, work relationships, career development or progression, organisational factors, work-family conflict, job security and control, and salary and benefits (Vokić & Bogdanić, 2008).

Stress, as conceptualised by the Person-Environment Fit Theory, Lazarus and Folkman’s (1984) Transactional Theory, the Job Demand-Control and Job Demand-Resources Model, and the ASSET model, formed the foundation for understanding the stress and occupational stress constructs. On the basis of these models, it was concluded, firstly, that stress occurs because of a misfit between the individual and the environment and his or her ability to cope with the stressor or environmental demands. Individual characteristics (such as type A and B personalities, learned helplessness, self-efficacy, locus of control, self-control, self-esteem,

psychological hardiness, optimism and negative affectivity) and sources in the external environment (such as family problems, life crises and financial difficulties) further intensify the individual's perception of the stressor. Secondly, individuals have to appraise the stressor as a threat, challenge and/or being harmful to their health and wellbeing before they make a conscious decision to cope with the stressor. Thirdly, the stressful experience continues until the individual has made a decision to cope with the stressor. Fourthly, individuals reappraise their perceptions of the stressor until they perceive it as less stressful or until it is eliminated. Fifthly, job characteristics or factors in the work environment elicit a stress response. Sixthly, stressors in the workplace could be reduced by having high control or job resources, such as feedback and social support. Lastly, a misfit between the individual and environment leads to health and performance problems for the individual and unwanted consequences for the organisation.

b Conclusions about the constructs of coping and emotion regulation

Coping and emotion regulation were conceptualised using the contextual approach to coping, the Appraisal Theory of Coping and Emotion, and the Process Model of Emotion Regulation. From the evaluation of these theories, it was concluded that coping is a continuous, goal-directed effort or process in which individuals adjust their thoughts and behaviours towards resolving the source of stress and managing the emotional reactions to it. Individuals therefore engage in coping efforts to regulate distressing emotions and doing something to change the situation that is causing the distress (Folkman & Lazarus, 1985). From the discussion above it is evident that coping is closely linked to emotion and the regulation thereof in response to environmental demands. It was therefore concluded that individuals adopt regulatory strategies to modify the magnitude of the emotional experience. Both coping and emotion regulation therefore involve affect modulation, appraisal processes and a response to a specific situation. Coping was thus perceived as a moderator of emotion, conceptualised as “emotion regulation under stress”, and defined as the conscious efforts that individuals adopt to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources.

7.2.1.2 Research objective 2: To determine which stressors academics are confronted with in their institutions

The second research objective, namely to determine which stressors academics are confronted with in their institutions, was achieved in chapter 2.

Academics experience occupational stress, which could be attributed to the continuously changing landscape in higher education (Rothmann & Barkhuizen, 2008). Mergers, increasing job demands, ever-changing class sizes, and role conflict contribute to the manifestation of stress and burnout among academics. The literature further indicates that academics have too much work and they are required to work under extreme time pressure and against strict deadlines (Devonport et al., 2008). As a result, they have to work long hours, which interferes with their home and personal life.

Stressors that academics have reported in their institutions include the following:

- work overload (Ablanedo-Rosas et al., 2011; Biron et al., 2008; Devonport et al., 2008; Gillespie et al., 2001; Mudrak et al., 2017)
- inappropriate deadlines and lack of time for planning (Devonport et al., 2008)
- student demands (Archibong et al., 2010; Darabi et al., 2017) and increasing student numbers (Martins & Ungerer, 2014)
- pressure to publish research in peer-reviewed scholarly journals (Abouserie, 1996; Malik et al., 2017; Rawat & Meena, 2014)
- administrative tasks (Bezuidenhout & Cilliers, 2010; Darabi et al., 2017; Devonport et al., 2008; Gillespie et al., 2001)
- the lack of resources and support services (Devonport et al., 2008; Gillespie et al., 2001)
- job insecurity (Gillespie et al., 2001; Safaria et al., 2010)
- a lack of promotion opportunities (Archibong et al., 2010; Winefield et al., 2003)
- poor interpersonal relationships and unfavourable social recognition (Archibong et al., 2010; Slišković & Maslic Seršič, 2011)
- poor leadership and management practices (Kinman, 2001; Winefield et al., 2003)
- inadequate salaries (Gillespie et al., 2001; Van den Berg et al., 2008; Winefield et al., 2003)
- lack of autonomy (Barkhuizen & Rothmann, 2008; Biron et al., 2008; Devonport et al., 2008)

7.2.1.3 Research objective 3: To explore the consequences of occupational stress on academics and their institutions

The third research objective, namely to explore the consequences of occupational stress on academics and their institutions, was achieved in chapter 2.

Occupational stress has devastating effects on both the academic and the institution. The consequences of occupational stress in the academic context have been associated with job dissatisfaction, poor work performance, ill-health and poor psychological wellbeing, increased smoking and alcohol abuse, poor interpersonal relationships, costly errors, absenteeism, intention to leave the institution and high staff turnover. Occupational stress has also been negatively associated with the quality of the academic's family life. Kinman (2001) and Steyn and Kamper (2006), further classified the consequences of occupational stress among academics into four categories, namely physical, psychological, behavioural and organisational consequences. These findings are summarised in table 7.1.

Table 7.1
Consequences of occupational stress among academics

<i>Physical</i>	<i>Psychological</i>	<i>Behavioural</i>	<i>Organisational</i>
<ul style="list-style-type: none"> • Headaches and migraines • Digestive disorders • Cardiovascular diseases • Physical fatigue • Sleep disorders • Back and neck pain • Muscle tension • Weight loss or gain • Lowered immunity • Skin disorders 	<ul style="list-style-type: none"> • Anxiety • Inability to concentrate • Depression • Burnout • Anger • Irritability • Helplessness • Low self-esteem 	<ul style="list-style-type: none"> • Increased smoking and alcohol use • Overeating or undereating • Aggression • Vandalism • Poor interpersonal relationships 	<ul style="list-style-type: none"> • Impaired work performance • Missing deadlines • Forgetting appointments • Making unnecessary mistakes • Absenteeism • Intention to leave the profession • High staff turnover

Source: Kinman (2001); Steyn and Kamper (2006)

7.2.1.4 Research objective 4: To determine which coping strategies academics adopt in response to occupational stress

The fourth research objective, namely to determine which coping strategies academics adopt in response to occupational stress, was achieved in chapter 3.

It was concluded that academics adopt both adaptive and maladaptive strategies to respond to occupational stressors. Adaptive strategies, such as active planning (Ladebo & Oloruntoba, 2005), problem solving (Odirile et al., 2009; Mate Siakwa, 2014), positive reappraisal (Mate Siakwa, 2014), seeking social support (Darabi et al., 2017; Devonport et al., 2008; Mate Siakwa, 2014), and exercises and relaxation (Holton et al., 2015) were reported. The maladaptive strategies that were reported included using alcohol and eating more than usual

(Holton et al., 2015), avoidance coping (Odirile et al., 2009; Mate Siakwa, 2014) and social disengagement (Ladebo & Oloruntoba, 2005).

7.2.1.5 Research objective 5: To review and discuss existing coping and emotion regulation questionnaires and dimensions

The fifth research objective, namely to review and discuss existing coping and emotion regulation questionnaires and dimensions, was achieved in chapter 3.

a Coping and emotion regulation questionnaires

A number of instruments that have been developed to measure coping and emotion regulation were outlined and briefly discussed in sections 3.4 and 3.5. From this discussion the following conclusions were drawn:

- (1) There is no clear consensus on how the coping construct should be measured. The literature revealed that, although various questionnaires have been developed to measure different aspects of coping, there is no consensus about the categorisation of coping strategies (Allen & Leary, 2010; Folkman, 2010), and the existing questionnaires do not measure all the domains that are relevant to the coping process (Zuckerman & Gagné, 2003). Consequently, the existing coping measures represent a broad array of potential coping responses.
- (2) A number of conceptual and methodological concerns were raised regarding the measurement of coping. The concerns raised included
 - developing questionnaires with no clear purpose in mind
 - generating items solely from existing literature and feedback obtained from content experts
 - generating too few items that are vague and undefined or including items that are too situation specific or inappropriate for the population under investigation
 - using ambiguous response formats
 - poor reliability and validity estimates
 - extracting too many factors that present undesirable error variance
 - failing to conduct or report on the results of the CFA and empirical validation of the instrument
- (3) Very few coping and emotion regulation instruments have been developed and validated in a South African and African context. The COPE (Stapelberg & Wissing, 1999; Van der Walt et al., 2008; Visser, 2005) and CSE (Van Wyk, 2010) have been validated for a

South African and African context, and one coping instrument was developed in a South African context, but it was not finalised nor standardised (De Beer & Korf, 2005).

In light of the above and the methodology discussed in chapter 5, the conclusion was drawn that the construct domain should be clearly defined. The construct domain should be conceptualised by means of a thorough literature review to (1) gain an understanding of the construct under investigation, (2) identify shortcomings in the literature, (3) determine whether it is necessary to develop a new questionnaire, and (4) generate measurable items that demonstrate content validity. One might thus argue that a deductive approach to developing instruments is more attractive, because the construct domain is clearly defined and the dimensions are theoretically derived. The psychometric properties of the emotion regulation questionnaires, which were deductively developed, were thus acceptable. Therefore, deductive development of an instrument could eliminate or reduce the conceptual and methodological concerns raised above.

It was further concluded that a large, overinclusive item pool and expert review are advantageous to the instrument development process, that response format matters, and EFA, CFA and validity assessments are essential for refining the instrument. Firstly, too few items have a negative effect on the psychometric properties of an instrument. It is therefore beneficial to develop an item pool that is comprehensive to test the homogeneity of the items within each construct. Secondly, an expert review is valuable to the instrument development process since it maximises the content validity of the instrument (DeVellis, 2012). Content experts are thus able to confirm or invalidate the definition of the construct, evaluate the conciseness of the items, and make recommendations for improving or removing items that do not measure the construct domain. Thirdly, the choice of the response format should be consistent with the construct domain and the wording of the items since it influences the validity of the instrument (Sirakaya-Turk et al., 2011). Lastly, EFA, CFA and validity assessments should be utilised and reported on in order to evaluate the performance of the individual items and further refine the instrument. These analyses are crucial for the development of an instrument, because the findings of the study could be questioned if the constructs are not adequately measured. In summary, from the discussion above, it is evident that the instrument development process proposed and followed in this study (section 5.6) could address the conceptual and methodological concerns raised in the literature.

b Coping and emotion regulation dimensions

Skinner et al. (2003) identified 400 types of coping strategies in a synthesis of research on coping, which indicated that there is no consensus among researchers on the best way to conceptualise coping and the categorisation of coping strategies. The literature further revealed a number of overarching characteristics (commonalities) between the coping and emotion regulation strategies as summarised below:

- (1) *Experiential avoidance (EA)*, for example, shares commonalities with *avoidance* in that both strategies measure the individual's inclination to avoid an environmental demand that elicits an emotional response. Similar to avoidance coping, EA coping includes instances of attempts to escape the stressful event (escape avoidance), to become independent of the stressful event and accompanying emotions (detached coping), and/or to inhibit the expression of emotions (emotion suppression). EA further includes regulatory processes such as rumination, thought suppression and worry (Chawla & Ostafin, 2007; Karekla & Panayiotou, 2011; Kashdan et al., 2006).
- (2) *Distraction* as a coping strategy, shares commonalities with distraction as an emotion regulation strategy, in that it involves the deployment of attention away from the negative aspects of a situation that elicit an emotion (Gross, 1998). Distraction is measured by coping questionnaires such as the CISS, EACS, and MEAQ, and is considered an avoidance coping strategy (Karekla & Panayiotou, 2011).
- (3) *Reappraisal*, which is a component of the transactional theory of Lazarus and Folkman and the process model of emotion regulation, involves reinterpreting the meaning of a stressor to alter its emotional impact (Gross, 1999; Lazarus & Folkman, 1984). Coping questionnaires such as the WCQ, EACS and RCOPE, and the Cognitive Emotion Regulation Questionnaire (CERQ) measure reappraisal.
- (4) Emotion regulation strategies such as *suppression* and *acceptance* are measured by coping questionnaires, such as the COPE (Carver et al., 1989), and experiential avoidance is measured by coping processes such as rumination and thought suppression.

The most widely used dimensions and subdimensions of coping and emotion regulation are summarised in table 7.2.

Table 7.2

Dimensions and subdimensions of coping and emotion regulation

<i>Distinction</i>	<i>Definition</i>
<i>Coping</i>	
Problem-focused versus emotion-focused coping	Problem-focused and emotion-focused coping reflect the function of coping responses to either act on a source of stress in the environment (problem focused) or modulate negative emotions that arise from the stressful situation (emotion focused) (Lazarus & Folkman, 1984).
Primary versus secondary control	Primary control involves controlling the environment itself, whereas secondary control involves changing oneself and one's reactions to the stressful situation (Compas et al., 2001; Folkman, 2010; Zimmer-Gembeck & Skinner, 2016).
Engagement versus disengagement coping	Engagement coping is aimed at dealing with the stressor or resulting distress. Disengagement coping is aimed at escaping from the stressor or distressing emotion (Carver & Connor-Smith, 2010).
Adaptive versus maladaptive coping	Adaptive coping strategies are adopted to change the nature of a stressful situation to decrease its problematic nature, or to modify how one thinks and feels about the situation in order to change one's reaction to it (Carroll, 2013). Maladaptive coping strategies include, for example, suppression, disengagement and avoidance, and are associated with poor modulation skills (Newman & Llera, 2011).
Avoidance coping	Avoidance coping is defined as individuals' cognitive and behavioural efforts to avoid dealing with a situation, an individual, an emotion, thought or any other object that causes harm (Stemmet, 2013).
Proactive coping	Proactive coping includes "efforts undertaken in advance of a potentially stressful event to prevent it or to modify its form before it occurs" (Aspinwall & Taylor, 1997, p. 417).
Cognitive coping	Cognitive coping is defined as the cognitive efforts that individuals adopt to manage the intake of emotion-arousing stimuli (Legerstee et al., 2011).
Emotional coping	Emotional coping is defined as the effortful attempt to approach one's emotions in response to stressful encounters that are appraised as taxing or exceeding an individual's coping resources (Stanton et al., 2002).
Religious coping	Religious coping is defined as "ways of understanding and dealing with negative life events that are related to the sacred" (Pargament & Raiya, 2007, p. 743).
<i>Emotion regulation</i>	
Experiential avoidance	Experiential avoidance is defined as the suppression or avoidance of an array of psychological experiences, including thoughts, emotions, sensations, memories and urges (Hayes et al., 1999).
Distraction	Distraction is an adaptive form of self-reflection that involves the deployment of attention away from the negative aspects of a situation (Gross, 1998).
Rumination	Rumination is defined as the process that individuals engage in to think about what causes their problems, emotions, negative thoughts and actions, and the consequences of these symptoms (Nolen-Hoeksema et al., 2008).
Reappraisal	Reappraisal involves reinterpreting the meaning of an event to alter its emotional impact (Gross, 1998).
Suppression	Suppression is conceptualised as an effortful and conscious process that diverts an individual's attention away from unwanted thoughts and

<i>Distinction</i>	<i>Definition</i>
	emotions, and an effortless and unconscious monitoring process that ensures that the unwanted thought and/or emotion do not resurface in the consciousness (Najmi & Wegner, 2009). Suppression further includes expressive and thought suppression.
Acceptance	Acceptance is a response-focused strategy, which allows the individual to experience an emotion without attempts to alter or suppress it (Gross, 1998).

Source: Author's own compilation

From the discussion above and the literature discussed in chapter 3, it is evident that various regulatory strategies are adopted to modify the magnitude of the emotional experience that is elicited by a specific situation that is appraised as stressful. Consequently, to achieve the primary objective of this study, both coping and emotion regulation dimensions and subdimensions, discussed in the literature, were considered in identifying dimensions that theoretically measure coping with occupational stress.

7.2.1.6 Research objective 6: To identify dimensions and subdimensions for measuring coping with occupational stress in higher education institutions in South Africa

The sixth research objective, namely to identify dimensions and subdimensions for measuring coping with occupational stress in higher education institutions in South Africa, was achieved in chapter 4.

Six theoretical dimensions or strategies that academics adopt to regulate heightened emotions in response to occupational stressors were proposed. The six proposed strategies were (1) *cognitive*, (2) *emotional*, (3) *social support*, (4) *leisure*, (5) *religious*, and (6) *experiential avoidance coping*. The proposed six-dimensional measures of coping with occupational stress are discussed below and were presented in figure 4.8.

- (1) *Cognitive coping* was conceptualised as an active coping strategy, and defined as the cognitive processes of acquiring knowledge and understanding through thought and experiences to manage the intake of emotional arousing stimuli. In addition, five subdimensions that measure cognitive coping were identified, namely (1) cognitive restructuring, (2) acceptance, (3) problem-solving coping, (4) planning and (5) critical thinking.
- (2) *Emotional coping* was conceptualised as an adaptive coping strategy, and defined as the subjective, psychological and physiological expressions and reactions to stressful encounters that are appraised as taxing or exceeding the individual's coping resources.

Emotional expression and emotional processing (Stanton et al., 2002) were identified as subdimensions that measure emotional coping.

- (3) *Social support coping* was conceptualised as the perceived support that individuals receive from their social support network or personal relationships to regulate heightened emotions in response to environmental demands that are perceived as taxing or exceeding their coping resources. In addition, (1) emotional support, (2) network support, (3) information support, and (4) tangible (or instrumental) support were identified as subdimensions that measure social support coping.
- (4) *Leisure coping* was categorised as a situational and active coping strategy that individuals use to regulate heightened emotions (Iwasaki, 2003a). Leisure coping was defined as the physical activities that individuals voluntarily engage in to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources. Leisure participation was further grouped into four strategies, namely (1) passive leisure, (2) active leisure, (3) social leisure activities, and (4) vacation time, which theoretically measure leisure coping.
- (5) *Religious coping* was defined as “ways of understanding and dealing with negative life events that are related to the sacred” (Pargament & Raiya, 2007, p. 743). The coping dimensions were further constructed with due regard to the positive religious coping strategies identified by Pargament et al. (2000). Organisational religious activity (ORA) and non-organisational religious activities (NORA) were recognised as proposed subdimensions that measure religious coping.
- 6) *Experiential avoidance coping* was conceptualised as a maladaptive coping strategy that individuals engage in to alter the form and frequency of any aversive experience and distress (Hayes et al., 1999). Four EA coping subdimensions, namely (1) expressive suppression, (2) thought suppression, (3) avoidant coping, and (4) rumination were identified as subdimensions that measure EA coping. It was further proposed that the avoidant coping subdimension measures self-destructive behaviour, and behavioural, social and religious disengagement.

7.2.1.7 Research objective 7: To develop a conceptual model for coping with occupational stress for higher education institutions in South Africa, based on the theoretical relationship dynamics between occupational stress, coping and emotion regulation

The seventh research objective, namely to develop a conceptual model for coping with occupational stress for higher education institutions in South Africa, based on the theoretical

relationship dynamics between occupational stress, coping and emotion regulation, was achieved in chapter 4.

The literature review (discussed in chapters 2 and 3) and proposed dimensions of coping with occupational stress (discussed in section 4.3) formed the theoretical foundation on which the proposed conceptual model was designed. The proposed conceptual model was illustrated in figure 4.9 and discussed in section 4.3.

The following conclusions are drawn from the proposed conceptual model for coping with occupational stress:

- Individuals perceive the organisation or workplace stressors (such as extra-organisational stressors, occupational stressors, group stressors and individual stressors) as threats that affect their health and wellbeing (Beheshtifar & Nazarian, 2013; Vokić & Bogdanić. 2008).
- A workplace stressor that is perceived, through primary appraisal, as stressful elicits an emotion (Folkman & Lazarus, 1988).
- Emotions that originate from the appraisal process should be regulated to modify the magnitude of the emotional experience and/or emotion-eliciting event.
- Regulatory strategies are adopted to respond to the felt emotion and modulate the individual's perception of the stressor (Schmidt et al., 2010). The strategy that individuals adopt depends on how they feel emotionally (Folkman & Lazarus, 1988).
- Adaptive coping strategies (*cognitive, emotional, social support, leisure and religious coping*) modulate the felt emotions and are positively associated with physiological and psychological health and wellbeing and organisational success (Aldao et al., 2010; Moritz et al., 2016).
- Maladaptive strategies (*experiential avoidance coping*) prevent individuals from regulating emotions and/or taking action to change the experiences or events that elicit them. Maladaptive coping is associated with increased psychological distress, occupational stress and disorders such as anxiety, depression and burnout (Holahan et al., 2005; Karekla & Panayiotou, 2011; Mark & Smith, 2011; Newman & Llera, 2011; Pasillas et al., 2006; Van der Colff & Rothmann, 2009).
- Individuals who adopt maladaptive coping strategies continue to reappraise the stressor until they are able to adopt adaptive coping strategies.
- The coping process is a continuous effort that individuals engage in to maintain psychological adaptation during stressful periods. Coping was therefore conceptualised as "emotion regulation under stress".

7.2.2 Conclusions regarding the empirical study

This section focuses on the conclusions based on the empirical study in accordance with the objectives as set out in chapter 1.

7.2.2.1 *Research objective 1: To construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress*

The first research objective, namely to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress, was achieved in chapters 5 and 6. The empirical results provided supportive evidence for research hypothesis H₀₁.

The instrument was developed with due regard to the instrument development process proposed by various scale development authors (Barry et al., 2011; DeVellis, 2012; Du Preez et al., 2008a; 2008b; Netemeyer et al., 2003; Schmiedel et al., 2014; Slavec & Dronovšek, 2012; Worthington & Whittaker, 2006). These steps were explained in chapter 5 and summarised in sections 5.6 and 6.2.

The Coping Strategies Questionnaire is a 33-item self-report measuring instrument that was deductively developed to measure coping with occupational stress (available from the researcher upon request). The questionnaire determines which coping strategies academics adopt in response to a specific occupational stressor. The construction of the questionnaire was based on a sample of 305 university employees who were permanently employed in a higher education institution in the Gauteng Province of South Africa. Participants were required to complete the questionnaire online where they had to (1) identify and describe a job-specific stressor, (2) indicate which emotion/s they experienced when confronted with the stressor, and (3) indicate whether they had used specific coping strategies to cope with the job-specific stressor. The coping strategies were scored on a six-point agreement Likert scale, varying from 1 (*strongly disagree*) to 6 (*strongly agree*).

In developing the questionnaire, an initial item pool of 82 items was generated. However, after conducting various analyses only 33 items were retained. Consequently, nine empirically validated coping strategies emerged, namely (1) *social support coping*, (2) *religious coping*, (3) *cognitive coping*, (4) *active leisure coping*, (5) *avoidant coping*, (6) *social disengagement*,

(7) *vacation time*, (8) *rumination* and (9) *emotional coping*. These strategies were further classified as adaptive or maladaptive coping strategies.

Strong support exists for the psychometric properties of the Coping Strategies Questionnaire. Firstly, the questionnaire was deductively developed after conducting a thorough literature review that served as the foundation on which the conceptual model with proposed dimensions was developed (see section 6.2.1). Secondly, empirical support for construct and content validity (see section 6.2.2), internal consistency reliability (see section 6.2.3) and composite reliability (CR) was shown (see section 6.2.6.2). The instrument further demonstrates convergent and discriminant validity (see section 6.2.6.2). Lastly, the factor structure of the questionnaire was confirmed using CFA (see section 6.2.6.2). Table 7.3 provides a synopsis of the Coping Strategies Questionnaire.

Table 7.3
Coping Strategies Questionnaire: Summary of development and psychometric properties

<i>Element</i>	<i>Description</i>
Conceptualisation	Coping was conceptualised as “emotion regulation under stress”, and defined as the conscious efforts that individuals adopt to regulate heightened emotions to respond to environmental demands that are perceived as taxing or exceeding their coping resources.
Purpose	The questionnaire determines which coping strategies academics adopt in response to a specific occupational stressor.
Item generation and development approach	A deductive approach was used to generate an initial pool of 82 items.
Population/sample	An online questionnaire was administered to a diverse group of adults who were permanently employed in a higher education institution in the Gauteng Province of South Africa. A non-probability convenience sample of 305 usable questionnaires was returned.
Response format	A six-point agreement Likert scale was used, ranging from <i>strongly disagree</i> (1) to <i>strongly agree</i> (6).
Optimisation methods/statistical analyses	Expert review Cognitive interviews Pilot study EFA CFA
Classification of the coping strategies	Adaptive coping strategies Maladaptive coping strategies
Coping strategies	<i>Adaptive coping strategies</i> Cognitive coping (COG) Emotional coping (EMO) Social support coping (SOC) Active leisure coping (ACT LEI) Vacation time (VAC TIME)

<i>Element</i>	<i>Description</i>
	Religious coping (REL) Maladaptive coping strategies Avoidant coping (AVOID) Social disengagement (SOC DIS) Rumination (RUM)
Number of items	33 items
Psychometric properties	Construct validity: EFA and CFA Content validity: Expert review, cognitive interviewing and pilot study Cronbach alpha coefficient for the instrument: 0.87 (≥ 0.70) Acceptable model fit: CMIN/DF ≤ 5.0 Construct reliability (CR): Between 0.72 and 0.92 Convergent reliability (AVE): ≥ 0.50 Discriminant validity: MSV $<$ AVE and ASV $<$ AVE

Source: Author's own compilation

From the discussion above and results presented in chapter 6, it is evident that the conceptual and methodological concerns raised in section 7.2.1.5 were addressed in developing the Coping Strategies Questionnaire.

7.2.2.2 *Research objective 2: To explore which occupational stressors academics are confronted with in their institutions*

The second research objective, namely to explore which occupational stressors academics are confronted with in their institutions, was addressed in sections 6.3.1 and 6.5.3. The empirical results provided supportive evidence for research hypotheses H_a2.1 and H_a2.2.

From the empirical results the following conclusions could be drawn:

- Academics perceive both *organisation-specific* and *job-specific stressors* as demands that tax or exceed their coping resources.
- Concerning *organisation-specific stressors*, academics perceive the leadership style of their supervisor or manager as a potential source of stress which causes them to experience frustration with management.
- Academics further perceive *factors intrinsic to the job*, such as work overload, time pressure and administrative demands as major sources of stress which elicit emotions such as frustration, anxiousness, anger, irritability and helplessness.
- Other sources, such as career development and progression, lack of support from support departments and management, and poor relationships with management were also identified in this study.

- Both organisation-specific and job-specific stressors were mostly perceived as being administration related.

7.2.2.3 Research objective 3: To explore which coping strategies academics adopt to regulate heightened emotions to respond to occupational stressors that are perceived as taxing or exceeding their coping resources

The third research objective, namely to explore which coping strategies academics adopt to regulate heightened emotions to respond to occupational stressors that are perceived as taxing or exceeding their coping resources, was achieved in sections 6.3.2 and 6.5.4. The empirical results provided supportive evidence for research hypothesis H_a3. The mean scores for the adaptive coping strategies, namely *cognitive coping*, *emotional coping*, *social support coping* and *active leisure*, were above the proposed threshold of 3.0, indicating that academics adopt adaptive coping strategies to cope with occupational stress.

7.2.2.4 Research objective 4: To determine whether the proposed coping strategies positively and significantly predict coping success

The fourth research objective, namely to determine whether the proposed coping strategies positively and significantly predict coping success, was addressed in sections 6.4.1 and 6.5.5. The empirical results further provided supportive evidence for research hypotheses H_a4.1 and H₀4.2. The empirical results revealed that the revised model accounted for 33% of the variance in coping success. In terms of relative importance, coping success was mostly explained by *cognitive coping*, *social support coping* and an inverse relationship with *avoidant coping* and *social disengagement*.

7.2.2.5 Research objective 5: To determine whether there is a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model

The fifth research objective, namely to determine whether there is a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model, was achieved in sections 6.4.1, 6.4.2 and 6.5.5. The empirical results provided supportive evidence for research hypothesis H_a5, in that the theoretically hypothesised model had a good fit with the empirically manifested structural model.

From the empirical results the following conclusions could be drawn:

- Academics who adopt adaptive (*cognitive coping, emotional coping, social support coping, active leisure coping, vacation time* and *religious coping*) coping strategies are able to modulate the felt emotions so that their perception of the stressor is altered. Adaptive coping strategies (especially *cognitive coping, social support* and *vacation time*) are thus associated with coping success, physiological and psychological health and wellbeing, and consequently organisational success (Aldao et al., 2010).
- Academics who adopt maladaptive (*avoidant coping, social disengagement* and *rumination*) coping strategies are unable to change the aversive experiences or events that elicit negative emotions. Maladaptive coping strategies are therefore not associated with coping success, and academics who adopt maladaptive coping strategies continue to experience psychological distress.

7.2.2.6 *Research objective 6: To test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups*

The sixth research objective, namely to test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups, was achieved in sections 6.4.3 and 6.5.6. The empirical results provided supportive evidence for research hypothesis H_{a6}. The results revealed that the conceptual foundation and factorial structure of the revised model of the Coping Strategies Questionnaire are invariant across different demographic groups (gender, age, highest qualification, job level and tenure). It was therefore concluded that the psychometric equivalence of the construct has the same meaning for academics from different demographic groups.

7.2.2.7 *Research objective 7: To assess whether significant differences exist between individuals from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress*

The seventh research objective, namely to assess whether significant differences exist between individuals from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress, was achieved in sections 6.4.4 and 6.5.7. The empirical results provided supportive evidence for research hypothesis H_{a7}, in that significant mean differences exist between academics from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress. Significant differences were found between males and females, age groups and the

academics' highest level of education. No significant differences exist between the academics' job level and the coping strategies they adopt.

7.2.2.8 *Research objective 8: To develop an empirical model for coping with occupational stress for higher education institutions in South Africa*

The eighth research objective, namely to develop an empirical model for coping with occupational stress for higher education institutions in South Africa, was achieved in this chapter.

Based on the results discussed in chapter 6 and the conclusions drawn in section 7.2.2, an empirical model for coping with occupational stress is presented in figure 7.1 and briefly discussed in the section below.

The model first outlines that organisational stressors, namely *organisation-specific* and *job-specific stressors*, are perceived by academics as demands that tax or exceed their coping resources. Organisation-specific stressors, such as their managers' leadership style and protest action were perceived as extremely stressful, while job-specific stressors were perceived as moderately stressful. Job-specific stressors perceived by academics further include factors intrinsic to the job, career development and progression, interpersonal relationships and lack of support from management, colleagues and support departments. Work overload, time pressure and administrative tasks, however, were perceived as stressful by most academics in the sample. Consequently, academics experience occupational stress.

The model further explains that an emotion is elicited when a workplace stressor is appraised as taxing or exceeding the individual's coping resources. This process is known as primary appraisal (Folkman & Lazarus, 1988). The results revealed that the organisation-specific stressors elicited emotions such as frustration and anxiousness, while job-specific stressors elicited emotions such as frustration, anxiousness, anger, irritability and helplessness among the academics. Once the appraisal process elicits an emotion, coping strategies are adopted to modulate the felt emotion and change the individual's perception of the stressor (Schmidt et al., 2010). Consequently, for the purposes of this study, a coping strategy was defined as an adaptive or maladaptive response to a stressor. The following nine empirically validated coping strategies emerged: (1) *cognitive coping*, (2) *emotional coping*, (3) *social support coping*, (4) *active leisure coping*, (5) *vacation time*, (6) *religious coping*, (7) *avoidant coping*, (8) *social disengagement*, and (9) *ruminating*. These strategies were further classified as adaptive or

maladaptive coping strategies. The results further revealed that academics adopt adaptive coping strategies to cope with occupational stress.

The first six strategies (*cognitive coping, emotional coping, social support coping, active leisure coping, vacation time* and *religious coping*) were classified as adaptive coping strategies because these strategies are associated with coping success, physiological and psychological health and wellbeing, and consequently organisational success (Aldao et al., 2010). Coping success among academics, however, was mostly explained by *cognitive coping*.

The remainder of the strategies (*avoidant coping, social disengagement* and *ruminant*) were classified as maladaptive coping strategies, because academics who adopt maladaptive strategies are unable to change the aversive experiences or events that elicit emotions. Maladaptive coping strategies were therefore not associated with coping success (inverse relationship), and it was concluded that academics who adopt maladaptive strategies continue to experience psychological distress. Consequently, academics who adopt maladaptive strategies continue to reappraise the stressor until they are able to adopt adaptive coping strategies.

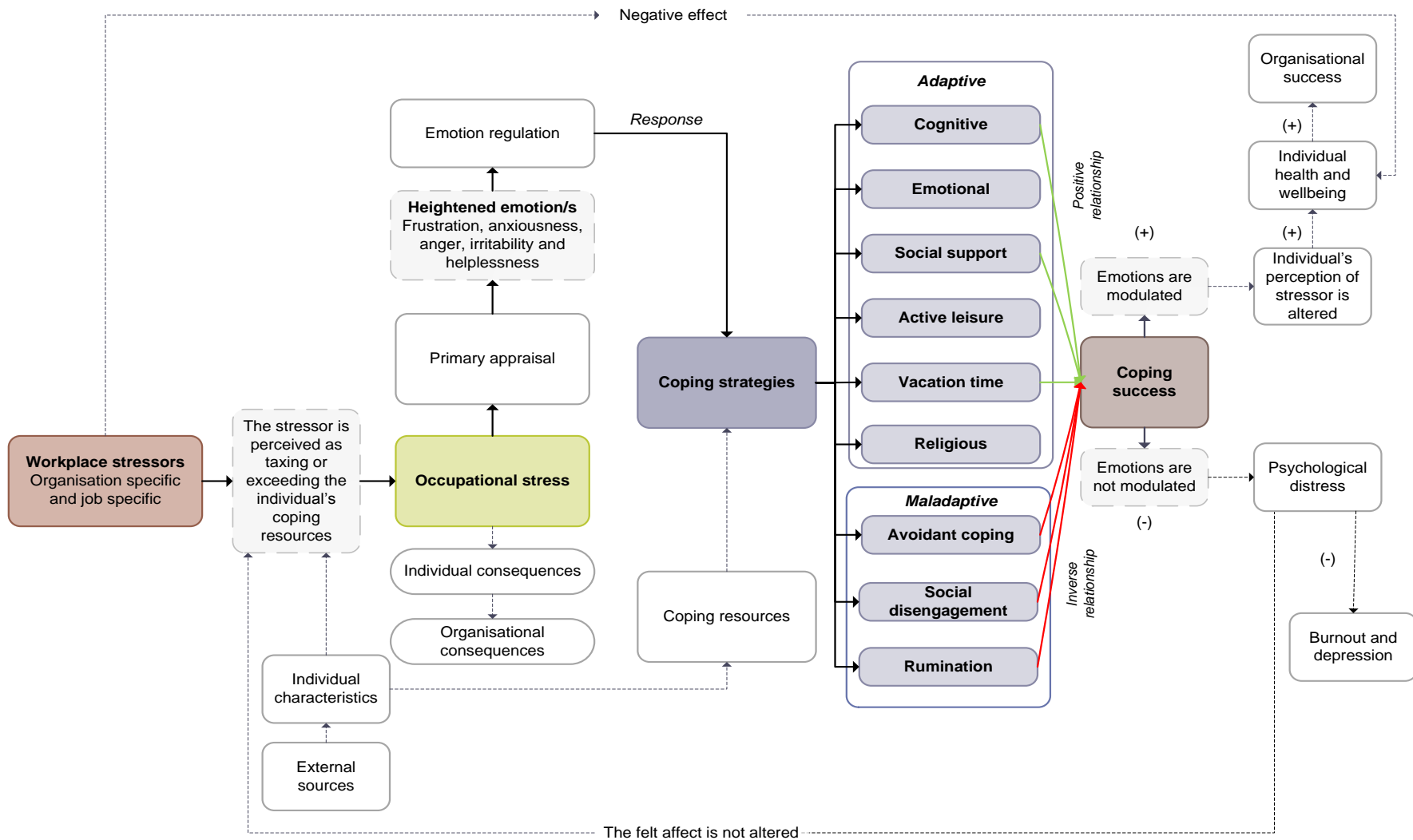


Figure 7.1. An integrated empirical model for coping with occupational stress

Source: Author's own compilation

Notes:

- Indicates the constructs or relationship measured.
- Indicates the constructs or relationship not measured.
- Indicates an inverse relationship (-).
- Indicates a positive relationship (+).

7.2.2.9 *Conclusions regarding the central hypothesis and other hypotheses*

Conclusions pertaining to the central hypothesis and other hypotheses are discussed below.

a The central hypothesis

In chapter 1, the central hypothesis of the research stated that a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress can be developed. Individuals from different demographic backgrounds differ significantly with regard to the coping strategies they adopt in response to occupational stress.

The empirical study provided evidence to support the central hypothesis.

b Hypothesis 1

A six-factor structure was expected to underlie the Coping Strategies Questionnaire to support the six proposed dimensions of the instrument. The hypothesis (H_{a1}) was, however, rejected because nine significant factors that explained 70.38% of the total variance emerged from the dataset. The nine factors were labelled as follow: (1) *social support coping*, (2) *religious coping*, (3) *cognitive coping*, (4) *active leisure coping*, (5) *avoidant coping*, (6) *social disengagement*, (7) *vacation time*, (8) *ruminantion*, and (9) *emotional coping*.

c Hypothesis 2

Academics are confronted with stressors that are organisation specific and job specific. The hypotheses ($H_{a2.1}$ and $H_{a2.2}$) were accepted and discussed in section 6.3.1.3, and summarised in sections 6.5.3 and 7.2.2.2 (Research objective 2: To explore which occupational stressors academics are confronted with in their institutions).

d Hypothesis 3

Academics adopt adaptive coping strategies to regulate heightened emotions in response to occupational stressors that are perceived as taxing or exceeding their coping resources. The hypothesis (H_{a3}) was accepted and discussed in section 6.3.2 and summarised in sections 6.5.4 and 7.2.2.3 (Research objective 3: To explore which coping strategies academics adopt to regulate heightened emotions to respond to occupational stressors that are perceived as taxing or exceeding their coping resources).

e Hypothesis 4

The adaptive coping strategies positively and significantly predict coping success. The hypothesis ($H_{a4.1}$ and $H_{04.2}$) was accepted and discussed in sections 6.4.1 and 6.4.2, and summarised in sections 6.5.5 and 7.2.2.4 (Research objective 4: To determine whether the proposed coping strategies positively and significantly predict coping success).

f Hypothesis 5

The theoretically hypothesised model has a good fit with the empirically manifested structural model. The hypothesis (H_{a5}) was accepted and discussed in section 6.4.2, and summarised in sections 6.5.5 and 7.2.2.5 (Research objective 5: To determine whether there is a good fit between the elements of the empirically manifested structural model and the theoretically hypothesised model).

g Hypothesis 6

The model does apply across groups and indicates measurement invariance. The hypothesis (H_{a6}) was accepted and discussed in section 6.4.3, and summarised in sections 6.5.6 and 7.2.2.6 (Research objective 6: To test the measurement invariance of the Coping Strategies Questionnaire across different demographic groups).

h Hypothesis 7

The biographical groups differed with regard to the coping strategies they adopt in response to occupational stress. Significant differences were found between males and females, age groups and the academics' highest level of education. No significant differences exist between the academics' job level and the coping strategies they adopt. The hypothesis (H_{a7}) was accepted and discussed in section 6.4.4, and summarised in sections 6.5.7 and 7.2.2.7 (Research objective 7: To assess whether significant differences exist between individuals from different demographic backgrounds with regard to the coping strategies they adopt in response to occupational stress).

i Hypothesis 8

The model for coping with occupational stress was empirically tested to find support for the proposed conceptual model. The hypothesis (H_{a8}) was accepted and developed on the basis

of the results discussed in chapter 6 and the conclusions drawn in section 7.2.2. The empirical model for coping with occupational stress was presented in figure 7.1 and discussed in section 7.2.2.8 (Research objective 8: To to develop an empirical model for coping with occupational stress for higher education institutions in South Africa).

7.2.3 Conclusions about the contributions to the field of industrial and organisational psychology

General conclusions were drawn in terms of the literature review, empirical study and instrument development process.

7.2.3.1 Conclusions in terms of the literature review

The findings of the literature review contributed to the field of industrial and organisational psychology, specifically to the subfields of organisational psychology and psychometrics. In terms of the literature review, the contributions are as follow:

- The literature review provided new insight into the conceptualisation of stress and coping from an organisational psychology perspective. The literature further revealed insight into the theoretical approaches that conceptualised the constructs under investigation. This knowledge led to the development of a conceptual model with proposed dimensions for coping with occupational stress. The conceptual model could thus serve as a framework for industrial and organisational psychologists to (1) appreciate the consequences of occupational stress on an employee's physiological and psychological health and wellbeing and organisational success; (2) comprehend the complexities of a coping process; and (3) recognise that employees adopt different coping strategies to modulate emotions elicited by an occupational stressor.
- The literature further revealed that although various coping questionnaires have been developed to assess different aspects of coping, there is no clear consensus on how coping should be measured. Existing literature outlines various conceptual and methodological concerns regarding the measurement of coping, and further maintains that existing coping measures do not address all the domains of coping. Van Wyk (2010) further advocates that no coping instrument has been developed and very few instruments have been validated in a South African and African context. Consequently, the literature review provided further insight into the conceptualisation of the constructs under investigation and highlighted a number of conceptual and methodological concerns that scale developers need to take into consideration when developing coping questionnaires and psychometric instruments in general. This insight led to the

development of a measuring instrument for determining which coping strategies academics adopt in response to occupational stress. Industrial and organisational psychologists could thus use this instrument (1) as a diagnostic tool for determining how employees respond to occupational stress; and (2) to identify interventions for assisting employees in coping with occupational stress. If this instrument is thus used in the context for which it was designed, the health and wellbeing of both the individual and organisation would be enhanced.

7.2.3.2 *Conclusions in terms of the empirical study*

In terms of the empirical study, the contributions are as follow:

- A valid and reliable questionnaire was developed for determining which coping strategies academics adopt in response to occupational stress. As discussed in section 7.2.3.1, this questionnaire could be used by industrial and organisational psychologists as a diagnostic tool for determining how employees respond to occupational stress and to identify interventions for assisting employees in coping with occupational stress.
- The results of the research contribute to the existing knowledge on coping and occupational stress, and more specifically on the coping strategies that academics adopt in response to workplace stressors that are perceived as taxing or exceeding their coping resources. The research furthermore provided empirical evidence that adaptive strategies are associated with coping success, and consequently affect modulation. The insight derived from these findings not only broadens industrial and organisational psychologists' perspective on coping with occupational stress, but also allows them to identify interventions that are positively related to adaptive coping.
- The empirical findings were further used to refine the conceptual model outlined and discussed in chapter 4. The model constructed from the empirical findings allows industrial and organisational psychologists to gain a deeper understanding of (1) the workplace stressors that individuals perceive as taxing or exceeding their coping resources; (2) the emotions that are elicited when a workplace stressor is perceived as stressful; and (3) the coping strategies that individuals adopt to modulate the felt emotion and change their perception of the stressor. This model should assist industrial and organisational psychologists in identifying interventions to assist employees in coping with occupational stress, which should enhance the health and wellbeing of both the individual and the organisation.
- Lastly, the significant mean differences found between academics from different demographic backgrounds provide empirical evidence that individuals, firstly, perceive

occupational stressors differently, and secondly, adopt different coping strategies to modulate their emotions to change their perception of the stressor.

7.2.3.3 Conclusions in terms of the instrument development process

In terms of the instrument development process, the contributions of this study are as follow:

- Industrial and organisational psychologists, and more specifically psychometrists, should be mindful of the psychometric properties of a measuring instrument before it is administered to individuals. The instrument should be supported by sufficient reliability and validity data, especially in the South African and African contexts.
- Lastly, the study also contributed new insights by providing relevant information on developing valid and reliable instruments. The following conclusions were drawn:
 - (1) *The importance of a well-defined construct cannot be overstated.* The construct domain, which serves as the foundation of the instrument development process, should be conceptualised by means of theory.
 - (2) *Item writing is an art and not a science.* Items that are clear, concise and readable, and reflect the instrument's purpose and content domain should be developed.
 - (3) *The size of the item pool does not matter.* Although there are no set rules about the size of the initial item pool, a large item pool should be considered because the internal consistency of an instrument is determined by how strongly the items correlate with each other.
 - (4) *The response format matters.* If an instrument fails to discriminate differences in the underlying attribute, its correlations with other instruments will be restricted and its utility will be limited (DeVellis, 2012).
 - (5) *Expert reviews and cognitive interviews increase the content validity of an instrument.* Content experts and participants from the actual population are able to provide input on the content domain, format of the instrument and understandability of the items (Irwin et al., 2009).
 - (6) *A pilot study is required to purify the instrument.* More than one pilot study is possibly required to (1) provide insight into unclear or misleading statements; (2) determine whether the instrument measures the intended dimensions; and (3) determine whether items should be included or removed before the instrument is administered to the actual population.
 - (7) *Applying multivariate analyses.* Firstly, multivariate analyses, such as EFA and CFA, should be used to further optimise the instrument. The results of these analyses should be reported. Secondly, the statistical significant thresholds stipulated for this study should be considered when applying multivariate analyses.

- (8) *Assess the measurement invariance of the construct.* Testing for measurement invariance is an important prerequisite for making meaningful comparisons between groups, especially in the South African context.
- (9) *Developers should report the results of the empirical validation of the instrument.* These analyses should provide the developer, psychometrist and/or future researchers with the confidence and affirmation that the instrument possesses reliability and validity and is suitable for use in future research.

7.3 LIMITATIONS

The limitations in terms of the literature review and the empirical study are discussed below.

7.3.1 Limitations of the literature review

The following limitations were encountered in terms of the literature review:

- *Conceptualisation of constructs.* Firstly, the sources consulted about stress, occupational stress, emotion regulation and coping were mostly of international origin. Hardly any South African research or research specific to coping with occupational stress among academics could be found. Secondly, owing to the vast number of theoretical perspectives/contexts in which the concepts of stress, occupational stress and coping are conceptualised, there is little agreement among researchers about the best way to define these concepts. Thirdly, little attention has been devoted to the concepts of coping and emotion regulation from an industrial and organisational psychology perspective, and to the coping strategies that employees adopt to modulate emotions elicited by workplace stressors.
- *Theoretical approaches.* Several theoretical approaches or theories exist which focus specifically on the constructs under investigation. However, the models discussed in this study were restricted to the seminal work of Richard Lazarus, Susan Folkman (stress and coping) and James Gross (emotion regulation) which dates back to the late 20th century.
- *Occupational stress and coping among academics.* The literature consulted on occupational stress and coping among academics was mostly of international origin.
- *Coping measurement:* Existing literature on the categorisation and measurement of coping strategies are limited, obsolescent and incongruent.
- *Conceptual model:* The proposed theoretical dimensions for measuring coping with occupational stress were of a conceptual nature. They were not inductively derived.

7.3.2 Limitations of the empirical study

The following limitations were encountered in terms of the empirical study.

The target population consisted of adults who were permanently employed as academics in a higher education institution in the Gauteng Province of South Africa. Although the sample size was adequate to conduct the statistical analyses, this does not necessarily mean that the sample was representative of the actual population. The sample comprised 305 participants who were predominantly female academics with an average age of 45.5. These academics were further employed as either lecturers or senior lecturers who either had a master's or doctoral degree. Further research needs to be conducted among a broader spectrum of participants, as this could have an influence on the manner in which the questions were interpreted. A larger sample would also have been preferred, with the inclusion of populations with more balanced proportions of the applicable demographics. Lastly, a non-probability convenience sample was selected to achieve the objectives of this study.

Owing to the above limitations, the questionnaire cannot be generalised to other countries, industries or populations.

7.4 RECOMMENDATIONS

Based on the findings, conclusions and limitations of the study, recommendations for industrial and organisational psychologists, as well as further research are discussed below.

7.4.1 Recommendations for industrial and organisational psychologists

7.4.1.1 Conceptual and empirical model for coping with occupational stress

The conceptual model, which integrates the current research on occupational stress, emotion regulation and coping, was developed and discussed in section 4.3. The theoretical model describes the psychological process that individuals engage in from when a stressor is perceived as demanding up to when a coping response is chosen to modulate the felt emotion. The conceptual model therefore highlights a number of important facets that industrial and organisational psychologists should be aware of and consider when identifying interventions to assist employees in coping with occupational stress. These facets are summarised below.

- Employees perceive numerous demands in the organisation as sources of stress that elicit an emotion. The nature and intensity of the emotion, however, depends on *how*

employees perceive the stressor because individual characteristics and sources in the external environment further contribute to the individual's appraisal of the stressor.

- Adaptive and maladaptive coping strategies are adopted in response to the felt emotion and modulate the individual's perception of the stressor. Employees who adopt adaptive coping strategies are able to modulate the felt emotion so that their perception of the stressor is altered. In contrast, employees who adopt maladaptive coping strategies are unable to modulate the felt emotion, resulting in continued psychological distress.

The empirical study further provides support for the conceptual model discussed in chapter 4. Similar to the conceptual model, the revised model highlights a number of important facets that industrial and organisational psychologists should be aware of and consider when identifying interventions to assist employees in coping with occupational stress. These facets are summarised below.

- The revised model highlights the fact that employees perceive both *organisation-specific and job-specific stressors* as demands that elicit emotions, such as anger, anxiousness, frustration, helplessness and irritability.
- The model suggests that employees adopt nine coping strategies to respond to occupational stressors. These strategies were labelled (1) *cognitive coping*, (2) *emotional coping*, (3) *social support coping*, (4) *active leisure coping*, (5) *vacation time*, (6) *religious coping*, (7) *avoidant coping*, (8) *social disengagement*, and (9) *rumination*. Of these nine strategies, five were classified as adaptive coping strategies, but only three (*cognitive coping*, *social support coping* and *vacation time*) were positively associated with coping success. In terms of relative importance, coping success was mostly explained by *cognitive coping* (24.9%), *social support coping* (17.2%), and an inverse relationship with *avoidant coping* (14.6%), which was classified as a maladaptive coping strategy. Consequently, employees who adopt maladaptive coping strategies are unable to change the aversive experiences or events that elicit emotions, and therefore continue to experience psychological distress.
- Lastly, employees from different demographic backgrounds differ with regard to the coping strategies they adopt in response to occupational stress. Demographic variables such as gender, tenure, age and highest qualification influence the type of coping strategy that employees adopt in response to occupational stress.

Given the discussion above, it is recommended that industrial and organisational psychologists consider individual differences and environmental factors when interventions are identified, and assist employees who adopt maladaptive coping strategies to change how they respond to occupational stress. It is further recommended that industrial and organisational

psychologists consider the revised model, suggested in figure 7.1, when identifying interventions to assist employees in coping with occupational stress.

7.4.1.2 *The Coping Strategies Questionnaire*

Industrial and organisational psychologists and psychometrists should adhere to the code of conduct as summarised in the Professional Board for Psychology's Rules of Conduct and the HPCSA's policy documentation. The code of conduct provides guidelines for ethical assessment practices, and promotes the use of psychological assessment methods in the workplace. These guidelines include, for example, avoiding harm, obtaining informed consent, and safeguarding confidential information (Laher & Cockcroft, 2013).

7.4.2 Recommendations for future research

Based on the conclusions and limitations, recommendations for further research in the field of industrial and organisational psychology are highlighted below.

Firstly, although the findings of the instrument development process were satisfactory, it should be kept in mind that the refinement and validation of an instrument is an ongoing process (DeVellis, 2012). Continued refinement of the Coping Strategies Questionnaire is therefore suggested. Modifications to the questionnaire could include the following:

- As concluded in section 7.2, a deductive approach to generating items is attractive, because the construct domain is clearly defined and the dimensions are theoretically derived. Consequently, a deductive approach was applied in this research and the findings were satisfactory. However, a recommendation is made to consider both deductive and inductive approaches to further refine the instrument and increase its content validity. By utilising inductive approaches, researchers are able to generate items by asking a sample of respondents to provide descriptions of their feelings or to describe a particular behaviour (Hinkin, 1995). Participants would thus confirm what was obtained in the literature and suggest possible items for inclusion.
- Although there are no specific rules about the number of items to retain, Hinkin et al. (1997) suggest a minimum of four items per scale to obtain adequate internal consistency. Although the final Coping Strategies Questionnaire obtained adequate support for reliability and validity, the scales with three items or less should be revised and new items should be considered for inclusion.
- The *emotional coping* items should be reviewed, because only one subdimension with two items (*emotional expression*) survived the stages of scale development. Therefore,

through deductive and inductive approaches new items that measure *emotional coping* should be developed and validated.

- Future researchers should consider including *distraction* as a subdimension of coping with occupational stress. Distraction, which could be categorised as an adaptive coping strategy, is defined as the deployment of attention away from the negative aspects of a situation (Gross, 1998). Individuals often use distracting activities, such as engaging in leisure activities and/or physical exercises, to distract themselves from an emotional eliciting stimulus that is intense (Azizi, 2011; Gerber & Pühse, 2009; Hutchinson et al., 2003; Iwasaki, 2003a; Lehto et al., 2014). Consequently, researchers could consider revising the *active leisure* and *vacation time* subdimensions to include new items to create the *distraction* subdimension.
- The *self-destructive behaviour* subdimension should be reviewed. As explained in section 6.2.6.1, the six items that constituted this subdimension were removed, because it obtained factor loadings below 0.35. Although it was concluded that self-destructive behaviour is a maladaptive coping strategy that individuals adopt to redirect their attention away from a stressor, it still forms a central part of the construct domain that measures experiential avoidance coping.

Secondly, from the discussion on the limitations in the empirical research, it is evident that the research was conducted using a sample that was limited to a single institution. It is therefore recommended that future research be conducted to further validate and standardise the instrument across various South African and African contexts. In addition, the conceptual model should be tested with data obtained for various demographic variables.

Thirdly, future researchers could possibly investigate the moderating effect of individual characteristics (such as personality, learned helplessness, self-efficacy, locus of control, self-control, self-esteem and psychological hardiness) and external variables (such as social and/or technological changes, globalisation, relocation, economic and financial conditions, and community conditions) on the individual's ability to cope with occupational stress.

Fourthly, there is a need for further research on occupational stress and coping with occupational stress, especially among academics in higher education institutions and in the South African context.

Lastly, it is recommended that further studies address the limitations inherent in this study.

7.5 EVALUATION OF THE RESEARCH

The primary objective of this research was to construct a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress. Consequently, the findings provide support for a psychometrically sound questionnaire that measures coping with occupational stress on nine dimensions, namely (1) *social coping*, (2) *religious coping*, (3) *cognitive coping*, (4) *active leisure coping*, (5) *avoidant coping*, (6) *social disengagement*, (7) *vacation time*, (8) *ruminantion* and (9) *emotional coping*.

The research has made a contribution at three levels to the field of industrial and organisational psychology, namely at a theoretical, empirical and practical level.

7.5.1 Contribution at a theoretical level

In terms of Colquitt and Zapata-Phelan's (2007) taxonomy, this study can be classified as an *expander*, because it contributed in both theory building and theory testing. Researchers who adopt this approach expand a given theory by taking it into a new and different direction by focusing on constructs, relationships and/or processes that have not been subjected to prior theorising. Consequently, this study expanded on the theoretical approaches and measuring instruments developed by various coping (Lazarus & Folkman, 1984) and emotion regulation (e.g. Gross & John, 2003) researchers. At a theoretical level, the following contributions were made:

- The constructs of stress and coping were conceptualised and defined from an organisational psychology perspective.
- A conceptual model with six theoretically derived coping strategies that measure coping with occupational stress was developed.
- A number of conceptual and methodological concerns regarding the measurement of coping and emotion regulation were raised.
- The literature review suggests that academia is a demanding occupation and academics are subjected to various occupational stressors (Rothmann & Barkhuizen 2008; Rothmann & Jordaan, 2006).
- Differences between demographic groups with regard to the coping strategies that they adopt in response to occupational stress should be considered.

It is recommended that the insights obtained from these findings, especially the conceptual model, be used for organisational wellness practices, especially in higher education institutions.

7.5.2 Contribution at an empirical level

At an empirical level, the research has made a contribution to constructing a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress. Concerning its psychometric properties, the Coping Strategies Questionnaire has a strong theoretical base and exhibits sound evidence of reliability and validity. Consequently, the conceptual and methodological concerns raised in the literature review were addressed in developing the questionnaire. The study further contributes to existing knowledge on occupational stress and coping, and more specifically on the workplace stressors that academics experience and the coping strategies they adopt in response to occupational stress. Thirdly, the research contributed to constructing an empirically tested and validated model for coping with occupational stress. The empirical model should allow industrial and organisational psychologists to gain a deeper understanding of the occupational stressors that individuals perceive as stressful, the emotions that are elicited when a stressor is perceived as demanding, and the coping strategies that individuals adopt to modulate the felt emotion. Lastly, the study provides support for measurement invariance across different demographic groups. Industrial and organisational psychologists could thus use this instrument with confidence to gather reliable and valid information about the coping strategies that employees adopt in response to occupational stress in a South African context.

The empirical study provided statistically significant support for the central hypothesis. The findings therefore suggest that a valid and reliable instrument for determining which coping strategies academics adopt in response to occupational stress can be developed. In addition, individuals from different demographic backgrounds differ significantly with regard to the coping strategies they adopt in response to occupational stress. This study is original because, to date, there is no existing study on constructing a valid, reliable and comprehensive coping instrument to determine which coping strategies individuals adopt to regulate heightened emotions in response to occupational stress in a South African context.

7.5.3 Contribution at a practical level

This study could prove useful to industrial and organisational psychologists, because a valid and reliable questionnaire was developed for determining which coping strategies employees adopt to regulate heightened emotions in response to occupational stress in a South African context. This questionnaire could thus be used as a diagnostic tool for determining *how* employees respond to occupational stress. The study has further contributed to constructing an empirically tested and validated model for coping with occupational stress. This model

should allow industrial and organisational psychologists to gain a deeper understanding of (1) the occupational stressors that individuals perceive as taxing or exceeding their coping resources; (2) the emotions they elicit when a workplace stressor is perceived as stressful; and (3) the coping strategies they adopt to modulate the felt emotion. If industrial and organisational psychologists are thus able to appreciate the consequences of occupational stress and comprehend the complexities of the coping process, then they will be able to design and implement organisational wellness practices that should not only promote the health and wellbeing of the employee, but also that of the organisation.

In addition, significant mean differences were found between academics from different demographic backgrounds, which suggests that they perceive occupational stressors differently and consequently adopt different coping strategies to modulate their emotions to change their perceptions of the stressor. Industrial and organisational psychologists should therefore consider individual differences and environmental factors when interventions are identified. The research results further contribute to the body of knowledge concerning occupational stress, emotion regulation and coping, especially amongst employees from higher education institutions in South Africa.

7.6 FINAL CONCLUSION

The key contribution of this study was the development of a psychometrically sound instrument for determining which coping strategies academics adopt in response to occupational stress. This study further contributed to constructing and empirically testing a model for coping with occupational stress. Lastly, the study provided support for measurement invariance across different demographic groups, and the findings revealed that individuals from different demographic backgrounds differ significantly concerning the coping strategies they adopt in response to occupational stress.

It is anticipated that industrial and organisational psychologists should be able to effectively utilise the new insights in enhancing the physiological and psychological health and wellbeing of employees and consequently organisational success.

7.7 CHAPTER SUMMARY

In this chapter, the main conclusions of the literature review and empirical study to indicate the achievement of the research objectives of the research were presented. Conclusions drawn in terms of the literature review, empirical study and instrument development process were

presented. Conclusions regarding the hypotheses were also formulated. The limitations of the study were discussed, and recommendations made for both industrial and organisational psychologists and future researchers. Finally, the integration of the research was presented, emphasising the extent to which the study contributed to the existing body of knowledge on occupational stress, emotion regulation, and coping.

The following research objectives were achieved in this chapter:

Research objective 8: To develop an empirical model for coping with occupational stress for higher education institutions in South Africa

Research objective 9: To formulate conclusions based on the findings, and make recommendations for industrial and organisational psychology practices, specifically in higher education institutions, and for possible future research based on the findings of this study

This chapter concludes the research study.

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