TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

AACAHB	Addis Ababa City Administration Health Bureau
AACAFEDB	Addis Ababa City Administration Finance and Economic Development Bureau
BCG	Bacillus Calmette-Guerin
CDC	Centre for Disease Control and Prevention
CSA	Central Statistics Agency
DOT	Directly observed treatment
DOTS	Directly observed treatment short course
DST	Drug susceptibility testing
E	Ethambutol
EFMOH	Ethiopian Federal Ministry of Health
EFY	Ethiopian Fisical Year
EHNRI	Ethiopian Health and Nutrition Research Institute
EPHI	Ethiopian Public Health Institute
H	Isoniazid
HBC	High TB Burdened Country
HCP	Health care providers
HCO	Health care organisation
HIV	Human Immunodeficiency Virus
IOM	Institute of Medicine
ISTC	International standard for tuberculosis care
IUATLD	International Union against Tuberculosis and Lung Disease
MDG	Millennium development goal
MDR-TB	Multi-drug resistance TB
M tb	*Mycobacterium tuberculosis*
PCC	Patient-centred care
PHCU	Primary health care unit
PPP	Public private partnership
RHBs	Regional health bureaus

R	Rifampicin
RTLT/U	Regional TB leprosy team/unit
SPSS	Statistical Package for Social Science
S	Streptomycin
TB	Tuberculosis
TB CTA	Tuberculosis coalition for technical assistance
TSR	Treatment success rate
UNICEF	United Nation Children Fund
UNISA	University of South Africa
WHA	World Health Assembly
WHO	World Health Organization
XDR-TB	Extensively drug-resistant TB
Z	Pyrazinamide
ZTLE	Zonal TB Leprosy Expert

CHAPTER 1

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

Tuberculosis (TB) is a chronic infectious disease caused by a type of bacteria referred to as *Mycobacterium tuberculosis (M tb)*. Although TB affects almost all organs of the body, it mainly affects the lungs. TB transmission occurs through airborne spread, from a person that has TB of the lung during coughing, speaking and sneezing of infectious droplets (Tiemersma, Van der Werf, Borgdorff, Williams & Nagelkerke 2011:2). The main symptoms described by TB patients, specifically cough, night sweats, weight loss and tiredness are among the symptoms with high predictive value (WHO 2013a:22).

The risk of infection depends on the degree of exposure to infectious droplets and the susceptibility of the individuals. Once an individual acquires *M tb* infection, he/she remains infected for many years, probably for life. Under normal circumstances, only 10% of the infected persons will develop TB disease at some point in their life. Immune-suppressive drugs, infections like Human Immunodeficiency Virus (HIV) or other diseases sufficiently weaken the immune system and provoke development of active TB (Geldmacher, Zumla & Hoelscher 2012:273).

Globally, there are a number of TB diagnostic methods. Sputum microscopic examination, molecular techniques, culture, histo-patologic examination, radiologic examination are available TB diagnostic methods. The feasibility, efficacy, specificity and low cost of sputum microscopic examination have made it an important diagnostic tool for the developing world (Balcha, Sturegard, Winqvist, Skogmar, Reepalu, Jemal, Tibesso, Schon & Bjorkman 2014:2). The method of case finding in Ethiopia, which is based on the recommendations of the Wold Heath Organization (WHO) and the International Union Against Tuberculosis and Lung Disease (IUATLD) is passive, that is, mainly through direct microscopic examination of sputum specimens obtained from persons who present themselves to the general health services (EFMOH 2013:18).

Globally, for the last two hundred years TB has killed more than any other infectious disease (Paulson 2013:S2). One third of the world's population, approximately 2 billion persons, is thought to be latently infected with *M.tb*; 9 million persons develop active disease attributable to *M tb* infection annually. In 2015, there were an estimated 10.4 million incident cases of TB and 1.4 million deaths from TB globally. An estimated 11% of incident TB cases in 2015 were HIV- positive. The proportion was the highest in African countries, and exceeded 50% in parts of Southern Africa (WHO 2016:15). African countries where HIV infection rates are high, TB/HIV mortality rate has exceeded 30 times than that of non-African countries with high HIV prevalence (Au-Yeung, Kanters, Ding, Glaziou, Anema, Cooper, Montaner, Hogg & Mills 2011:21).

The burden of the disease is higher in 30 high TB burdened countries (HBCs) which account for 84% of all estimated cases worldwide. Among these India leads with the highest number of TB cases, and Ethiopia held the 11th position in 2015 (WHO 2016:13). In Ethiopia, according to the WHO 2016 report, 137,960 TB cases were notified and 26 per 100,000 mortality due to TB was reported in 2015 (WHO 2016:145). It is reported that TB is the third leading cause of death in Ethiopia in 2013 (EFMOH 2014:31).

1.2 BACKGROUND

TB is both preventable and treatable disease. Despite its, preventability and treatability with TB drugs and control programmes have been tried; it is a leading cause of death among infectious diseases globally, including in Ethiopia (Raviglione, Marais, Floyd, Lonnroth, Getahun, Migliori, Harries, Nunn, Lienhardt, Graham, Chakaya, Weyer, Cole, Kaufmann & Zumla 2012:1902).

1.2.1 TB control programme

Even though TB prevalence decreased in developed countries before the introduction of TB drugs due to improved socioeconomic conditions of the nations, the TB control actions mainly relate to the invention of TB drugs and Bacillus Calmette-Guerin (BCG) vaccine (Lienhardt, Glaziou, Uplekar Lonnroth, Getahun & Raviglione 2012:409). Apart from this, still now deplorably TB affects the poorest persons in both high-income and developing countries (Zumla, Raviglione, Hafner & Reyn 2013:745). Globally, after the

discovery of Streptomycin by Arnold Schatz in 1944, the first bactericidal antibiotic, and Isoniazid by Gerhard Domagk and his team in 1952, the first orally taken antibiotic, TB treatment and control become the burly news (Diacona, Groote-Bidlingmaierb & Donald 2012:4).

In 1974, WHO reviewed the mass TB screening programme that had been practiced in Europe and North America in the mid 20th century and then developed policy and guideline for TB control. The guideline promotes sputum microscopy examination of symptomatic individuals and at risk with ambulatory therapy (WHO 2013b:1). In Tanzania in the 1980s the IUATL established a TB control programme model which focuses on direct observation of TB patients while on treatment (Keshavjee & Farmer 2013:933). In 1991, World Health Assembly (WHA) acknowledges that TB is a major public health problem and set two targets for TB control, detection of 70% of infectious TB cases and cure 85% of such cases (Keshavjee & Farmer 2013:932).

In the mid 1990s, WHO developed and recommended directly observed treatment short course (DOTS) strategy. The strategy encompasses political and administrative commitment, case detection primarily by microscopic examination of sputum of patients presented to health facilities, standardised short course chemotherapy given under direct observation, adequate supply of good quality drugs and systematic monitoring for every patient diagnosed (WHO 2012:3).

In 2000, the stop TB partnership started to scale up and support global TB control programme (WHO 2007a:377). Despite that, the global TB epidemic was growing by 1% a year until 2006 due to the emergence of drug resistance and HIV epidemic. Thereafter, stop TB strategy was launched in 2006 to fight the challenges posed by TB. Stop TB strategy aimed to halve TB prevalence and death rate by 2015 compared with the situations in 1990, these targets are in line with the Millennium Development Goal (MDG) framework. In this strategy DOTS remains a central pillar with high quality of expansion and enhancement; addressing TB/HIV, multi-drug resistance TB; health system strengthening; engagement of all care provider; empowering people with TB and community and enabling promotion of TB (WHO 2012:4-5).

WHO 2015 global TB report indicates that, except Ethiopia and Uganda, high TB burdend African countries did not meet the incidence, prevalence and mortality

reduction of TB in MDG framework compared to 1990 (WHO 2015:17). In Ethiopia, according to EFMOH 16th National EFMOH (2014a:3) in Annual Review Meeting reported that, although there was an average 3.9% decline in TB incidence between 2005 and 2013, and MDG set target achieved, in 2014, 18 per 100,000 people's mortality due to TB occurred.

In 2013, WHO released post 2015 TB control strategy by envisioning a world free of TB, zero death, disease and suffering due to TB by using three pillars and components. Integrated patient-centred care (PCC) and prevention, bold policies and supportive system, and intensified innovation and research are the pillars (WHO 2013b:2). These pillars are the proposed strategies of Sustainable Development Goals (SDGs) for 2030 and END TB in 2035. The expected reduction of deaths due to TB in 2020, 2025, 2030 (SDGs) and END TB by 2035 is 35%, 75%, 90%, and 95%, respectively, compared to 2015 and zero family facing catastrophic cost after 2020 (WHO 2013b:7). To achieve these targets globally TB incidence rate needs to be falling by 4–5% per year globally by 2020 and the proportion of people with TB who die from the disease needs to be reduced to 10% by 2020 (WHO 2016:15), however, between 2000 to 2013 on the average TB incidence has declined by only 1.5% per year (WHO 2016:15). In line with SDGs and END TB goal, Ethiopia has a plan to reduce TB prevalence by 30%, an incidence of 35% and mortality TB by 45% by 2020 compared to the level of 2013 (EFMOH 2015a:75).

1.2.2 Ethiopian health care system and TB treatment strategy

Ethiopia has set a policy implementation strategic document, the Health Sector Development Plan (HSDP), which guides the development of sub national plans and sets the rule of engagement with the health sector. HSDP covers from 1997/8 to 2014/5, and is divided into four phases. Namely: first phase HSDP I, (1997/98–2001/02), second phase HSDP II (2002/03–2004/05), third phase HSDP III (2005/06–2009/10) and fourth phase HSDP IV (2010/11-2014/15) (EFMOH 2015b:16).

Recently, following evaluation of the 20 years HSDP, Ethiopia has developed 5 years Health Sector Transformation Plan (HSTP). HSTP guides the health sector activities from 2015/16–2019/20 (2008-2012 EFY). HSTP envisions seeing healthy, productive

and prosperous Ethiopians using 12 guiding principles. Among the 12 guiding principles provision of patient-centred quality health service is the core principle (EFMOH 2015a:71). In addition, HSTP has put TB specific targets to reduce the number of deaths due to TB by 35% and incidence rate by 20% compared with 2015 by the year 2020 (EFMOH 2015a:110).

Currently, the Ethiopian health system is a three-tier system, which are, tertiary, secondary and primary levels. The tertiary level or specialised hospital and secondary level or general hospital are likely to serve 3.5–5 and 1–1.5 million population, respectively. The primary health care unit (PHCU), comprises health posts, health centre and primary hospital. A primary hospital serves a population of 60,000–100,000. One Health centre and one health post in rural area serves 15,000–25,000 and 3,500–5,000 people, respectively in a rural areas, while in urban areas a health centre serves up to 40,000 people and there is no health post (EFMOH 2015b:142).

The Ministry and the Regional Health Bureaus (RHBs) focus more on policy matters and technical support. Lower administrative level from RHB such as zones or subcities and woreda (lower administrative level than the zone (subcity), health offices manage and coordinate the operation of the health system under their jurisdiction (EFMOH 2010:7).

In 2013/14 Ethiopia had 2,668 physicians, 5,621 health officers, 6,858 pharmacists and 6,667 laboratory professionals in government health institutions. The population ration of public health facilities' employee health professionals is 1:32,132, 1:15,252, 1:12,501 and 1:12,589 physicians, health officers, pharmacists and laboratory professionals, respectively (EFMOH 2014b:52-53). The Ethiopian health care system is focused on ensuring accessibility of health services which encompasses prevention and promotion component in collaboration with stakeholder in democratic and decentralised system. The system contains numerous disease control strategies in which TB prevention and control strategies are embedded (EFMOH 2010:32).

In Ethiopia, TB control effort began in 1960th with organising TB centres and sanatoriums in three major urban areas. Nonetheless, these did not reduce the burden of TB as required in the country. In 1976, to reinforce TB control activity, Central Office of the National Tuberculosis Control Programme was established in Ministry of Health.

The central office was vertically operating with very limited financial and manpower until integrated with already well established and strengthen leprosy control programme in Ethiopia (EHNRI 2011:3).

Currently, the TB control programme in Ethiopia is fully integrated with a general health care system tiers and organised in a hierarchical fashion with administrative ladders with varying responsibilities (EFMOH 2012:1). In the ministry level, the TB and Leprosy control team is mandated to develop guideline, solicit and coordinate resources, provide technical assistance to immediate next lower administrative level, RHBs, and monitor the programme performance. At the RHB level, a Regional TB Leprosy Team/Unit (RTLT/U) is responsible for the planning, guidance and supervision of TB, TB/HIV and leprosy control activities in the region. At Zonal level, lower administrative level next to the regions, a Zonal TB Leprosy Expert (ZTLE) is focused on the planning, guidance and supervision of TB, TB/HIV and Leprosy prevention and control activities in the Zone (EFMOH 2007:15-16).

In Ethiopia since 1992 the standardised TB prevention and control programme was piloted and incorporated DOTS strategy, progressive DOT coverage have been reported. In 2012, 100% geographic coverage and 95% health institutions level coverage of DOTS reported (Addis, Birhan, Alemu, Mulu, Ayal & Negash 2013:168). In line with the expansion of DOT, Ethiopia has adopted and developed TB treatment guideline to standardise the TB diagnosis and treatment services provision at national level.

In 2013, the Ministry of Health of Ethiopia avails the fifth edition of TB, Leprosy and TB/HIV guidelines for clinical and programmatic management in Ethiopia. The guideline directs the process to diagnose pulmonary TB (Figure1.1) and the TB treatment to be taken for at least 6 months in two phases. The phases are: intensive and continuation phase as recommended by the WHO TB treatment guideline (EFMOH 2013:56). To ensure every patient takes the recommended drugs in the right combinations, on the correct schedule, and for the appropriate duration the guideline directs the treatment monitoring to be held by HCPs or TB treatment supporter at a health facility or patient's workplace or home. In the intensive phase, for the first two months, patients are forced to take the drugs in front of the health care worker observation every day at health

institutions. However, the rigid practice of directly observed treatment is difficult to justify and it is ethically arguable (Sagbakken, Frich, Bjune & Porter 2013:8).

TB coalition for technical assistance in the international standards of TB care (2014:39) recommend options to be provided to patients; where they take their daily dose and by whom he/she is going to be supervised for the adherence. In the continuation phase, immediately following the intensive phase, the patient is expected to be observed by a health care worker or a designated trained TB treatment supporter either at health facility or patients' home (EFMOH 2013:26-27). In Ethiopia, TB drugs are freely provided for diagnosed TB patients. Even if medication is freely available, many patients are not successfully treated (WHO 2009a:4). The effective treatment of TB requires adherence to a minimum of 6 months with multiple drugs (EFMOH 2013:27) but limited financial resource and practical help from relatives or friends are mentioned as factors in Ethiopia for non compliance to full course of the treatment particularly for the first 2 months (Sagbakken et al 2013:3). As much as untreated TB threatens the well being of an individual and society, defaulting from treatment may increase the risk of drug resistance, relapse and death, and may prolong infectiousness (Da Silva Garrido, Penna, Perez-Porcuna, De Souza, Da Silva Marreiro, Albuquerque, Martínez-Espinosa & Buhrer-Sékula 2012:1).

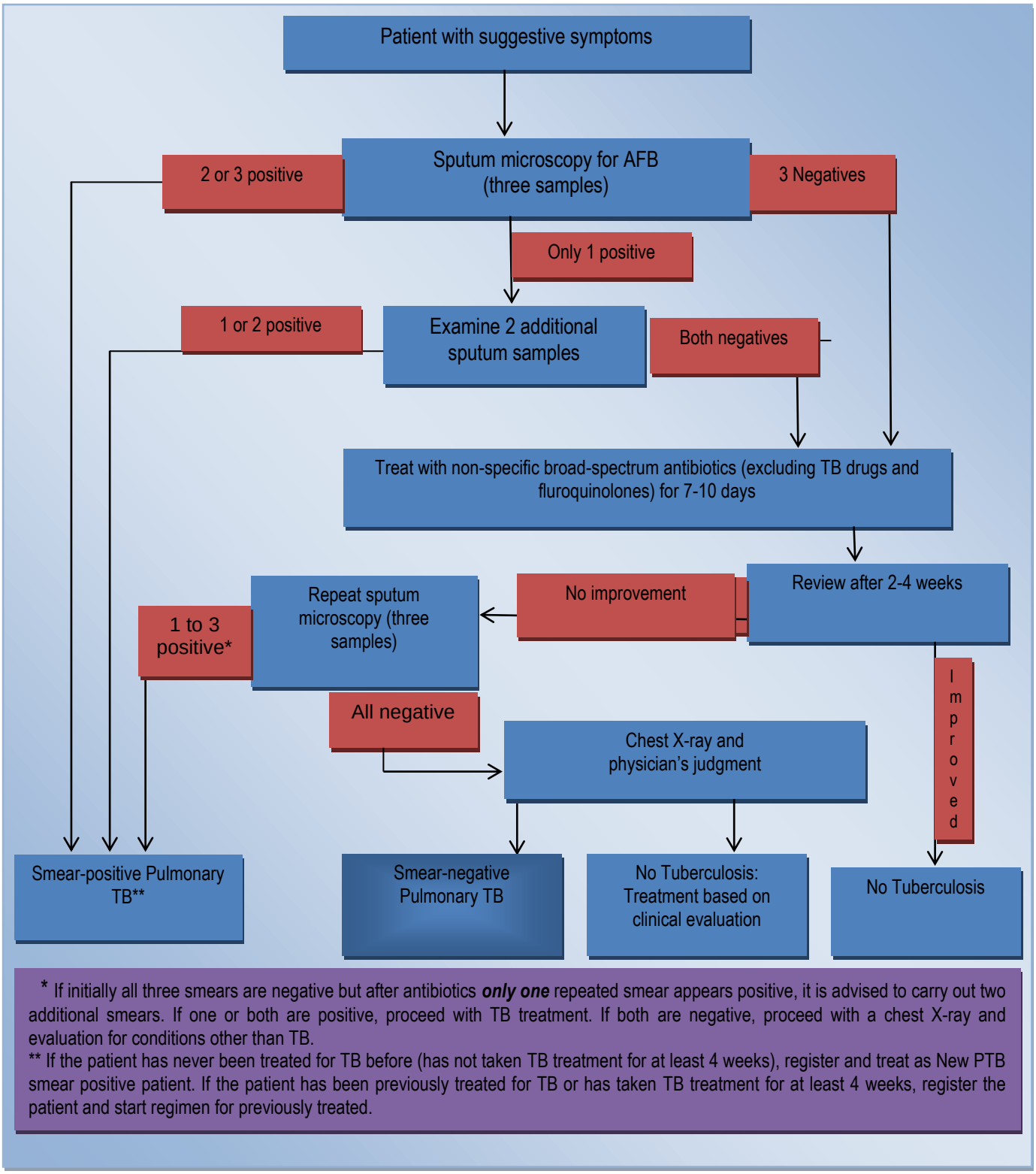

Figure 1.1: Diagnostic Algorithms for TB in Ethiopia

(EFMOH 2013:143)

1.3 STATEMENT OF THE RESEARCH PROBLEM

Currently DOTS is a cornerstone of TB control programme in developing countries (Olu 2013:227; Diacona et al 2012:1). The DOTS strategy has been considered as an efficacious strategy for TB treatment and is being advocated to be continued to better treatment adherence of TB treatment (Jassal & Bishai 2010:S163). Moreover, Moonan, Quitugua, Pogoda, Woo, Drewyer, Sahbazian, Dunbar, JostJr, Wallace & Weis (2011:3) states that DOTS is associated with decreased probability of acquiring and transmitting drug resistance. However, review of TB cost shows that DOTS expose the patients to heavy financial burdens (Tanimura, Jaramillo, Weil, Raviglione & Lonnroth 2014:1770). Lack of social support, adverse drug reactions and personal factors are associated with non-adherence to TB treatment in DOTS strategy, and even in industrialised countries 30% of TB patients do not take their treatment properly (Marais 2013:88).

In Ethiopia, the DOTS strategy was assessed at different times based on TB patient treatment outcome. In a retrospective data analysis in 2013, Getahun, Ameni, Medhin & Biadgilign (2013:521) reported 82.7% treatment success rate (TSR) with significant differences among the health institutions in Addis Ababa. A retrospective study conducted in Bahrdar, Ethiopia shows that only 26% TSR with the highest 68% transferred out and significantly different treatment outcome by the residence of TB patients (Biadglegne, Anagaw, Debebe, Anagaw, Tesfaye, Tessema, Rodloff & Sack 2013:85). Another study conducted in Dilla, Ethiopia reported that 85.2% TSR and the study concludes that DOTS has brought better treatment outcome (Gebrezgabiher, Romha, Ejeta, Asebe, Zemene & Ameni 2016:1).

The studies conducted in Ethiopia, did not account for the patients' satisfaction and centeredness perspective of the DOTS strategy except the Nezenega, Gacho & Tafere (2013:110) report that good TB patients' level of satisfaction with DOTS at Sidama Zone, Southern Ethiopia. However, health care delivery system fitness with patient satisfaction and perceptions has a paramount effect on the effectiveness of DOTS (Onyeonoro, Chukwu, Nwafor, Meka, Omotowo, Madichie, Ogbudebe, C, Ikebudu, Oshi, Ekeke & Paul 2015:25).

Satisfaction measurement is a core component to design and evaluate modern health care services and delivery system (Dansereau, Masiye, Gakidou, Masters, Burstein & Kumar 2015:9). Patient satisfaction with health care provision captures the patients' experience of health care outside of direct effect on health and acknowledges the role of the patient as partners in health care; this reflects the patient centeredness of the care provided. Patient-centred health care approaches reduce patients' symptom burden, improve health status and adherence to treatment (Van der Eijk, Nijhuis, Faber & Bloem 2013:925).

With regard to clients' perspective, quality is addressing clients' concern and it is as essential as technical competency in good quality of care. Moreover, there is lack of published evidence for the effectiveness of the WHO recommended TB control strategies in low and middle income countries level (Cobelens, Van Kampen, Ochodo, Atun & Lienhardt 2012:1) including in Ethiopia (Hamusse, Demissie & Lindtjorn 2014a:3). Thus, evaluating DOTS strategy helps to improve the provision of TB care delivery in Ethiopia and other countries.

1.4 AIM OF THE STUDY

1.4.1 Research purpose

The purpose of this study was to evaluate patient centeredness and satisfaction component of DOTS strategy and propose a model that supports the DOTS strategy in Addis Ababa, Ethiopia.

1.4.2 Research objectives

The research objectives were to

- determine level of patient centeredness' of DOTS strategy.
- determine level of satisfaction of TB patients' with DOTS service provision.
- describe factors related to TB patient centeredness and satisfaction with DOTS strategy.
- explore TB experts and defaulted TB patients' perception about DOTS strategy patient centeredness and satisfaction level of TB patients.

- explore defaulted TB patients' driving factors to default from TB treatment.
- propose a descriptive model that will support the DOTS strategy with regards to patient centeredness and satisfaction.

1.4.3 Research questions

The study's research questions were:

- How much the DOTS strategy is patient-centered in Addis Ababa, Ethiopia?
- How is the TB patients' level of satisfaction with DOTS in Addis Ababa Ethiopia?
- What are the factors that affect TB patient centeredness and satisfaction with DOTS strategy?
- Why TB patients default their TB treatment in Addis Ababa, Ethiopia?
- What is the perception of TB experts and defaulted TB patients about DOTS strategy patient centeredness and satisfaction with TB patients?
- What model will support the DOTS strategy with regard to patient centeredness and satisfaction?

1.5 SIGNIFICANCE OF THE STUDY

The study could contribute toward a better understanding of international and national level policy makers about DOTS strategy patient centeredness and satisfaction level of TB patients with DOTS strategy and the reason TB patients default from the treatment. The researcher discovers that internationally different health care institutions have been implementing DOTS. However, until recently, there have been limited studies conducted to evaluate the effectiveness of DOTS with the perspective of patient centeredness and the satisfaction level of TB patients.

The findings of this study inform the Ethiopian government on the status of DOTS patient centeredness, satisfaction level of TB patients with DOTS, reasons to default from TB treatment and further the proposed model needed to enhance its implementation. The result would help the government to evaluate the extent to which the DOTS is providing satisfaction to the patients, and its patient centeredness. The findings would provide the government with a baseline data describing how the DOTS

strategy is patient centred. The researcher develops a model in support of the TB care delivery that would increase the patients' satisfaction and patient centeredness.

The study informs about the gaps related to the DOTS strategy, particularly related to patient centeredness, satisfaction and reason of TB patients to default from the TB treatment to health care administrators and providers. The health care administrators could apply a proposed model to enhance the TB-care delivery. The findings also offer background information to other researchers to continue the study on a larger target population.

1.6 DEFINITION OF TERMS

Evaluation is a process that critically examines a program. It involves collecting and analysing information about a program's activities, characteristics, outcomes and impacts. The evaluation type can be a formative evaluation, process and summative evaluation. Formative evaluation is a method for judging the worth of a program while the program activities are forming (in progress). Process evaluation is when the evaluation focuses on implementation of the programme. Summative evaluation is the evaluation that determines the outcome or impact of the program (Perrin 2016:10-1). In this study evaluation refer assessing DOTS startegy patient-centredness and level of TB patients satisfaction with it.

Patient-centred care: care that "honors and responds to individual patient preferences, needs, values, and goals.

Patient satisfaction: patients' emotions, feelings and their perception of delivered health care services ((Al-Abri & Al-Balushi 2014:4). In this study patient satisfaction means the feeling of TB patients and their perception on received TB care services with DOTS strategy.

TB patient: one in which a health worker has diagnosed TB and has decided to treat the patient with a full course of TB treatment.

Defaulters: patients who took treatment for at least one month and discontinue it for more than eight consecutive weeks.

TB experts: are health profesional who lead, support and direct the HCOs TB control and prevetion activities.

1.7 PARADIGMATIC PERSPECTIVE OF THE RESEARCH

Paradigm described as a worldview of a way of thinking about and making a sense of the complexities of the real world. It is a set of action that guides how to interpret and understand our environment (Ross 2012:34). The paradigm tells us what is important, legitimate and reasonable. Existing reality (ontology), the way to identify the reality (epistemology), and the way to go about (methodology) of the research are characteristics of research paradigm (Easterby-Smith, Thorpe & Jackson 2012:17-18).

In Ethiopia the DOTS strategy has been implemented for the last two decades. However, the objectives stated above were not completely addressed to the perspective of TB patients, defaulted TB patients and TB experts' view. Hence the researcher beliefs that the stated objectives were answered from different perspectives in mixed approach in two phases in consideration of the following ontological, epistemological and methodological assumptions.

1.7.1 Ontological assumptions

Ontological assumption deals with the inquiries about what are existing reality, form and what is known about a given phenomena (Ross 2012:35). The ontological assumption explains the reality and known facts about DOTS strategy and TB in relation to the study objectives.

Ethiopia has been implementing DOTS strategy since the mid 1990s to treat TB patients and control TB. However, the country holds the 11th position of 30 high TB burdened countries (WHO 2016:145) and multi-drug resistance TB (MDR-TB) is increasing at an upsetting rate from a 1.6% among new TB cases in 2005 to 2.3% in 2014 (EFMOH 2014a:4).

The DOTS strategy is resource-intensive for health care services and requires time and effort from patients (Lienhardt & Odgen 2004:835). In Ethiopia the study by Yimer,

Bjune and Holm-Hansen (2014:4) show that in addition to delay in reaching health institutions, the time from reaching at a health institution until a diagnosis of TB cases takes more than two weeks. However, TB diagnosed patients are obliged to collect their drugs every day at health facilities for at least two months (EFMOH 2013:31).

PCC places the patient at the centre of the delivery of care, and redirects activities in order to do the right job effectively by the right person at the right time. Moreover, PCC improves continuity of care and integration of health professionals collaborating on behalf of their patients by minimising the back and forth of patients in health care organisation (HCO) and provide autonomy to patients, and empowering staff members to plan and execute their work in ways that are the most responsive to patient needs (Pelzang 2010:913).

PCC offers a higher level of quality health care and improves the patient's health care experiences, and can even serve to compare providers' ability to care for patients (Porter 2010:2478; Mkopi, Range, Amuri, Geubbels, Lwilla, Egwaga, Schulze & Van Leth 2013:101). In addition, patient centeredness is indicated as one of the indicators to measure quality of health service delivery (Luxford, Safran & Delbanco 2011:513). Moreover, PCC approach is considered as a key factor of treatment success (Srivastav & Mahajan 2014:117).

The PCC ensures the satisfaction with the patient. This is not only readily legitimised by the principle of PCC. It is a useful marker for evaluating quality of care (Heidenreich 2013:2). In health care process, evaluation of patient satisfaction helps to measure the quality of care and identify the areas that need improvement (Al-Abri & Al-Balushi 2014:4; Dansereau et al 2015:9).

1.7.2 Epistemological assumptions

Epistimological assumptions deal with the question of how and what we know and the content of the truth (Easterby-Smith et al 2012:18). This study evaluated DOTS strategy with perspective of patient centredness and satisfation level and propose a model that support patient centerdess and satisfaction of TB care delivery.

According to Picker Research Institute, PCC encompasses respect for the patient's values, preferences, and expressed needs; provision of information and education; access to care; emotional support; involvement of family and friends; continuity and secure transition between health care settings; physical comfort; and coordination of care (Greene et al 2012:50).

The HCPs perceived empathy, technical competency, and non-verbal communication to the patients are factors to patient satisfaction at primary health care level (Birhanu, Assefa, Woldie & Morankar 2010:1). Patient-centred communication is a basic component of HCPs and facilitates the development of a positive care provider-patient relationship and it is a factor the patient's perception and evaluation of health care services. Perceived professional care, perceived time spent with HCP, perceived accessibility, perceived technical competency, perceived convenience and perceived consultation and relational empathy are also considered as predictor of patient satisfaction and adherence to TB treatment (Nezenega, Gacho & Tafere 2013:7). The PCC and satisfaction framework integrates mutually beneficial partnerships among health care providers, patients and health institution has profound implications for patient satisfaction. In the PCC quality of communication between patients and care providers, it is important to have common understanding about clinical characteristics, complexity and way of managing the disease and the patient's expectations, preference, attitude and perceptions about the disease. The good communication is playing pivotal role in adherence to the treatment (Jayadevappa & Chhatre 2011:21).

Patient satisfaction comprises attitudes, quality, accessibility, cost and efficacy of the care, availability, and convenience of the environment in the health care setting. Patients' satisfaction with their treatment captures the patients' experience of health care outside of direct effects on health and acknowledges the role of the patient as partner in health care, and as such reflects the patient centeredness of care. The level of satisfaction of patients is related with many factors that can be categorised as patient characteristics which includes age, education, awareness, income, marital status, knowledge, experience, attitude, perception and preference. Other categories are health care system, health care policy against the specified diseases, clinical convenience of the disease and Its management, and communication between HCPs and patients (Jayadevappa & Chhatre 2011:15). In addition, waiting time to get the service, treatment, availability of service or drug, accommodation, acceptability and

communication with care provider are contributing factors for satisfaction (Chimbindi, Barnighausen & Newell 2014:1).

1.7.3 Methodological assumptions

Methodological assumption deals with the question of how the researcher or the inquirer can go about finding out what he or she expects (Easterby-Smith et al 2012:19). Hence the following methodological assumptions were followed to find the answers to the stated objectives.

The DOTS strategy evaluation with respect to patient centeredness and level of satisfaction research used both quantitative and qualitative approaches. A quantitative approach is assumed to be appropriate to generate statistics from the sample characteristics' to make inference about the total population in the study area for quantitative approach. The data collection tool was based on wide concept of WHO people centred health care framework. To augment the quantitative approach, focus group discussions (FGDs) with TB experts and telephonic interview with defaulted TB patients were held. This approach enabled the researcher to explore the DOTS strategy patient centeredness' and satisfaction level to the perspective of TB control programme management and the deviant from the service, respectively. In addition, the enrolment of defaulted TB patients in telephonic interview enabled to exploration of the cause to deviate from treatment follow-up. Both qualitative and quantitative outcomes were used for the development of patient-centered TB care (PC-TB care) model.

1.8 RESEARCH METHOD AND DESIGN

1.8.1 Research design

Bhattacherjee (2012:35) describes that a research design as the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure and control over the hindering factors. A good research design facilitates research operations by yielding maximum information with minimal expenditure of resources. Qualitative research enables the researcher to explore attitudes, behaviour experiences and in-depth opinion from participants. On the other hand, quantitative research generates statistics by which

the sample characteristics can be inference to the total study population (Oliver 2010:77). Therefore, this study used mixed method to take advantage of both approaches.

1.8.2 Study setting

This study was conducted in Addis Ababa, Ethiopia, which has a surface area of 540 Square kilometres. According to projection of Central Statistics Agency (CSA) of Ethiopia, in the year 2014 its population was about 3.2 million (CSA of Ethiopia 2013). The population density is 5646 persons per km^2 (AACAFEDB 2013:15). Administratively, Addis Ababa is divided into 10 sub-cities, which are in turn divided into 116 weredas, (the smallest government administrative units).

In year 2012, the primary health service coverage of Addis Ababa was 67%. The health institutions found in the region are 48 hospitals, of which 34 are private, 11 public and 3 nongovernmental. Among 11 public hospitals, 6 are owned and managed by Addis Ababa City Administration Health Bureau (AACAHB), 3 by Federal Ministry of Health of Ethiopia and 2 Police and Defence Minister (EFMOH 2012:2). In addition, Addis Ababa contains 93 health centres which are managed by AACAHB and they are mainly focused on primary health care, and 647 private clinics mainly engaged on clinical service for profit (AACAHB 2015:18). According to the 2014 Annual Report of Addis Ababa Health Bureau, among the available health institutions in the region 40 private, 8 non governmental and 88 governmental health institutions provided TB treatment by DOTS strategy (AACAHB 2015:23).

Table 1.1: Population of Addis Ababa by sub-city and gender in 2014

Sub-city	Male	Female	Total
Akaki Kaliti	102,959	108,421	211,380
Nefas Silk-Lafto	172,907	195,976	368,883
Kolfe Keraniyo	240,983	259,180	500,163
Gulele	150,174	161,922	312,096
Lideta	111,731	123,515	235,246
Kirkos	120,120	137,915	258,035
Arada	115,088	131592	246,680
Addis Ketema	144,954	152,839	297,793
Yeka	187,540	216,796	404,336
Bole	168,545	191,842	360,387
Total	**1,515,001**	**1,679,998**	**3,194,999**

(Source: CSA 2013)

1.8.3 Study site selection

At the time of data collection, the list of health facilities which implement DOTS strategy in Addis Ababa was requested from AACAHB TB department. Then it was categorised based on the ownership of the facilities, namely: private for profit, government, non government and non government for not profit. A total of 30 health facilities were randomly selected from the categories. The determined sample size was allocated to 30 randomly selected health facilities proportionally based on their TB case load. The detailed allocation is described in Chapter 4.

1.8.4 Study subjects

The study subjects in this study were TB patients who on TB treatment follow-up, defaulted TB patients at selected health facilities and TB experts at sub-city health offices and AACAHB.

1.8.5 Sample size and sampling methods

Among all TB patients that were on follow-up of TB treatment by DOTS strategy in Addis Ababa during the study period, the sample size was determined based on the following formula:

Sample size (n)=(z α/2)^2 *p* (1-*p*)/ (*d*) * 1.5

Where p is 50% expected patients' level of satisfaction, 0.05 error allowance (d), 1.96 two-sided critical value for 95% confidence level (z), 0.05 level of satisfaction significance (α), 1.5 for design effect compensation and 5% contingency for non-response rate.

Therefore, Sample size (n)=(z α/2)^2 *p* (1-*p*)/ (*d*) * 1.5

N=(1.96)^2 0.5(0.5)/0.05)^2=384 * 1.5=576, by adding 5% contingency the sample size was 605. This calculated sample size was allotted proportionally to 30 randomly selected health facilities.

For qualitative approach participants, there was no pre-defined formula to quantify the desired number of study participants. However, larger number of participants provides better assurance in a study's findings (Yin 2011:89). The study data saturation were reached with 25 defaulted TB patients and 23 TB experts participation during the interview and discussions, respectively (Bhattacherjee 2012:115).

1.8.6 Data collection

Questionnaire, focus group discussions (FGDs) and interview guide were developed and used to collect data. Questionnaire was developed based on WHO people centred health care policy framework and Donabedian quality of health care model. FGDs and interview guide were prepared based on literature review. Questionnaire, FGDs and interview guide were used to collect data from TB patients who were on follow-up of TB treatment, TB experts and defaulted TB patients, respectively.

The questionnaire collected information related to TB patients' level of satisfaction and centeredness of DOTS strategy. The questionnaires were pretested before the actual data collection and filled by face-to-face interview with TB patients by trained nurses. The TB patients who were following their treatment at least for 15 days were randomly recruited during the study period.

Defaulted TB patients' telephone addresses were traced from DOTS register at selected health institutions and were contacted. After describing the objective of the interview, their willingness to participate in interview was confirmed. For those who were willing to respond, the interview was continued based on the guiding questions with researcher.

The FGDs were facilitated by the researcher using lead questions translated into Amharic. The communication medium was Amharic, the country's official language. The FGDs included purposely-selected 23 TB experts who were willing to participate (2 from each 10 sub-city health offices and 3 from RHB). When the selected expert was not willing, the next best fit was included. With this, the total numbers of FGD participants were 23. Considering 8 and 7 participants at a time, 3 FGDs were conducted, recorded and notes were taken.

Data collection followed the explanatory sequential procedure as TB patients were interviewed using interviewer- adminstered questionnaire first, followed by qualitative data collection using probing questions with defaulters and lastly, the FGDs were held with TB experts.

1.8.7 Data analysis

Collected quantitative data were checked for completeness and consistency by the researcher. Double entry into Statistical Package for Social Science (SPSS) version 21.0 for Windows (Chicago, IL, USA) was carried out by two Data Clerks. The Data Clerks were well familiar with the software. Descriptive and inferential statistics were analysed and used to describe the factors and their relationships.

The qualitative research data analysis was started at the beginning of data collection (Marshall & Rossman 2011:208). Data collection and interpretation were done concurrently. The data were compiled, dissembled, reassembled, categorised the codes into themes and themes narrated and concluded (Yin 2011:170). The detail of the data collection, analysis and combining the quantitative and qualitative findings are described in Chapters 4 and 5 and model development is describe in Chapter 7.

1.8.8 Validity, reliability and trustworthiness

The credibility, reliability and transferability of the the study findings were enhanced in many ways. In order to increase the rigor of the study, the data were collected from multiple sources and using more than one method, and triangulated. This study included TB patients who were on treatment follow-up, defaulted TB patients and TB experts.

The participants were informed that they would not face anything that hinders her/histheir treatment by having this interview at the time of data collection, during their treatment and beyond so as to describe their real feeling. Study sites exhibited varied TB case loads and the data taken one time from one respondent. Only few numbers of respondents' responses were collected per day for three months to reduce single day's episodic feeling and recruit adequate number of participants.

In order to keep instrument validation, questionnaires were pre tested before the actual data collection was launched and a standardised scale was used. To increase the quality of data, (a) the data collectors were nurses who have proximity with TB treatment strategy, (b) a one day training was given for data collectors before starting data collection. The training was on how to fill in the questionnaire (c) the overall activities of data extraction were monitored by the researcher and there was strict supervision during data collection, (d) all completed questionnaires were examined by the researcher for completeness (e) double entry was done during data entry by two data clerks who are experienced in data entry into SPSS software. Data entry was carried out after the Data Clerks had gone through orientation of the data entry Template.

Moreover, verbatim translation of FGDs were shared to the participants to increase acceptability and dependability of the discussions, and each stage of research was communicated and provided to PhD supervisor of University of South Africa (UNISA) for comments before the final document was prepared.

1.9 ETHICAL CONSIDERATION

Ethical clearance to conduct this study was sought from institutional research and Higher Degrees Committee from UNISA (Annex B). AACAHB wrote a letter to Subcity health offices (Annex C). Official cooperation letter was written from the sub-cities health offices to respective health facilities. Data collectors received training on ethics related to data collection and research to make sure the data were ethically collected. In order to ensure confidentiality of the information, names or identification numbers of study participants were not included. Written consent was taken from the participants.

1.10 SCOPE OF THE STUDY

This study was conducted at governmental and non governmental health institutions which implement DOTS strategy in Addis Ababa, Ethiopia. The study used both quantitative and qualitative approaches. Quantitative approach was used to capture view TB patients' who were on follow-up, while the qualitative approach was used to explore the view of defaulted TB patients and TB experts. The study described, explored and evaluated DOTS strategy patient centeredness', level of TB patients' satisfaction, and the driving force to default from treatment follow-up from different perspectives. Moreover, developed PC-TB care delivery model that supports the TB care delivery system.

1.11 STRUCTURE OF THE THESIS

The overall report of this study contain seven chapters and described as follows:

Chapter 1 Over view of the study
Chapter 2 Literature review
Chapter 3 Conceptual framework
Chapter 4 Research approach, design and method
Chapter 5 Data presentation and analysis
Chapter 6 Discussions, conclusion and recommendations
Chapter 7 Model to enhance TB patient centeredness of TB care

1.12 CONCLUSION

Chapter 1 discussed the general overview of the study which includes background to the study, the research problem, definition of key terms, and pragmatic, method and design with the purpose and specific research's objectives. Further, the significance, scope and ethical considerations were dealt with. The next chapter will discuss the literature review which is relevant to this study.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Chapter 1 presented overview of the study, which includes TB control programmes, Ethiopian health care systems and TB control strategies, the research problem, purpose, objectives, significance, paradigm of the research and brief methodology with more emphasis to the statement of the problem and TB control programmes.

This chapter deals with literature, which involves thorough reading of different studies and scientific material. Literature review includes a critique of studies related to the topic. The relevant documents were accessed online through Medline, EMBAS, Pub med and Google scholar database using key words such as PCC, TB care, TB patient satisfaction, risk factors separatly and jointly.

2.2 TUBERCULOSIS

As described in Chapter One TB is a chronic infectious disease caused by a type of bacteria referred to as *M tb*. Although TB affects almost all organs of the body, mainly affects the lung. TB transmission is airborne from a person who has TB of the lung during coughing, speaking and sneezing of infectious droplets (Tiemersma et al 2011:2). Once an individual acquires *M tb* infection remains infected for many years, probably for life. Under normal circumstances only 10% of the infected persons will develop TB disease at some point in their life (Young, Perkins, Duncan & Barry 2008:1255-1265).

2.2.1 TB risk factors

Although any person can get TB infection, review of the risk factors to acquire and transmit TB indicates that there are many factors which could change the probability of transmission and prognosis of TB. The risk factors can be categorised as factors related to TB index cases (TB suspected or confirmed), individual, institutional, socioeconomic,

behavioural, demographic and health system issues (Narasimehan, Wood, MacIntyre & Mathai 2013:3).

2.2.1.1 TB index cases

A person who presents for assessment as a confirmed or suspected case of TB is known as an index case for TB. The degree of risk is dependent upon the duration and frequency of exposure of an individual with index case and is influenced by the degree of infectiousness of the index case (Narasimehan et al 2013:2).

Bacillary load in the sputum and proximity to an infectious case are positively correlated with the infectivity of the TB patient. Smear positive TB cases are more infectious than other types of TB cases due to the presence of increased number of bacilli. An untreated sputum positive patient can infect approximately 10 individuals per year and each smear positive case can lead to two new infections. Hospital employee, prisoners, inner city residents and care givers are at high risk to be infected with *M tb* and develop primary active TB at a higher probability than those people far away from index cases (Narasimehan et al 2013:2). Nearly, 20% of household contacts with active TB cases develop an infection (Gabriel & Mercado 2011:2170).

2.2.1.2 Individual factors and co-morbidity

Evident factors known for the development of TB at the individual level are co-morbidity with communicable and non-communicable diseases, immune suppression and nutritional status. Individual with communicable diseases include HIV/AIDS, sexually transmitted infections, viral hepatitis, bacterial, viral and fungal pneumonias, empyema and Helminth infestations are documented. Patient with non communicable disease: Diabetes mellitus, chronic lung diseases, chronic kidney disease or end-stage renal failure, autoimmune hepatitis, gut malabsorption syndromes and malignant disease are predisposing factors to develop active TB (Marais, Lonnroth, Lawn, Migliori, Mwaba, Glaziou & Zumla 2013:438). In addition, the risk of acquiring TB increases with the age 15−49 years compared to adolescent age groups (De Lima & Tavares 2014:13).

A study conducted in Ethiopia demonstrates that diabetes has increased the risk of individuals to smear positive pulmonary TB and the TB burden increases with productive age groups (15-49 years) (Amare, Gelaw, Anagaw & Gelaw 2013:5).

Stressed and undernourished individuals have increased risk for the development of TB because of an impaired immune response. TB disease can itself lead to malnourishment because of decreasing appetite and changes in metabolic processes (Narasimhan et al 2013:5).

2.2.1.3 Gender

Scholars (Sarpal, Goel, Kumar & Janmeja 2015:63; WHO 2014a:58) stated that TB prevalence between genders are different. However, the cause of the difference is in argument either due to true epidemiologic difference of TB or pronounced barriers to notification and prevalence of TB between genders (De Lima & Tavares 2014:13). A systematic review indicates that the gender disproportion of TB notification is from epidemiologic difference rather than gender pronounced confounders. A high proportion occurrence of TB with men is related to differences in social roles, risky behaviours and activities, which are conducive to transmission, such as more social contacts and engagement in professions associated with a higher risk for TB, such as mining (Nhamoyebonde & Leslie 2014:102-103).

Moreover, a recent longitudinal study shows that the lower notification of female TB cases is due to the low TB prevalence among females than males (Sarpal, et al 2015:63). The recent WHO 2014 Global TB report shows that globally females account for low proportion of notified TB cases, male to female ratio of 1.6 (WHO 2014a:58). Similarly the Ethiopian TB prevalence survey conducted in 2011 report that a lower proportion of females are suggestive of TB with X-ray examination (10.2% male and 6.5% female) among 24,878 females and 21,819 males who had an X-ray examination (EHNRI 2011:45).

Apart from this, other scholars argue that the disproportionate TB notification between male and female is perceived to have arisen from the barrier to get TB diagnosis and treatment services. The barriers are more pronounced among women than men mainly because women experienced financial and physical dependence, lower general literacy

and household stigma (Krishnan, Akande, Shankar, McIntire, Gounder, Gupta & Yang 2014:11).

2.2.1.4 Socio-economic factors and behaviour

Poverty, poor housing, ventilation of domestic and workplace, crowded living conditions (eg, prisons, refugee camps, homeless shelters, mass gatherings, shanty compounds), alcohol or substance misuse and smoking have been documented as risk factors for TB development and even for recurrence of TB after treatment completion (Yen, Yen, Lin, Lin, Shih, Li, Chou & Deng 2014:492).

Indoor air pollution is thought to contribute to 26.2% of the TB burden in 22 high TB burdened countries. A study conducted in Nepal shows that there was a higher TB prevalence in people who primarily used biomass for cooking (Pokhrel, Bates, Acharya, Valentiner-Branth, Chandyo, Shrestha, Raut and Smith 2015:161). However, a study conducted in Southern Ethiopia does not support the association of biomass fuel usage as it has increased risk to acquire TB (Woldesemayat, Datiko & Lindtjorn 2014:67).

2.2.1.5 Health system related factors

Consultation, diagnosis and treatment delay that are pertinent to the health care delivery system are risk factors for transmission of TB from infectious cases to other. The delays amplify the severity of illness among TB patients, in turn, elongate infectiousness time and add to bacilli transmission from TB cases to close contacts and the community (Yimer et al 2014:1). Moreover, the delays retract the TB control effort given that DOTS strategy is based on passive case finding approach and treats infectious cases (Narasimehan et al 2013:6).

In many developing countries, the delays are unacceptably high and occur due to repeated visits to the same level of health care and difficulty in accessing better diagnostic and management services for TB. In Angola the median health care system delay is 7 days (Lusignani, Quaglio, Atzori, Nsuka, Grainger, Palma, Putoto & Manenti 2013:1) while in Wakiso, Uganda is 11 weeks (Buregyeya, Criel, Nuwaha & Colebunder 2014:5) and in the Afar region of Ethiopia is 33.5 days (Belay, Bjune, Ameni & Abebe 2012:5). In Addis Ababa, Ethiopia, the median delay of TB patients from the patient

feels TB symptoms to the initiation of treatment is 60 to 90 days (Storla, Yimer & Bjune 2008:1).

2.2.2 Multi-drug resistance TB (MDR-TB)

MDR-TB is a type of TB caused by strains of *M tb* that are resistant to first line TB drugs, Isoniazid and Rifampicin, it is believed to be man-made. MDR-TB occurs when patients do not complete their full course of treatment; when HCPs prescribe the wrong treatment, the wrong dose, or length of time for taking the drugs; when the supply of drugs is not always available; or when the drugs are of poor quality (Keshavjee & Farmer 2012:931).

Global trend of MDR-TB since the year 2008-2013 shows that the MDR-TB occurrence is unwavering (WHO 2014a:70). Globally in 2013, 3.5% MDR-TB among new and 20.5% among previously treated TB cases were estimated. In the same year 136,000 MDR-TB patients were detected and reported; 97,000 treated by second line TB drugs and only 48% of treated MDR-TB patients had successful treatment outcome (WHO 2014b:2).

The prevalence of MDR-TB in Africa estimated to be 2.4% among new TB patients and 13% among previously treated TB patients (WHO 2014a:73). In Africa, in 2013, 44,000 MDR-TB cases were reported, which constitutes 74% of estimated MDR-TB cases, of which only 44% MDR-TB patients were enrolled in the MDR-TB treatment (WHO 2014a:83).

In Ethiopia 1.6% of new and 12% of retreatment TB cases were estimated to be MDR-TB patients (WHO 2014a:73) and have shown increasing trend until 2014 with clear geographic disparity, with the highest prevalence rates in major urban settings such as Addis Ababa (EFMOH 2014a:6).

The MDR-TB in addition to Isoniazid and Rifampicin, may be resistant to other TB drugs. When MDR-TB resists any of the fluoroquinolones (such as ofloxacin or moxifloxacin) and to at least one of three injectable second-line drugs (amikacin, capreomycin or kanamycin) is referred as extensively drug-resistant TB (XDR-TB) (WHO 2014a:6).

WHO 2014 report indicates that globally on average an estimated 9.0% of patients with MDR-TB had XDR-TB and has been reported by 100 countries in 2013 (WHO 2014a:75). Even though no study was conducted on the prevalence of XDR-TB in Ethiopia, laboratory report indicates that the existence of XDR-TB (EFMOH 2014b:6).

2.2.3 Tuberculosis treatment

Successful treatment of infectious cases of TB is essential to prevent the spread of infections. Standardised treatment of active TB cases is one of the five components of the DOTS strategy. The current recommended first line drugs for the treatment of TB are Rifampicin (R), Ethambutol (E), Isoniazid (H), Pyrazinamide (Z) and Streptomycin (S) (Zumla et al 2013:749).

A provision of the TB treatment bases on registration groups of TB patients, which differentiate new TB patients from those who have had prior exposure of TB treatment (relapse, default and failure). WHO and International standard for tuberculosis (ISTC) care recommend HRZE for the first two months and RH for the later four months for new TB patients presumed or known to have susceptible TB (TB Care I 2014:10).

Previously treated TB patients or priorly exposed to TB drugs should have culture and drug susceptibility testing (DST) at or before the start of treatment to choose the appropriate drug based on a DST patern (WHO 2010b:32). It takes 6-8 months duration divided in two phases. Phases are an intensive and continuation phase; with at least five drugs, Pyrazinamide and other four drugs to which the organisms are susceptible including an injectable agent during in the intensive phase of the treatment. In the continuation phase, at least 3 drugs to which the organisms are known or presumed to be susceptible to 18-24 months after culture conversion (TB Care I 2014:46). The MDR-TB treatment require 18−24 months with second line TB drugs. It is difficult and costly than drug susceptible TB treatment (Keshavjee & Farmer 2012:931).

In Ethiopia the WHO recommended TB drugs are in use as fixed dose combination (RHZE 150/75/400/275 mg, RHZ 150/75/400 mg RH 150/75 mg and EH 400/150 mg) and their loose form to treat active TB cases. The selection and recommended regimen

by the current guideline for clinical and programmatic management of TB, Leprosy and TB/HIV in Ethiopia described in Table 2.1 (EFMOH 2013:28).

Table 2.1: Selection of TB treatment regimen for TB patients

TB patient type	Recommended regimen	Additional action(s)
New	2RHZE/4RH	Send sputum for culture and DST if a contact of known MDR-TB case
Previously treated		
Treatment after failure	Treat as retreatment: 2RHZES/RHZE/5RHE	Send sputum for culture and DST while treating the patient
Treatment after default Or relapse after one course of treatment	Treat as retreatment: 2RHZES/1RHZE/5RHE)	Send sputum for culture and DST while treating the patient
Relapse after second or subsequent courses of treatment Failure of retreatment	Wait for DST result	Send culture and DST and refer patient to MDR treatment initiating centre
Transfer in	Continue the same regimen	Consider DST, if available
Others		
Previously successfully treated patients coming with PTB-ve or EPTB	Treatment as new: 2RHZE/4RH	Send sputum/specimen for culture and DST if a contact of a known MDR-TB case
Defaulted patients coming with smear negative TB, EPTB, or previously treated patients with unknown treatment outcome	Treat as retreatment: 2RHZES/RHZE/5RHE	Send sputum/specimen for culture and DST while treating the patient
2=Two months, 5=Five months, 1=One month R=Rifampicin, E=Ethambutol, H=Isoniazid, Z=Pyrazinamide, S=Streptomycin, DST=Drug Susceptibility Test.		

(Source: EFMOH 2013:28)

2.3 DIRECTLY OBSERVED TREATMENT, SHORT COURSE (DOTS) STRATEGY

In 1991, the 44th WHA recognised TB as an emergency and a major public health problem. Cognisant of this, two targets were set; detecting 70% of infectious TB cases and treating 85% of detected cases by the year 2000. However, to achieve these set targets, poor adherence to TB treatment, prolonged infectiousness and drug resistance to treatments were identified challenges. The DOTS strategy was designed to tackle these challenges by focusing on observing the person, whether taking the treatment correctly with the right amount at the right time by health workers or trained volunteers

i.e. direct supervision and patient support are a central component of the strategy (Lienhardt et al 2012:409).

The DOTS strategy is a central part in stop TB strategy with other prongs (Table 2.2) which target to eliminate TB from being considered as a public health problem (<1 case/10^6/year) by the year 2050. The components of the strategy to achieve the targets are depicted in Table 2.2 (WHO 2012:4).

Table 2.2: Components of the stop TB strategy

1. Pursue high-quality DOTS expansion and enhancement • Secure political commitment with adequate and sustained finance • Ensure early case detection, and diagnosis through quality-assured bacteriology • Direct supervision and patient support • Ensure effective drug supply and management • Monitor and evaluate performance and impact
2. Address TB/HIV, MDR-TB, and the needs of poor and vulnerable populations • Scale up collaborative TB/HIV activities • Scale up prevention and management of MDR TB • Address the needs of TB contacts, and of poor and vulnerable populations
3. Contribute to health system strengthening based on primary health care • Help improve health polices human resource development, financing, supplies, service delivery and information • Strengthen infection control in health services, other congregate settings and households • Upgrade laboratory networks, and implement the practical approach to lung health • Adapt successful approach from field and other sector and foster actions for social determinants of health
4. Engage all care providers • Involve all public, voluntary, corporate and private providers through public-private mix approaches • Promote use of the International Standards for Tuberculosis Care
5. Empower people with TB, and communities through partnership • Pursue advocacy communication and social mobilisation • Foster community participation in TB care, prevention and health promotion • Promote use of the *Patients' Charter for Tuberculosis Care*
6. Enable and promote research • Conduct programme-based operational research • Advocate for and participate in research to develop new diagnostics, drugs and vaccines

(Source:WHO 2012:4)

Globally, until 2005, 187 countries have implemented the DOTS strategy to control TB (WHO 2006). In Ethiopia since the DOTS strategy was piloted, it has shown increasing

geographic and facility coverage. At 2011, the coverage reached to 100% geographical and 95% health facility (Mekonene 2014:2).

Although the DOTS strategy provides limited options for prompt diagnosis and cure for MDR-TB cases (Keshavjee & Farmer 2012:933), the DOTS strategy supported TB control activities to avert 7 million deaths that would have been occurred due to TB and 50 million TB patients to be treated from mid 1990th to 2008 (Marais 2013:89).

The Centre for Disease Control and Prevention (CDC) of the United States of America (USA), recommends that DOTS provision should not interfere with the patient's work schedule and can be provided at any place, either in or outside the health institutions; where the patient and HCP agreed upon as long as the location is convenient and safe (CDC 2014:33). In line with CDC-USA recommendation, the Ethiopian guidelines for clinical and programmatic management of TB, TB/HIV and Leprosy provide options where direct observation can take place; at a hospital, at a health centre or at a health post, at the patient's workplace, or at the home of the patient (EFMOH 2013:36).

2.3.1 DOTS and treatment outcome

The treatment outcome of TB patients is categorised and reported in a proportion of cured, treatment completed, failed, died, lost to follow-up and not evaluated (no treatment outcome is assigned) among the cohort of TB patients. Cured and treatment completed jointly defined as TSR. The TSR is among WHO recommended outcome indicator of DOTS treatment (Getahun et al 2013:526).

According to WHO 2014 report, in 2013, global TSR by DOTS strategy was 86%, 65% and 68% among new, previously treated and HIV positive TB patients, respectively. The highest TSR, 95% reported in China and the lowest in the Russian Federation. In the same report, 91% of newly registered and 43% of retreated TB patients had a successful treatment outcome in 2012 (WHO 2014a:147).

Globally, among 2011 cohort of MDR-TB and XDR-TB cases started a second-line treatment, 48% of MDR and 16% of XDR TB cases were successfully treated (WHO 2014b:165). These TSRs have increased to 52% for MDR-TB and 28% for XDR-TB in the 2013 cohort (WHO 2016:1).

In Africa, 81% of new and relapse cases, 48% of previously treated cases, excluding relapse, 68% of HIV-positive all types TB cases registered in 2012 had successful treatment outcome by DOTS strategy. In Kenya and Mozambique 87% and 89% TSR were reported among 2014 registered TB patients, respectively (WHO 2016:149).

In Ethiopia among a cohort of 2014 bacteriologically confirmed TB patients, 89% of TB patients had successfully treated. In the same year, 69% MDR-TB TSR was reported in Ethiopia however, still the death rate due to MDR-TB remained high, 12% (EFMOH 2015a:21).

In Ethiopia across the regions at different times varied proportions of treatment outcome were reported. A medical record review of smear positive pulmonary TB patients in the Tigray region in 2011 was 89.2% TSR reported with a significant difference between those who were employed and unemployed pulmonary TB patients (Berhe, Enquselassie & Aseffa 2012:7). Another study conducted in Azezo, North-West Ethiopia, 80.5% TSR in 2012 (Addis et al 2013:168) and in Addis Ababa with slight increasing trend from 2005 to 2009 and 87.3% TSR was reported (Getahun et al 2013:525).

The unwanted treatment outcomes of TB patients in Azezo, Ethiopia were reported as 8.5% death, 0.21% failed and 1.7% lost to follow-up from their TB treatment (Addis et al 2013:169). Getahun et al (2013:521) report that the unwanted treatment outcome in Addis Ababa was 3.7% death, 5.1% lost to follow-up and 0.4% failed under DOTS strategy.

2.3.2 DOT at health facilities and in the community

DOT at health facilities poses an economic and social burden. Cognisant of these burdens Gabriel and Mercado (2011:2178) evaluate task shifting from health facilities to the community. According to their findings, DOT in the community was equally effective and efficient as DOT at health facilities. A review demonstrates that community based DOT through community health workers improves access, service utilisation and routine TB recording and reporting systems (Arshad, Salam, Lassi, Das, Naqvi & Bhutta 2014:27).

A comparative study conducted in Botswana, compared DOT at the facility against at home, shows that no statistical difference in the treatment outcome of TB patients between DOT at the facility against at home. However, it is slightly difficult to trace the indexed case contacts at home based care (Mash & Kabongo 2010:5). Another study in the same country in 2013, reaffirms that TB patients who get their treatment in the community shows better treatment outcome than treatment provided at health facilities (Mugisha, Semo, Ledikwe, Ncube, Firth, Achoki, Lere, Machao, Mwangemi, Makadzange & Mabreaden 2013:93). A study conducted in Oromiya region of Ethiopia compared the TSR of the TB patients who follow their continuation phase of the TB treatment in the community against health facilities. The findings demonstrate that the TSR is similar in both settings (Ketema, Raya, Workineh, Klinkenberg & Enquselassie 2014:S15).

A systematic review of literature by Weiss, Chen, Cook and Johnston (2014:7) indicate that community-based TB treatment even for MDR-TB patients had a similar outcome with the facility-based treatment provision schemes. The lessons from the studies lead to argue that DOT at health facilities and in the community is yielding a similar treatment outcome, however, DOT at the facility is resource demanding compared to DOT at the community.

2.3.3 DOT and self-administered treatment (SAT)

Studies compared DOT against SAT based on mortality and treatment completion rate of TB patients. A study conducted in Taipei, Taiwan indicates that the probability of death is lower among patients treated with DOT than those who treated on the SAT after adjusting other predictors. However, the study is subjected to retrospective study limitation as it was based on a review of documents and secondary data. The study participants were not randomly assigned either to SAT or DOT groups, and numbers of participants had significant difference among the groups (Yen, Rodwell, Yen, Shih, Hu, Li, Shie, Chuang & Garfein 2012:178-180).

A study conducted in Brazil, Rio de Janeiro compared the treatment completion rate of TB patients with DOT against SAT. the study shows that the treatment completion rate at facility DOT is better rate than SAT (Steffen, Menzies, Oxlade, Pinto, Castro &

Monteiro 2010:1). Similarly, a study conducted in conflict areas of India report that smaller proportions of patients under DOT were lost to follow-up compared to SAT. However, numbers of participants, particularly for the SAT's group were limited (Das, Isaakidis, Armstrong, Gundipudi, Babu, Qureshi, Claes, Mudimanchi, Prasad, Mansoor & Abraham 2014:1). Another study conducted in Iran demonstrates that DOT has better treatment outcome than SAT. Based on the outcome of the study, Moosazade, Jamshidi, Amiresmaili and Nezammahalleh (2012:878) recommend DOT to be continued to achieve TB related MDG set goals and to reduce acquaintance of MDR TB.

However, the study conducted in Homa baya, Kenya suggests that SAT allows achieving appropriate adherence to TB treatment, the main reason of DOT, even in a high TB and HIV burden area (Nackers, Huerga, Espie, Aloo, Bastard, Etard, Sitienei, Varaine, Chakaya & Bonnet 2012:1). Furthermore, a meta analysis of ten randomised and observational studies which included 8,774 patients concluded that DOT is not significantly better than the SAT in preventing microbiologic failure, relapse, or adverse drug reactions (Pasipanodya & Gumbo 2013:30). The scholars are in arguments either DOTS or SAT is supporting in reduction of mortality, and lost to follow-up, and treatment completion rate.

2.3.4 DOT and treatment supporter

In the DOT strategy, the treatment supporters' role ranges from watching a TB patient whether swallow every single dose to manage and report when side effects observed and the health status of the patient (EFMOH 2013:24). Studies assessed and compared different types of treatment supporter whether they are helpful to better treatment outcome of TB patient or not. A study conducted in Rawalpindi District, Pakistan on treatment outcome of TB patients using different treatment supporters, shows that a significant difference among different treatment supporters. TB patients who had women health workers treatment supporter had better treatment outcome than TB patients who had family members and community volunteers as a treatment supporter. However, the study lacks proportionality on allocation of treatment supporter (Soomro, Qadeer, Khan & Morkve 2012:15).

Another study conducted in Zimbabwe compared TB treatment outcomes of TB patients using three types of treatment supporter: HCPs, trained community member and family member. The study shows that the treatment outcome of the participants has no significant difference among the three treatment supporter groups (Mlilo, Sandy, Harries, Kumar, Masuka, Nyathi, Edginton, Isaakidis, Manzi & Siziba 2013:147). Similarly, a study conducted in Nepal shows that treatment outcome of TB patients has no significant difference among different types of treatment supporter of TB patients (Mirzoev, Baral, Karki, Green & Newell 2008:1). The studies can reveal the type of tratment supporter may not have special advantage one type over the other with regard to ttreatment outcome.

2.4 PATIENT-CENTRED CARE (PCC)

PCC has attracted leaders in visionary HCOs, research institutions and public policy centres who advocate that patients' interests and concerns should be at the centre of their own healthcare experience. PCC has become a central discussion of the quality health care provision and is at the time to be included in the health care delivery system (Epstein & Street 2011:101). The health care policy direction that includes patient centeredness of the health care delivery is needed to be standing position not only for improving the quality of health care delivery, but also to reduce the challenges posed on people by chronic diseases (Mirzaei, Aspin, Essue, Jeon, Dugdale, Usherwood, & Leeder 2013:1). Moreover, even a study conducted in developing countries such as Ethiopia recommended the introduction and implementation of PCC in the national TB control program to combat the challenges posed by daily observation of TB patients at health facilities particularly in the patient perspectives (Fiseha & Demissie 2015:7).

2.4.1 PCC as a dimension of quality health care

PCC has been raised as a dimension of quality indicators of health care and safety of health services. Despite its newness, as health quality indicator, necessitates a change in the way policy makers and regulators think about the quality of health care (ACSQHC 2011). The WHO quality health care dimension focuses on effectiveness, safety, efficiencies, accessibility, equitable and acceptability of the health care. PCC have been quoted as substitute under the acceptability of the care (WHO 2006:9-10). In addition, assessing quality interventions need to consider the level of right, involvement and

share responsibility of service user and patients. These components of patient centeredness are also included in the dimension of WHO recommended health care quality (WHO 2006:33). WHO indicates that patient centeredness is one of the indicators for measuring the quality of health service deliver (WHO 2008:14).

Reviews show and recommend that patient centeredness of health care delivery to be considered as quality indicator since it ables to reflect improvement the quality of patient care (Berwick 2009:w555; Pelzang 2010:908). PCC, beyond quality indicator for low- and middle-income countries, is an essential component for quality health care. It is timely to promote and optimise PCC beyond micro scale interaction (HCP and patient communication), integration in the macro level (health care system) of both low and middle income countries to gearing up for universal health coverage (Mahendradhata et al 2014:5).

2.4.2 PCC and health policy

Across the world, there is a growing recognition and acceptance of PCC approaches in the health care delivery. International organisations such as the WHO, Health Foundation, Piker Institute of Health Care, and International Alliance of Patients' Organisations are lobbying PCC to be an integral part of health care policy and delivery. In addition, governments emphasise the need for health care to be more explicitly patient-centred on the needs of the individual patient. PCC care is a patient-focused, individualised care delivery process that supports the building of trust within a provider-patient relationship, fosters the patient's participation in care design, and reinforces patient expectations and perceptions of quality and equity (Kitson, Marshall, Bassett & Zeitz 2013:5).

Cognisant of PCC as a pillar of quality health care delivery, developed countries such as Australia, Australian Commission on Safety and Quality in Health Care have been inserted PCC to be implemented at policy and service level across the country in 2010 (ACSQHC 2011) and US Department of Health and Human Services in 2008 (Kitson et al 2013:5). However, its application is limited to developed countries, and not well entertained in developing countries (Epstein & Street 2011:102). However, Indian's health care delivery and treatment guideline strongly advocate the PCC approach even for TB patients under DOTS strategy (Gupta 2015:35).

In developing countries, PCC is strongly recommended to be integrated in health policy since PCC can result in tremendous savings compared to expenses incurred with treatment with traditional methods. The potential implementation of PCC in developing countries is particularly interesting because the health system becomes more efficient when it focuses on the person, not solely on the diseases. Moreover, it is believed to increase the satisfaction of patients and reduce disparity among the patients who may be in different socio-economic status (Otero, Luna, Marcelo, Househ, Mandirola, Curioso, Pazos & Villalba 2015:33).

2.4.3 PCC and TB

PCC in TB control strategy is not a new concept, even in introduction of DOTS strategy, it was considered as important component (Grant 2013:3). In the stop TB strategy, a component that provide emphsis on empowering people with TB and communities is a light of PCC importance in TB control programme at different level. It emphasises the establishment of social support programmes, communication and partnership between health sector and local community particularly with TB patients and collecting their experience to provide responsive health care services to their needs for themselves and their fellows (WHO 2012:4).

Sustainable and effective PCC TB treatment strategy is promising for TB control (Mkpi et al 2013:7). Post-2015 TB control strategy and Standard nine of the ISTC described the patient-centred approach as core pillar of all TB control and care activities (WHO 2013c:10). Incognisant of patient-centred TB control strategy's input to make a world free of TB, Tuberculosis Coalition for Technical Assistance (TBCTA) designed five strategies that reinforce PCC. The strategies are to engage all stakeholders, recognise the patient's rights, enable partnerships, empower and activate patient and communities, and monitor and document the activities by actively involving the patient and the communities (TB care I patient-centred approach strategy 2015).

A systematic review conducted on 60 articles suggests that PCC is associated with improved patient outcome. The improved patient outcomes associated with PCC are adherence to treatment and quality of life of TB patients (Kuntz, Safford, Singh,

Phansalkar, Slight, Her, Lapointe, Mathews, O'Berien, Brinkman, Hommel, Farmer, Klingler, Maniam, Sobko, Bailey, Cho, Rumptz, Vandermeer & Hornbrook 2014:310).
In a qualitative study conducted in Uganda with HCPs, TB patients and their family demonstrates that PCC is not only for drug susceptible TB but also for MDR-TB is to be an ideal approach at national level for Uganda. This approach supports the TB program, beyond treatment adherence, facilitating psychosocial support and allowing more free time and earning potential for patients and care givers (Horter et al 2014:1).

A study conducted in Tanzania on a cohort of TB patients, provision of choice for TB patients where to take a medication and treatment supporter, was used as a PCC intervention. As a result, the study explains that PCC intervention has brought better treatment outcome significantly (Egwaga et al 2009:9). Apart from this, a study conducted in Nicaragua shows that PCC on TB patients has no significant difference with regard to treatment outcome, rather it suggests as way to internalise stigma related to TB over the direct observation of TB treatment (Macq et al 2008:7).

Although there are limited evidences to conclude PC TB care superiority over the traditional TB-care provision with regard to treatment outcome, findings show that the promising features of PCC not only to a better treatment outcome, but also to improve wellbeing and financial risk protection by improving adherence to TB treatment, benefiting patients and society as a whole (Toczek, Cox, Du Cros, Cooke & Ford 2013:306; Sripad Castedo Danford Zaha & Freile 2013:45).

2.5 PATIENT SATISFACTION

Al-Abri & Al-Balushi (2014:4) defined patient satisfaction as patients' emotions, feelings and their perception of delivered health care services. Satisfaction also defined as psychosomatic thought of individuals on judgment regarding any object or event after gathering some experience over time. Most scholars recognise satisfaction as a cognitive response whereas some others consider as emotional attachment of individuals (Chakraborty & Majumdar 2011:150).

Patient satisfaction is defined as the extent to which the person's observation of the health care service or the manner in which it is delivered by the provider as helpful, effective or beneficial (*Medical Dictionary* 2012). It is a junction between patent's prior

expectations and the perception of care in reality received from the services (Mishra & Mishra 2014:627).

Satisfaction measurements with health system play an important role in evaluating performance at national level and beyond. Moreover, patient satisfaction is often viewed as a variable that is influenced by quality of care. It is a predictor of future health-related behaviour and has been found to be sensitive to a large number of factors, including certain experiences with health service delivery (Papanicolas, Cylus & Smith 2013:734).

Currently, the HCOs are recognised as a social institution. Their only reason to exist is patient. Therefore, measuring patient satisfaction level has been increasingly becoming a measure to evaluate health care services directly provided to the patient (Mosadeghrad 2014:85).

2.5.1 Predictors of patient satisfaction

Among socio-demographic characteristics of the patient's gender, socioeconomic status and age are perceived factors for satisfaction with health care service they received. Young and middle-aged males from poor socioeconomic class and rural set up were the least satisfied with the health care in the study conducted in Pakistan (Ahmad, Nawaz & Din 2011:40).

Patient expectations, health status, patient-provider relationship, facility setting, and urgency of admission are also a predictor for patient satisfaction (Pefoyo & Wodchis 2013:9). Moreover, educational level of the patient reported as a predictor for satisfaction. More educated patients have reported less satisfaction scores. The reason for less satisfaction scores is due to the high expectation of highly educated patients or they are more critical in their evaluation of the care they received (Rahmqvist & Bara 2010:90; Pefoyo & Wodchis 2013:3).

A study shows that the different attributes of patient satisfaction from the side of HCPs are attitude, communication skills, technical skills and responsiveness to patient needs (Ahmad, Nawaz, Khan, Khan, Rashid & Khan 2011:184).

A study was carried out, which considered timely services, reservation system for clinic appointments, treatments and procedures, provision of care on time, acceptable waiting time, and time-efficient for payment as dimensions for convenience. Convenience was reported as a strong predictor of patient satisfaction (Ham, Peck, Moon & Yeom 2015:5; Yan, Wan & Li 2011:388).

Other studies used waiting time as a standalone predictor. Affirmed waiting time to get the service has been associated with patient satisfaction scores; lower waiting time with a high satisfaction score and lower score with longer waiting time (Bleustein, Rothschild, Valen, Valatis, Schweitzer & Jones 2014:393; Yimer et al 2014:7).

In HCPs-patient communication, paying undivided attention, listening, inviting questions, and validating concerns are the reported factors which have an immense impact on patient satisfaction in both directions (Shirley & Sanders 2013:2). Good communication between HCPs and patients is reported as a cause for higher patient satisfaction level (Cousin, Mast, Roter & Hall 2012:193).

2.5.2 TB patients and satisfaction

Treatment outcomes of the patient have power on, and are influenced by, patient satisfaction with the treatment processes they have gone through it. Worsen outcome may arise from dissatisfaction of patients from the service they received due to divergence with the treatment plan (Mindaye & Taye 2012:4).

At different places, studies on TB patients' satisfaction level with the TB treatment service have been conducted. In Rio de Janeiro, Brazil, a community-based survey was conducted on patient satisfaction with the TB control programme, shows that high satisfaction with TB control programme in general population. DOT treated population were more satisfied than those who were on self-administered. In addition, the study shows that lower satisfaction level among younger patients (patients who were less than 30 years old) and those with university education (Portela, Lima, Brito, Ferreira, Escosteguy & Vasconcellos 2014:505).

Another study conducted in Nigeria, compared the satisfaction level of TB patients with DOTS at home against at health facility, the participants who received DOTS at home

were reported to have more satisfaction scores than those who received care at the health facility (Adewole, Oladele, Osunkoya, Erhabor, Adewole, Adeola, Obembe & Ota 2015:783).

A study conducted in Uttar Pradesh, India, reports that only 15% of the TB patients were dissatisfied with TB care they received. The reported reasons for dissatisfactions were non suitable opening time of DOT centres, rude behaviour of the HCPs, long distance of the DOT centre, non availability of HCPs, long waiting time and feeling that private treatment is always better than government. Apart from these, the causes for satisfaction were easy availability of the medicines nearby their homes or working place, motivation and health education about the disease (Gupta 2015:36).

A study conducted in KwaZulu-Natal, South Africa, 97% of TB patients reported, that they were satisfied with the health care services they received. However, about 40% of participants agreed that some HCPs did not treat them with sufficient respect and reported long waiting times (Chimbindi, Barnighausen & Newell 2014:3).

A study conducted in Southern Nations Natoinality Peoples Region (SNNPR), Ethiopia, shows that 90% of the TB patients were satisfied with TB treatment service they received. Patient perceived on professional care, time spent with HCPs, accessibility, technical competency, convenience (cleanliness) and consultation and relational empathy were reported as independent predictors for overall patient satisfaction (Nezenega, Gacho & Tafere 2013:1).

2.6 CONCLUSION

While conducting an extensive review of literatures with the DOTS strategy, the existence of knowledge gaps on PCC and TB patient satisfaction level reinforced the requirement of this study. The most common gap observed in the review is no common PC-TB care model that can support TB care delivery, particularly in the context of developing countries except the inclusion of the few copmonents of PCC in Tanzania. Further, the review identified that the presence of limited information about DOTS strategy patient centerdeness and TB patient satisfaction with DOTS strategy. The different TB treatment provision modality: SAT, community based treatment, home based and facility based treatment remained in an argument about the superiority of

one another to provide better treatment outcome of TB patients. Hence, although PCC implementation of TB treatment is limited, patient-centred TB care that keeps the patient preference and value may complement the weakness of the existed modalities of TB treatment provision since patient-centred practice improved health status and increased the efficiency of health.

Moreover, the reviewed literature agreed on the fact that there is an impact of measuring patient satisfaction on quality improvement of care. Patients' satisfaction level is a realistic indicator to provide opportunity for improvement, enhance strategic decision making, reduce costs, meet patients' expectations, frame strategies for effective management, monitor health care performance of health plans and provide benchmarking across the health care institution.

The next chapter, Chapter 3 will explain the framework and model utilised to execute this study.

CHAPTER 3

CONCEPTUAL FRAMEWORK

3.1 INTRODUCTION

Chapter 2 presented literature review on TB, DOTS, PCC and its predictors, and patient satisfaction with possible predictors from different data bases. The review also shows the presence of limited information about DOTS strategy patient centeredness' and TB patient satisfaction with DOTS strategy. Moreover, the review identified lack of PC-TB care model that can support TB care delivery particularly in the context of developing countries.

George (2010:4) describes that conceptual framework is a thought that could shape perceptions, reality and an enquiry. It is useful to identify how concepts and theories are related; and the propositions that explain the relationships between different and or similar concepts. According to Burns and Grove (2011:239), in every quantitative driven study, conceptual framework that guide and depict the interaction of variables is inevitable.

3.2 REVIEW OF PCC FRAMEWORKS

The term PCC is often used in health literature at different times and is defined differently by authors. Redman (2004:11) describes PCC as caring for the patient as an inimitable individual and is also defined as a criterion of practice that demonstrates a respect for the patient as a person (Schaller 2007). PCC definition is, beyond the respect of the individual, a care that respect and take action to individual patient preferences, needs, values, and goals" (Greene et al 2012:49).

PCC focuses on considering the patient's point of view, situations in the decision-making process and goes far beyond simply setting target with the patient. Most PCC descriptions and definitions' core concept rotates on patient's value. The patient's value is considered as a goal of health care delivery with defined treatment outcome even

with complex conditions. PCC is asserted as a care, which respects and reacts to individual patient preferences, needs, values and goals (Greene et al 2012:49).

In addition, PCC takes into account respect, compassion, concern, shared decision making and communication. It regards patients as a complete person with biological, psychological and social needs, thus PCC approach required to be an integrated part of the health care system (Pelzang 2010:913).

Patient-centeredness refers to an approach of health care provider-patient encounter explained by responsiveness to patient needs and preferences, using the patient's informed wishes to guide activity, interaction and information-giving, and shared decision-making (Scholl, Zill, Harter & Dirmaier 2014:3).

Patient centeredness is supposed to improve the quality of patient care, reduce the cost of care, and increase satisfaction among HCP and patients through strengthening professional practice and maintaining the values of the patient and health care providers (Pelzang 2010:916). PCC offers a higher level of quality health care and improves patients health care experiences. Measuring its value adjusts risks that may face and used for relevant comparisons among the patients' results, including comparisons of providers' ability to care for patients (Porter 2010:2478).

Patient centeredness is one of the indicators used to measure quality of health service delivery (WHO 2008:14). Patient-centeredness is beyond quality indicator for low and middle-income countries, it is an essential component of quality health care. It is time to promote and optimise patient centeredness, beyond the micro scale interaction (HCP and patient communication), integration at the macro level (health care system) of both low and middle income countries to gearing up for universal health coverage (Mahendradhata, Souares, Phalkey & Sauerborn 2014:5).

3.2.1 Models and dimensions of PCC

At different times, different models and dimensions of PCC have been proposed and used. Mead & Bower (2002:60) propose Bio psychosocial perspective, patient-as-

person, sharing power and responsibility, therapeutic alliance, and doctor-as-person as five dimensions of patient centeredness in health care setting.

The Picker Institute of Health identified and projected eight dimensions of PCC. The dimension included access; respect for patients' values and preferences; coordination of care; information, communication and education; physical comfort; emotional support; involvement of friends and family; and preparation of discharge and transitions in care (Shaller 2013).

Similarly, the Institute of Medicine (IOM) in the United States has put in place six measurements: values and preferences; coordination of care; information, communication and education; physical comfort; emotional support; and involvement of friends and family (Little, Everitt, Williamson, Warner, Moore, Gould, Ferrier & Payne 2011:909).

In 2014, a systematic review and concept analysis on existing patient-centeredness model was done by Scholl et al (2014:5-6), as a result they propose an integrative model of patient-centeredness. The proposed model encompasses 15 dimensions of patient-centeredness classified into principles, enablers and activities. Acknowledged dimensions in principles are essential characteristics of clinician, clinician-patient relationship, clinician-patient communication, patient as a unique person and biopsychosocial perspective. Enablers are clinician-patient communication, integration of medical and non-medical care, teamwork and team building, access and coordination and continuity of care. The Provision of information to the patient, involving the patient and patient's relative or friends to the degree that the patient prefers are considered activities that facilitate informed decision in PCC. Further, emotional and physical support with recognition and active support of the patient's ability and responsibility to self-manage his or her disease are stated in the activity category of the dimension (Scholl et al 2014:5-6).

Although no universally accepted conceptual framework or model of PCC existed, health promotion, communication and partnership have been considered in the framework or a model across multiple areas of clinical practice to avail PCC (Constand, MacDermid, Dal Bello-Haas & Law 2014:7).

Researchers used different PCC models, which they considered appropriate for the representation of PCC for TB treatment. Provision of the TB treatment at home (Horter, Stringer, Reynolds, Shoaib, Kasozi, Casas, Verputten & Du Cros 2014:3), in the community (Gabriel & Mercado 2011:2178) and self-administering (Yen et al 2012:179) were considered the PCC intervention model for TB treatment by different scholars.

Moreover, provision of information, choice where to take treatment and enough time to patients and treatment supporter choice were also considered as components of PCC of TB treatment strategy (Mkopi et al 2013:3).

A study conducted in Tanzania on TB control programme, provision of choice where either HCPs or family member, types were considered as PCC intervention dimensions to DOTS strategy (Egwaga, Mkopi, Range, Haag-Arbenz, Baraka, Grewal, Cobelens, Mshinda, Lwilla & Van Leth 2009:3). Another study that assessed the level of internalised stigma and TB treatment outcome used TB patients' home visit to increase power sharing between the health personnel and TB patients as an intervention of PCC provision (Macq, Solis, Martinez & Martiny 2008:2).

The concept of PCC is described in many ways. The term PCC described as consumer centred care to engage people as partners, in health sector this term seems active and aligns with clients (Silow-Carroll, Alteras & Stepnick 2006:10). Redman (2004:11) describes PCC as caring the patient as an inimitable individual. PCC is a criterion of practice that demonstrates a respect for the patient as a person (Schaller 2007:).

WHO uses the term 'responsiveness' in preference to 'PCC' to describe how a health care system meets people's complaints. The response to the complaints is based on in recognised or acceptable rules, standards and ethical norm regarding respect for people and their wishes. In addition, the responses consider waiting time of patients and good communication between health workers and patients.

PCC focuses on considering the patient's point of view and situations in the decision-making process and goes far beyond from simply setting a target with the patient (Ponte, Conlin, Conway, Grant, Medeiros, Nies, Shulman, Branowicki & Conley 2003:83). PCC is a care, which respects and reacts to individual patient preferences,

needs, values and goals and considers a patient as a complete person with biological, psychological and social needs (Greene et al 2012:49).

Most PCC descriptions and definitions' core concept rotates and focuses on patient's value. Patient's value is recommended to be a goal of health care delivery with defined treatment outcome even within a complex health conditions. PCC offers a higher level of quality health care and improves patient health care experiences. Measuring patients' value adjusts risks and can be used for relevant comparisons among the patients' results, including comparisons of providers' ability to care for patients (Porter 2010:2478; Pelzang 2010:917).

The existed PCC models and frameworks which focus on individuals consider respect and values for patients', preferences and expressed needs as a core notion (Gertels Edgman-Levitah, Daley & Debanco 1993; Piker Institute of Health 2001; WHO 2000), while the PCC frameworks that focus on system approach, consider structural, process, the outcome of HCO as components of the PCC (McCormack & McCane 2006).

The existence of organisational self-care and partner involvement scheme recognised as the axles that determine the patient centeredness of a care (Flarey 1995). Whereas, some of the PCC frameworks give high attention on the communication of HCP with the patients and HCPs' characteristics to provide PCC by disregarding the technical competency of HCPs and convenience of the premise of HCOs (Jayadevappa & Chatter 2011:21; Greene et al 2012:50; Scholl et al 2014:7) without integrating and due attention to the outcome of the model and predictors of PCC.

Despite the similarity of the core concepts among the models and frameworks of PCC, it is difficult to get a single framework or model that could fit with TB care delivery at HCO due to lack of clarity and homogeneity of the existed PCC models toward TB care provision (Constand et al 2014:8). The details of the reviewed models and frameworks are described in Table 3.1.

Table 3.1: Comparison of PCC dimensions, frameworks and models

Authors	Focused dimensions	Remarks
Dimensions of PCC (Gertels et al 1993)	• Respect for patients' values, preferences and expressed need. • Coordination and integration • Information, communication and education • Physical comfort • Emotional support and alleviation of fear and anxiety • Involvement of family and friends • Transition and continuity of care	• Patients' side dimensions are well explored • Not categorised to system level and interactions are not well explained • Not well linked to the outcomes
Systems model of PCC (Flarey 1995)	• Organisational self-care • Masters of change • Partners in care • Patient involvement	• Less emphasis patient's value and need • Lack informed decision • Mainly focused on organisational sustainability • No outcome indicator stated
Dimensions of PCC (Piker Institute of Health 2001)	• Respect for patients' values, preferences and expressed needs • Coordination and integration of care • Information, communication and education • Physical comfort • Emotional support and alleviation of fear and anxiety • Involvement of family and friends • Transition and continuity	• Well explored dimensions • Technical competency is not considered • Do not consider environment of the HCO
A framework for measuring responsive-ness (WHO 2000)	• Dignity • Autonomy • Confidentiality • Prompt attention • Access to social support • Quality of basic service • Choice of care provider	• More emphasis is provided to non-technical aspects of the care • Ignores the medical parts • Communication and interaction of patients and HCPs not considered.
A system theory of patient-centred care (McCormack & McCane 2006)	• Structure component • Process component • Outcome component	• Integrated with heath system • Provide outcomes • Patient centeredness is embedded in other outcome
People centred health care: policy frame work (WHO 2007b)	• Health practitioners • HCOs individuals, families and communities • Health systems	• It is good to assess nation' whole health care system since it provide more emphasis at macro/nation

Authors	Focused dimensions	Remarks
		level and policy level • It is not explicit, overarched to inplace in HCO
Conceptual model of PCC (Jayadevappa & Chatter 2011:21)	• Provider and patient characteristics • Outcome(satisfaction, improved survival, health, cost reduction, • Clinical characteristics and convenience	• Integrate the outcome and predictors • Lacks interlinking dimensions
Dimensions and attributions of a patient-centred health care system (Greene et al 2012:50)	Nine (9) dimensions categorised to: • Relationship • Provision of care • System	• Categorised to system and care provision • The outcomes are not clearly stated
Integrative model of patient-centeredness (Scholl et al 2014:7)	Fifteen (15) dimensions categorised to: • Principles • Enablers • Activities	• Explored maximum dimensions compared to the other models • Outcomes are not stated

3.3 CONCEPTUAL FRAMEWORK OF THE STUDY

Considering the purpose and specific objectives of the study the following frameworks were selected: WHO's people centred policy health care framework (WHO 2007:1-14) to guide patient centeredness of DOTS strategy and Donabedian's quality of health care model (Donabedian 2005: 672-679) to guide TB patients' satisfaction level.

3.3.1 People-centred health care policy framework

People-centered health care policy framework is intended to provide general principles and guidance for countries and areas in identifying and adapting policy reforms and interventions to their unique settings at national and local levels in the broader health care challenges. The framework contains four domains of dimensions. The dimensions are individuals, family and community; health care delivery system; HCPs and HCO (WHO 2007b:7).

3.3.1.1 Individuals, families and communities

Individuals, families and communities are the framework's dimension, placed within a service delivery context that supports universal, equitable, people-centred and integrated health services. These are delivered through integrated networks and linkages within the health sector, as well as direct inputs from communities (WHO 2007b:9).

The construct that reflect the PCC in Individuals, families and communities dimension include health literacy, communication and negotiation skills and patient capacity for self-management and self-care. A capacity of the volunteer, and promoting social infrastructure that supports community participation explain patient centeredness' level to the patient side in the framework (WHO 2007b:10).

Patients cannot access health service and make informed decisions without being well informed. Safe and equitable PCC services need health literacy of a patient to meet and achieve quality health services (Brach, Dreyer, Schyve, Hernandez, Baur, Lemerise & Parker 2012:2). Health literacy of people can increase through active community and mass media education campaigns; skills-oriented health education programmes; written information in conjunction with verbal information in clinical consultations; and evidence-based health education (WHO 2007b:10). Moreover, empowerment of the community and TB patients throughout their treatment follow-up time is one of the recommended approaches to improve TB treatment outcome (Boateng, Kodama, Sata, Bonsu & Osawa 2012:364).

Communication skills are one of the core components which pave a way to put in PCC services. Communication skills existed almost in all framework or models of patient centeredness in common (Constand et al 2014:1). Among PCC's fundamental components, communication skills account for a major share. These skills help to foster healing relationships; exchanging and know what patients want and need; responding to patients' emotions; engaging in informed and collaborative decision and enables patient's self-management (Levinson, Lesser & Epstein 2010:1311). Communication skills has a positive impact, beyond making a health service patient centred, on important PCC outcomes, including patient satisfaction, adherence to recommended treatment and self-management of chronic disease (Levinson et al 2010:1312).

Building patients' capacity to manage and care for themselves through training and health education are a determinant of existence of PCC in health care service organisation. Self-management and care can reduce symptoms; improve physical activity and less need for medical treatment. Building the capacity of the volunteers who support the patient and the community can strengthen the patient centredness of the care (Bensberg 2007:17).

3.3.1.2 Health care providers (HCPs)

The ability and commitment of HCPs for holistic, ethical and compassionate care are required components to provide PCC services. HCPs need to understand their patients within a broader context, beyond clinical findings and patient's illness, by exploring each patient's unique biological, psychological, and social context (Scholl et al 2014:3). The communication skills of HCPs help to extract information beyond clinical findings and convey the information which helps the patients to make informed decisions.

Relationship building capacity of the HCPs with patients and families gives a way to understand on what problems the patient is most concerned with and how the patient's illness or has affected his/her life beyond the clinical manifestations. The relationship also required Inter professionals to put in a team based PCC approach in health care provision (Constand et al 2014:2-3).

Respect for the patient's values, preferences, and expressed needs; provision of information and education; being accessible to care; emotional support; involving family and friends; continued support and securing transition between health care settings are expected from HCPs (Pelzang 2010:914).

3.3.1.3 Health care organisations (HCOs)

Health care environment design is expected to provide comfort and safety to the patients. HCOs are expected to provide access to social, emotional and spiritual support for patients. Appropriate and flexible visiting and risk management policies that protect the public, patients and staff; waiting rooms and other public spaces within the premises of health care facilities for health education are required to provide PCC

(WHO 2007b:12). Patient centeredness is associated with patients' perceived conducive and comfort of HCO such as cleanliness and reduced noise level of the HCOs' premises to receive care (Locatelli, Turcios & Lavela 2015:24).

Scholl et al (2014:6) states that effective and efficient coordination of front-line patient care with ancillary support services can ensures continuity of care to patients. Strong coordination and collaborative health care service is a root to implement cost effective PCC and overcome the ever-increasing PCC demand (Carver & Jessie 2011:4). The framework also include transparent, accessible and understandable service protocols that improve patient flow; appropriate scheduling of appointments; reminder notices for specific interventions; public announcements, lose or wall-mounted printed materials and signage to guide health service navigation; hand-held patient health records and protocols for discharge and referral (WHO 2007b:12).

The presence of multi-disciplinary care team which has a formal job description with delineated and functional communication channel is one of the requirements to provide PCC (WHO 2007b:13). Multi-disciplinary care team in HCO should be a high-performing team able to provide truly PCC to reliably work together with patients, respond to an individual's need, preference value, and experience in managing beyond clinical care. Multi-disciplinary care team includes teams which address the psychosocial context, financial and support resources, ability to self-manage, and barriers to self-care (Sevin, Moore, Shepherd, Jacobs & Hupke 2009:25). In addition, the presence of multidisciplinary care team in HCOs helps the patients to get and stay well, and reduce back and forth of the patients (Parish 2015:2).

The HCOs need to fulfil staffs' requirement. They also need to have targeted monitoring and evaluation of individual and team performance for continuous quality improvement. They should ensure that their staffs are getting competitive and performance based incentive packages, including opportunity for continuing medical education, training, and recognition and awards (WHO 2007b:14).

Enhancing leadership capacity of health services managers through training and one another experience sharing is required strategies to foster PCC in the health care facilities. Strong and committed senior leaderships are a strong attribute to implementation of PCC (Luxford et al 2011:513).

3.3.1.4 Health care delivery systems

The health care delivery system should be able to develop a health workforce and put financial incentives that induce positive attitude among HCPs and health care system to achieve better health outcomes. Ensuring rational use of technology, strengthening the monitoring of professional standards, and addressing patient concerns about health care quality and assisting people who have experienced adverse events in the health system with protection of patient information should get attention to implement and sustain PCC. The health system monitoring approach greatly covered augmented by patient satisfaction survey as indicator for its patient centeredness of the care (WHO 2007b:15).

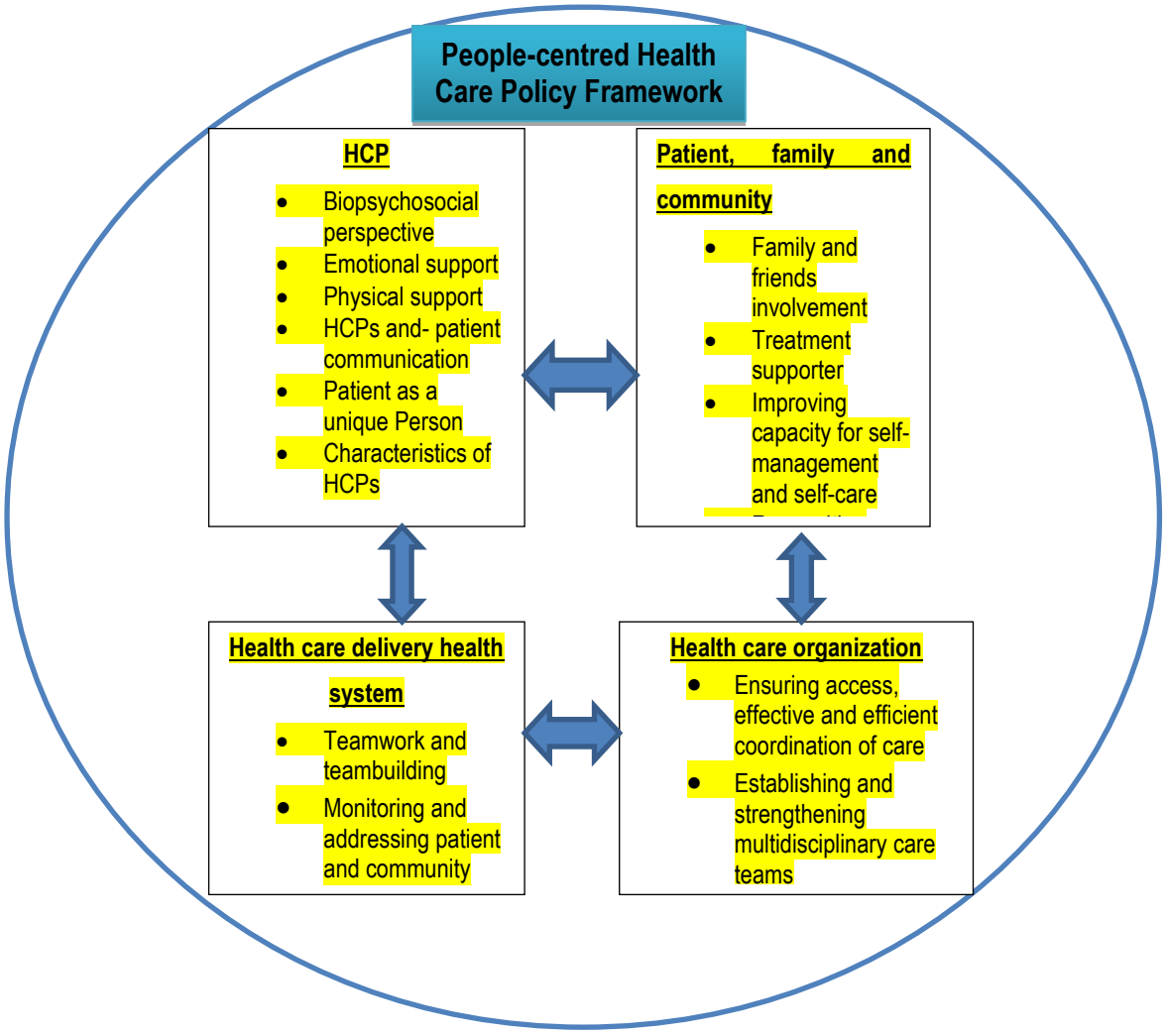

Figure 3.1 adopted diagrammatic representation of People-centred health care policy framework

3.3.2 Donabedian's Model of Health Care Quality

Donabedian's Model of Health Care Quality bases on three interrelated domain in the context of quality of care. The domains are structure, process and outcome.

'Structure' was described as the fixed part of the practice setting and consists of providers, resources, tools and organizational structures where the care is provided. The structure is the main determinant of the care that the health organization is able to give (Donabedian 2002:50).

'Process' is the activities that are constitute the health care such as diagnosis, counselling, treatment and education that are being provided by HCPs. The process is directly linked with the outcome and the structure domain of the model (Donabedian 2002:52).

'Outcome' refers to changes (desirable or undesirable) in individuals and populations that can be attributable to health care. Outcome variables include changes in death or alive and satisfaction of patients and their family members with the quality of health care services they received (figure 3.2) (Donabedian 2005:691-696).

Donabedian suggests that a good structure increases the likelihood of good process; good process increases the likelihood of good outcome, such as patients' satisfaction (Donabedian 2002:46).

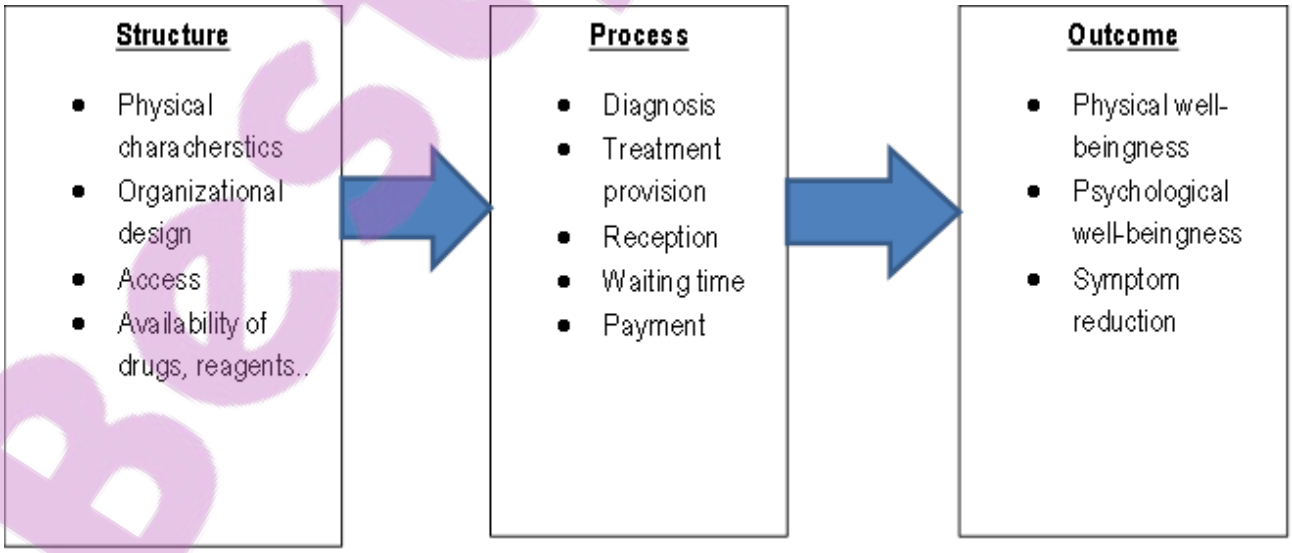

Figure 3.2 Diagrammatic representation of Donabedian's Model of Health Care Quality

Donabedian's Model of Health Care Quality presents a multidimensional framework for quality of health care and services in health institutions and is still considered as a bench mark of health care field (Haj, Lamrini & Rais 2013:28).

One of the objectives of the study is evaluation of satisfaction level of TB patients with the DOTS. Patient satisfaction is seen as both an outcome and an indicator, and may offer a simple first step into understanding quality of health care. The model has been widely recognized and applied in many health care fields. It is the most comprehensive model used for health care evaluation. Further it has received substantial imperial support of ability to generate information from which can be drawn quality of care. Hence the study adopts the Donabedian Model of health care quality to drive the satisfaction section of the study.

3.3.3 Relevance of the frameworks

The WHO people centred health care framework emphasises the people's involvement in their health care and makes them the centre of their care. Moreover, it provides respect to people's value, culture, informed decision and partnership. It embraces four dimensions in it that are required to fulfil people centred health care delivery as described in Section 3.3.1.

TB patients need to be informed, respected and participate in decisions, and choose their preferences of health institution, time and place to get prompt diagnosis and treatment. If these values and preferences fulfilled they will be well informed and knowledgeable about TB. In turn, patients will be cooperative, participative to accept and adhere to TB treatment for required time, overcome the barriers such as cost, inaccessibility lack of knowledge; as a result good treatment outcome can be recorded and health related quality of life improved.

HCPs, HCO and health care delivery systems play an important role with respect to capacitating the TB patients and provision of PCC. Interacting with each other and integrating segment of activities with patient expectation are emphasised components in WHO's people centred health care framework. These are the required patient

centeredness dimensions beyond patients' concern to guide the level of TB patient centeredness of this study.

Satisfaction arises from and influenced by structure, process of health care delivery system and the outcome of the process. Donabedian's Model of Health Care Quality focuses on structure, process and outcome of health care delivery system. The structure embraces all the necessary medical equipment, availability of TB drugs, HCPs and types of health facilities providing the services. The process encompasses the TB diagnostic, reception, registration system, refill of TB drugs, while outcomes are physical, psychological well-beings of TB patients which imply good levels of satisfaction with the DOTS strategy. Hence, Donabedian's Model of Health Care Quality is considered appropriate as long as the three model's approaches fit one of the study purposes, determining level of TB patient satisfaction.

Patient centeredness is an indicator of quality health care deliver and is considered and perceived as benchmark for quality that is required by HCPs to deliver distinguished patient satisfaction (McKerns 2007:1). Patient satisfaction is significantly higher among HCOs that implement effective PCC. The patient satisfaction questionnaire is considered to be a significant quality improvement tool. In other way round, excellent ratings of patient satisfaction give a clear picture of the HCO gaps to plan and act to improve the quality of service delivery (Nelson, Helfrich, Sun, Hebert, Liu, Dolan, Taylor, Wong, Maynard, Hernandez, & Sanders 2014:1353). WHO people centred policy framework focus on the Health care delivery patient centeredness while Donabedian's Model of Health Care Quality focuses on patient satisfaction as an outcome of HCO. Although they have similar components, complement each other to provide full evaluation of the study particularly the completeness of the quality service provision.

3.4 CONCLUSION

This chapter described the selected proxy guidance for this study, namely: WHO's people centred health care policy framework and Donabedian's Model of Health Care Quality. WHO's people centred health care policy framework was used as a guide to extract level of patient centeredness ot DOTS. While Donabedian's Model of Health Care Quality used to determine the level of TB patients' satisfaction with DOTS

strategy. Further described their relevance with the study purposes and briefly reviewed the accessible PCC frameworks.

CHAPTER 4

RESEARCH APPROACH, DESIGN AND METHOD

4.1 INTRODUCTION

Chapter 3 discussed the conceptual framework of the study and the gaps within the existed patient-centred frameworks and models. In addition, it described the framework and model the study based on and the relevance of the framework and the model with the study. The WHO's people centred health care framework guided to evaluate TB patient centeredness and the Donabedian health care quality model guided to determine the level of satisfaction of TB patients in the DOTS strategy.

This chapter describes research approach, design and methods of the study to achieve stated objectives. The first section of this chapter discusses the research approach, design, methods and ethical principles of the study, while the later section describes the internal and external validity of the study and the procedures that were applied to ensure quality of the study and trustworthiness.

This study was divided into two phases based on the nature and purpose of the study. In Phase I, the researcher collected quantitative data from TB patients' on follow-up to describe centeredness, satisfaction and associated factors of the DOTS strategy. In phase II, the researcher explored the driving factors, which default TB patients from their treatment follow-up from defaulted TB patients and perceptions of TB experts about patient centeredness and satisfaction with DOTS strategy.

4.2 RESEARCH APPROACH

A research approach is a plan and research procedures extent carried out from assumptions to interpretation. Basically, there are two research approaches, quantitative and qualitative research approaches. The quantitative approach involves the generation of data in quantitative or numeric form which follow rigorous quantitative analysis in a formal and rigid method. While qualitative research approach is concerned

with subjective assessment of attitudes, opinions and behaviour of the research interest (Kothari 2004:5).

Quantitative research approach conceptualise realities in terms of variables, measure these variables and look for their relationships (Punch 2014:206). The quantitative approach mainly relies on numeric data such as scores and readily realises them and test statistically differences among the variables. Moreover, quantitative approach outcome adds more precision and clear understanding of the phenomenon of interest (Bhattacherjee 2012:103).

Qualitative approach is more suitable in the exploration of poorly conceptualised phenomenon. This approach gives bases to develop theories when partial or inadequate theories exist for certain populations and samples or when existing theories do not adequately capture the complexity of the phenomenon (Creswell 2012:48).

The complexity of a phenomenon under a study may need mixing qualitative and quantitative approaches. Mixing helps to generate unique insight into a complex social phenomenon that is not available from either qualitative or quantitative type of data alone (Bhattacherjee 2012:35). A research approach that combines both qualitative and quantitative approach is known as mixed methods approach (Yin 2011:281). Mixed methods approach combines qualitative and quantitative data collection and analysis to achieve complementary strength and reduce weakness of separate approaches (Punch 2014:309-312).

The researcher chose the mixed method approach to take advantage of qualitative and quantitative approaches; as the study determine and explore the phenomenon under the study. Furthermore, the study generalized the study findings to the similar settings and included different set of study populations. With this regard, mixed method approach improves the scientific rigour, increase the generalisability and validity of the research through cross-validation of data from different sources (Creswell 2012:49).

4.3 RESEARCH DESIGN

Research design is a way of guidance and answering the research questions of the study. The research design focuses on increasing the control over of hindering factors of the research outcome (Bhattacherjee 2012:35). The research design explains the logic involves to link the research objectives', the data to be collected and the strategies for analysing the data in a manner that helps to reinforce the validity of the study (Yin 2011:10). The research design varies based on the purpose of the study. Either the researcher starts at observation and attempts to rationalise the observations and formulate a theory, or the researcher starts from theory and attempts to test or validate the theory (Bhattacherjee 2012:3).

Sequential explanatory research design is a phase-based mixed research approach design in which the researcher first collects and analzes quantitative data, followed by the qualitative data collection and analysis. The qualitative data outcome may either help to explain the salient findings of the statistical outcome from quantitative data or extract in-depth view of study (Punch 2014:313). The study objectives to be fully achieved, the real-life experiences with the DOTS strategy of TB patients' who were on follow-up and defaulted from the TB treatments were required. In addition, contextual influences and multi-level perspectives of the strategy from TB experts who lead the TB control programme were demanded. These enriched the study and helped to explore the specific features of different study population groups (Baran & Jones. 2016:80). Furthermore, even if the quantitative and qualitative approaches of the study intended to achieve different objectives, the expanded synthesis of both quantitative and qualitative findings used to develop the model (Bhattacherjee 2012:15). Hence, this study used sequential explanatory mixed design in two phases to guide the way of achieving the purposes of the study as described in Table 4.1..

Table 4.1: Summary of objectives, approaches, method and study participants in sequential mixed design of the study

Objectives	Study phases	Approaches	Method	Study participants
Determine patient centeredness' of DOTS strategy	Phase I	QN	Questionnaire	TB patients on follow-up
Determine level of satisfaction of TB patients' on DOTS service provision	Phase I	QN	Questionnaire	TB patients on follow-up
Factors related to TB patient centeredness, satisfaction with DOTS strategy	Phase I	QN	Questionnaire	TB patients on follow-up
Explore driving factors to default from TB treatment	Phase II	QL	In-depth telephonic Interview	Defaulted TB patients
Explore TB experts and defaulted TB patients perception about DOTS strategy patient centeredness and satisfaction level	Phase II	QL	FGDs	TB experts
Descriptive model development	Synthesis of both QN and QL data findings			

4.4 RESEARCH METHOD

The research method describes data collection procedures, tools, population, participants and sampling procedure utilised in the research process (Johnson & Christensen 2012:90). In this section, population and sampling, data collection and analysis for each phase of the study, and ethics related to sampling and data collections of the study are described.

4.4. Phase I, quantitative approach

Population, sampling, sample size and data collection methods employed and Data management and analysis in the phase I study are illustrated in the following sub sections.

4.4.1.1 Population

Population is the group of individuals or matters the research project make statistical inferences based on their sub group or sample outcome (Yin 2011:99). The study population of phase I was TB patients who were on follow-up of TB treatment in Addis Ababa.

4.4.1.2 Sampling

Sampling is the procedure of choosing a subset (called a “sample”) from a population of interest. Limitations of financial, human and time resources are barrier to study all the population of the research interest. They are driving factors to draw a sample from the population. Sampling is required to make observations and statistical inferences about population of interest (Bhattacherjee 2012:65).

Addis Ababa was purposively selected among other regions of Ethiopia due to its intense population concentration in the country (Adugna 2014:7), since crowd is one of the risk factors for TB (Yen et al 2014:492). In addition, about 90% TB case detection rate was reported in 2013 (EFMOH 2014b). All 121-health facilities which were providing TB treatment with DOTS strategy in Addis Ababa were listed. Then listed health facilities were categorised into government, private for profit and nongovernment not for profit. Among grouped health facilities, to obtain study site, by rule of thumb (Gebrekidan, Tesfaye, Hambisa & Deyessa 2014:3) approximately 25% of the facilities from each group was randomly selected by lottery method. A total of 30 study health facilities were selected.

Consented TB patients who were on follow-up of TB treatment at 15 days, aging 18 years and above at randomly selected health facilities during the study period were randomly recruited until the proportionally allotted sample size (Table 4.2) reached.

Table 4.2: Selected health facilities, TB case load and allotted sample size (N=605)

Study site facility	Type of facility	Sub-city	TB case load	Ownership	Alloted sample size
SS1	Health centre	Adisketema	69	Gov	23
SS2	Health centre	Adisketema	45	Gov	15
SS3	Health centre	Akakikality	69	Gov	23
SS4	Health centre	Arada	99	Gov	33
SS5	Health centre	Bole	102	Gov	34
SS6	Health centre	Bole	33	Gov	11
SS7	Health centre	Gulele	36	Gov	12
SS8	Health centre	Gulele	48	Gov	16
SS9	Health centre	Kirkos	102	Gov	34
SS10	Health centre	Kirkos	63	Gov	21
SS11	Health centre	Kolfe K	114	Gov	38
SS12	Health centre	Kolfe K	54	Gov	18
SS13	Health centre	Lideta	105	Gov	35
SS14	Health centre	Lideta	90	Gov	30
SS15	Health centre	Nifas L	36	Gov	12
SS16	Health centre	Nifas L	30	Gov	10
SS17	Health centre	Yeka	78	Gov	26
SS18	Health centre	Yeka	105	Gov	35
SS19	Hospital	Arada	57	Gov	19
SS20	Hospital	Kirkos	69	Gov	23
SS21	Health centre	Arada	36	Gov	12
SS22	Health centre	Bole	72	Gov	24
SS23	Health centre	Gullele	48	Gov	16
SS24	Clinic	Arada	69	NGO	23
SS25	Clinic	Lideta	21	Private	7
SS26	Hospital	Arada	60	Private	20
SS27	Hospital	Bole	15	Private	5
SS28	Hospital	Bole	30	Private	10
SS20	Hospital	Kirkos	45	Private	15
SS30	Hospital	Yeka	15	Private	5
Total			1815		605

SS: study site; Gov: government; NGO: Non-government not for profit

4.4.1.3 Sample size

Sample size is a number of study participants included in the study. The sample size for Phase I study participants, TB patients who were on follow-up of TB treatment, was determined based on the following formula.

Sample size (n)=(z α/2)^2 *p* (1-*p*)/(*d*) *1.5.

Where p is 50% expected TB patients' level of satisfaction, or who perceived as patient-centred TB treatment received or level of TB treatment adherence, since no prior study determined the levels of each objectives, 0.05 error allowance (d), 1.96 two-sided critical value for 95% confidence level (z), 0.05 level of satisfaction significance (α), 1.5 for design effect compensation and 5% contingency for non-response rate.

Therefore, Sample size (n)=(z α/2)^2 *p* (1-*p*)/ (*d*) *1.5.

N=(1.96)^2 0.5(0.5)/0.05)^2=384*1.5=576, by adding 5% contingency the total sample size was 605 TB patients who are on follow-up of TB treatment. Determined sample size was proportionally allocated based on selected study site's TB caseload. Included sample size, study site TB case load, type of health facility and ownership are illustrated in Table 4.2.

$$\text{Sample size at each facility} = \frac{\text{total sample size* caseload at each site}}{\text{Total TB caseload at selected sites}}$$

4.4.1.4 Data collection

Data collection is a means of gathering required information in detail from different sources (Yin 2011:49). The relevant data in the 1st phase, and the quantitative data were collected using pre-tested interviewer-administered questionnaire from TB patients who were on follow-up of TB treatment.

4.4.1.5. Development and testing of the data collection instrument

The questionnaire was developed in English based on conceptual frameworks of the study as well as the extensive review of literatures by the researcher. The questionnaire

was given to PhD supervisor and statistician for comments and piloted on 27 TB patients at two heath facilities which provides DOTS but not included in the selected health facilities for the main study before the actual data collection launched.
The final version of the questionnaire was translated into Amharic language, the official language of Ethiopia, and also the Amharic questionnaire was translated back to English to check for consistency.

4.4.1.6 Characteristics of the data collection instrument

The questionnaire designed for TB patients who were on follow-up contains items that enables to collect information about patient's socio-demographic characteristics, patient centeredness of the strategy and satisfaction level of TB patients with the strategy. The questionnaire had three parts; part one instructions how to fill the questionnaire, part two information about the study and part three questions divided into three sections, A to C.

Section A contained the general characteristics of TB patients such as age, sex, residence, type of TB, their treatment phase, treatment category and treatment supporter.

Section B contained 65 5-point Likert scales ranging from strongly disagree to strongly agree items based on adopted WHO people centred health care framework which evaluate the level of patient centeredness of the strategy. These items were categorised into four dimensions: health care delivery system, HCO, HCPs and patient, family and community. The overall section B and each dimension Cronbach's alpha were measured during pilot and actual data analysis. Under each dimension category there were sub-dimensions and items.

Section C had 23 5-point Likert scales ranging from strongly satisfied to strongly dissatisfy. Items that measured the participant's levels of satisfaction with DOTS strategy developed based on Donabedian quality health care model. These items were divided into three sub-sections; structure, process and outcome. The structure and process sub-sections contained 10 measuring items each while outcome section contained 3 measuring items. The sections' Cronbach's alpha were above 0.7 (Field 2009:675) during pilot and actual data analysis as described in the table 4.3 below. In

addition, the correlation of each items in the same dimension was assessed as a result there was no measuring items that show perfect correlation, r= 1 (Hambleton & Zaal 2013:123).

A stand-alone single item that measures the overall satisfaction of TB patients with DOTS included in section C. The item had 10-point scale ranges from 0 to 10 for minimum and maximum satisfaction with DOTS strategy they received, respectively.

Table 4.3 Cronbach's alpha value of the questionarrie

Section	**No of Items**	**Cronbach's alpha value of pilot data**	**Cronbach's alpha value of actual data**
Centeredness			
Patient, family and community dimension	21	0.82	0.84
HCP dimension	22	0.85	0.87
HCO dimension	9	0.76	0.76
Health care system dimension	13	0.88	0.88
Overall total centeredness	**65**	**0.93**	**0.93**
Satisfaction section			
Structure	10	0.78	0.78
Process	10	0.78	0.78
Outcome	3	0.85	0.85
Total Satisfaction (structure, process and outcome sections)	**23**	**0.88**	**0.85**

4.4.4.7 Data collection process

The quantitative data of the study were collected by trained data collectors. The data collectors and supervisors involved in the study were trained on ethical aspects of data collection, inclusion and exclusion criteria of the study participant and questionnaire by the researcher for a day.

After the training, the data collectors and supervisors signed an agreement with the researcher. In the agreement the roles and responsibilities of data collectors, supervisors and the researcher, remuneration and termination of the agreement was included. Then the data collectors collected pilot data at two 2 facilities which were not selected in the main data collection site.

Based on the pilot test outcome the questionnaire was amended. Both the data collectors and supervisors were updated about the amendments before the actual data collection was carried out.

The updated data collectors were deployed to randomly selected heath institutions with questionnaires, ethical clearance certificate and permission letter.They were also informed that if they face anything that could affect the data collection process, to communicate the researcher as soon as possible. As they reached at assigned health institutions they presented the study's ethical clearance and permission letter to the facility head or representative and created good rapport with HCPs.

The data collectors contacted TB patients who were on follow-up of TB treatment randomly to do an exit interview after he or she received TB treatment service. At the beginning of the contact warm greetings were provided then the study information sheet was read. If he or she agreed to participate, written consent was obtained and interview was carried out. However, those who were not agreed to participate captured as non-respondent.

The overall data collection process was supervised and managed by supervisors and the researcher. The researcher prepared supervision time table with two supervisors. Informed and incidental visit and observation and telephone calls were used during supervision. Corrective actions were taken for observed deviation from planed, orientated and agreed activities with data collectors.

Every day at 5 pm the completed questionnaires were received from the data collectors by the supervisors and the researcher. The researcher and supervisors checked the completeness, consistency of collected data and gave feedback. Finally, filled and signed questionnaires were received by the researcher.

4.4.4.8 Data management and analysis

Data management and analysis is managing and making sense of the collected data and testing the evidence's consistency across different sources with deliberate effort to strengthen the findings (Yin 2011:21).

4.4.4.8.1 Data management

The researcher coded all the alternative responses of the questionnaire to numeric on paper based blank questionnaire. For instance strongly agree =5, agree=4, neutral =3 disagree=2 and strongly disagree =1 for positively worded questions and Yes= 0, No=1, for Yes or no question and Type of TB 1=smear positive PTB, 2= smear negative PTB, 3= EPTB, and 4=MDR-TB. Then all the questions and coded response were entered into SPSS version 21 to create data entry template in SPSS. The data entry template had all the variables' name, label, measurement scale and value as per SPSS software requirement. The copy of created data entry template was given to two experienced Data Clerks after providing orientation. The created data entry had password to open and lock during data entry.

After the completed questionnaires had been collected, the researcher and the supervisors checked for completeness, consistency and legibility before providing to the Data Clerks to data entry. The checked filled questionnaires were handed over to two Data Clerks to enter into created data entry template. The Data Clerks entered the data into different computers at the researcher office. While they log in and enter the data into the data entry template, the researcher was following closely. All entered data into SPSS software were transferred to the researcher computer with password. The following measures were considered in order to check accuracy and consistency of electronic data.

1. Each set of variables were assessed for missed, out of range and duplicate values separately.
2. Frequency tables for categorical variables, mean, maximum, minimum and inter-quartile ranges summary statistics were produced for continues variables where appropriate.
3. Graphical presentation of variables such as box plot and scatter plot were run. Box plots assisted to assess the outliers and the latter to see cases that did not follow the general pattern of the graphical display.

All the observed discrepancies were fixed against the hard copy of the questionnaires. In order to keep the confidentiality of data, the collected hard copy, including taken

notes while interviewing, were stored at researcher office in lockable board. The electronic data were retained in the researcher's computer with passwords.

4.4.4.8.2 Data analysis

Electronic data were analysed using SPSS version 21 for Windows. The general properties of the variables were described in frequency distribution, percentage, central tendency, (mean, mode, median) and dispersion such as standard deviation, range and confidence intervals.

- **Determination of patient centeredness**

Each item listed to measure patient centeredness valued a score ranged from 1 to 5; from strongly disagree to strongly agree, respectively for positively worded items and 5 to 1 for negatively worded items. Each score of the respondents on each items in the dimension were summed and the mean value was calculated. Then the calculated mean score of the respondents adjusted into a 0-to-100 scale by utilising a Likert's transformation formula (Liu, Wang & Lu 2010:2):

$$\text{Adjusted score} = 100^* \frac{\text{standard score-1}}{5\text{-}1}$$

Where; Standard score was average score resulted from DOTS strategy patient centeredness measuring items.

The respondents who scored above the mean of adjusted score were considered as received PCC with TB- DOTS strategy.

- **Determination of TB patient satisfaction**

TB patient's satisfaction level measuring items listed in section D of the questionnaire had a score ranged from 1 to 5 from very dissatisfied to very satisfied, respectively for positively worded questions and 5 to 1 for negatively worded questions.

The mean score of the responses was calculated for each respondent; the respondent who got the mean score of 2 and less were classed as unsatisfied respondent while the

respondent who got the mean score of 4 and above regarded as satisfied respondent. For the respondent who scored between greater than 2 and less than 4, the median was calculated; then the respondent who scored less than the median were classed as unsatisfied and equal and above the median classed as satisfied (Bahrampour & Zolala 2005:907).

According to Dansereau et al (2015:3) the overall satisfaction measuring scale included in section C held the score range from 0 to 10. The lowest satisfaction score was zero and the maximum satisfaction score was 10. The overall satisfaction score of this scale was compared with the score resulted from Donabedian quality health care model based satisfaction level measuring items score about their correlation by rho, (r) correlation coefficient.

- **Predictors of centredness and satisfaction**

To determine the degree of association between variables different statistics were used. Chi-square was used when both outcome and independent variables were categorical or nominal variable measurement by cross-tabulation. Interval or ratio measured variables were assessed by the Pearson statistics and scatter plots for the presence of association between them. For continuous independent variable and categorical dependent variable eta (η) statistics was used to see their relationship (Nardi 2014:159).

Stepwise or statistical multiple regressions was used to identify the subset of measured independent variables which has the strongest relationship to a dependent variable such as centeredness of TB patients. All the measure of association and comparison were assessed their significance at least at 95% confidence interval or p 0.05.

- **Explaining variables extraction**

Exploratory factor analysis was conducted to determine continuous latent variables that are needed to explain the PCC model**.** Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Chi-square were performed.

4.4.2 Phase II, qualitative approach

In this section, population, sampling, sample size and data collection methods employed in the phase two study are illustrated.

4.4.2.1 Population

In phase II, two group of study population were included: TB patients who defaulted from the TB treatment follow-up and TB experts, who lead, support and direct the TB prevention and control activities in Ethiopia.

4.4.2.2 Sampling

TB registration books at each health facility were used as a the sampling frame for selecting defaulted TB patients. With this, defaulted TB patients were randomly selected and their telephone addresses were captured for an interview. While TB experts were porposively selected from subcity and regional health offices.

4.4.2.3 Sample size

Phase II, in which qualitative approach was used, there was no pre-defined formula to quantify the desired number of study participants in qualitative approach, however, larger number of participation provides better assurance in a study's findings (Yin 2011:89). The recruiting of study participants were continued until the data were saturated, when additional study subject or interview did not yield any marginal change in the core concept of data (Bhattacherjee 2012:115). In this study, at 25 defaulted TB patients participation for telephonic interview and 23 TB experts for FGDs the researcher believed as the data saturation reached.

4.4.2.4 Data collection tools

The qualitative data collection tools used in phase II study was FGD guide (Annex G) and interview guide for TB experts (Annex E) and defaulted TB patients, respectively. Open ended probing questions were used in the FGD and interview to probe the

discussions of the participants. In turn it helped to fully achieve the stated objectives of the study.

Although telephonic interview is not much suitable to capture non-verbal expression of the respondents, it minimize sampling bias that may arise from inclusion of only TB patients who were on follow up and TB experts that were easily accessible. With this regard using phone interviews can be a good substitute for the face-to-face interviews (Kenned, 2009). Hence, the defaulted TB patients' response was collected by telephone due to the difficulty of accessing them physically.

4.4.2.4.1 In-depth interview with defaulted TB patients

The randomly selected defaulted TB patients from the list of defaulted TB patients were contacted by the researcher through telephone. The telephone addresses were accessed from TB register at randomly selected health facilities, where the TB patients were on follow-up. Once the defaulted TB patients' telephone address collected, the telephone call was carried out randomly by the researcher.

Before continuing with interview, from where the researcher accessed the telephone address, the purpose of the telephone call, the study's aim, ethical clearance and risk and benefit of participation in the interview described and agreement requested. The telephonic interview was continued with whom gave consent using pre-defined interview guide. After they agreed, convenience of the place and time were assured to minimise the disturbance of their social and work responsibilities that it may incur. When the place was convenient the interview continued, but not, other time was arranged in mutual agreement. Whereas with those who did not volunteered to be interviewed, the researcher thanked and discontinued the discussion.

In the interview, the lists of probing questions were used to guide the interview. The notes were taken by the researcher. The interviews took 25 to 35 minutes. Interviews were carried out until the researcher beliefs the data were saturated, additional study interview did not yield any marginal change in the core concept of data with 25 defaulted TB patients (Bhattacherjee 2012:115).

4.4.2.4.2 FGDs with TB experts

Twenty-three purposively selected TB experts participated in the FGDs. The participants in the 1st and 2nd discussions were 8 while in the third FGD 7 discussants participated. The FGDs were conducted at different times depending on the convenience of the participants.

The discussion was initiated by the researcher through a five-minute introduction of the topic, objectives and ethical aspects of the study. In addition, permission was sought from the participants to record the discussion as long as it was difficult to take all interaction in note alone. The main ground rule was that discussants were urged to focus on the discussion. As a means of stimulating the discussions, the discussants introduced themselves and the researcher used probing questions (attached in Annex G).

The discussions were facilitated by the researcher assistant by means of raising leading questions about the topic of interest based on pre prepared interview guide. The discussions were recorded and also notes were taken while conducting the discussion. The discussions took 50 minutes to 65 minutes. At the end of the discussion all the participants were asked to write their e-mail address onto circulating paper in order to share taken notes and transcription. Taken notes and transcriptions were shared to the participants with the description to comment if there were any deviation from the discussions and none of the participants had a comment.

4.4.2.5 Data management and analysis

According to Marshall, Gretchen and Rossman (2011:208), the qualitative data analysis starts at the beginning of data collection and continues throughout the research report writing. Qualitative data analysis, though do not follow strict sequence, it consisted of the following five steps (Yin 2011:178-179).

1. Compiling and sorting: all taken notes and records while interviewing were transcribed into English Word documents verbatim; the documents were read for relationships and patterns to identify similarities and differences. The word

document was compiled based on the date and from whom, either it is from defaulter TB patients or TB experts.

2. Disassembling: all transcribed notes were broken down into smaller fragments (words and phrases).
3. Reassembling: based on the code, each coded fragment from the data were assembled and categorised. Categories were systematically developed and linked with subcategories; the subcategories were integrated each other and put in columns and rows with arrays.
4. Narration: the reassembled data were put into tables were described and explained thematically.
5. Interpret and concluding: the narration extracted from reassembled data were interpreted and concluded based on the objective of the study.

4.4.3 Triangulation of the findings

According to Yin (2011:313), triangulation is a logical technique to corroborate the findings which are extracted from two or more different sources. The corroborating can be at design, data collection as well as during or later analysis. This research extracted information from questionnaire of TB patients, in-depth interview of defaulted TB patients and TB experts. After each sort of data set separately analysed, the findings were triangulated at interpretation level to complement the weakness of one source of data over the other (Yin 2011:79). As the nature of this study, evaluation study of DOTS, triangulating the findings from different sources helps to check social validity, integrity, and effectiveness of the intervention (Melnyk & Morrison-Beedy 2012:31).

4.4.4 Ethical issues related to sampling

Research ethics is the feature of the research between right and wrong, but what is unethical may not necessarily be illegal. Research ethical standards and norms may vary from one society to another (Bhattacherjee 2012:137). This study has met ethical standards required by Institutional Research and Higher Degrees committee of UNISA and AACAHB. As a result ethical clearance certificate (Annex B) and permission letter (Annex C) were received from UNISA and AACAHB, respectively, to conduct the research. Moreover, AACAHB wrote a letter to the sub-city health offices for their

cooperation; and sub-city health offices wrote a letter to their respective health institutions.

4.4.5 Ethical considerations related to data collection

According to Bhattacherjee (2012:139), voluntary participation, harmlessness, anonymity, confidentiality and disclosure of the research purpose are pointed out as ethical principles related to scientific research. In order to keep research ethical principles the data collectors explained the purpose, risk and benefit, confidentiality in Amharic based on prepared information sheet and shown approval of the study. The data collectors obtained consent from the participant to take part in the study. None of the study participants' names were included in the report. The collected data were never being exposed to anybody except the study team.

4.5 VALIDITY AND TRUSTWORTHINESS

Validity is the ability of the tool to measure exactly which was intended to measure. The forms of validity can be regarded as internal and external validity (Bhattacherjee 2012:58).

4.5.1 Internal validity

Internal validity is eliminating confounding variables within the study itself; that is observed change in an outcome variable is certainly resulted from a corresponding change of hypothesised independent variable and not from extraneous cause to the research context (Schmidt & Brown 2012:480-482). Internal validity components which maximise the tools' capacity to extract and measure the intended outcome variables are content, criterion-related and construct validities (Kohtari 2004:74).

4.5.1.1 Content validity

Content validity is the degree of the tools to cover the whole facet of constructs under the study (Bhattacherjee 2012:59). The study tools were developed by the researcher. In order to ensure tools' content validity, the items were developed based on research's title, design, objectives and the concepts of the selected frameworks, adopted WHO

people centred health care framework and Donabedian health care quality model. Patient centeredness measurement items followed adopted WHO's people-centred health care framework, beyond patient centeredness. Thus it increased the possible dimensions to measure level of patient centeredness to the patients perspectives. Another model used in this study was Donabedian health care quality model to guide the level of adherence and satisfaction of the TB patients with DOTS strategy, respectively. The items were reviewed by a PhD student supervisor of UNISA.

4.5.1.2 Criterion-related validity

Criterion-related validity focuses on the ability of the research method to forecast the outcome or estimate the existence of current condition. This was explained by reliability, freedom from bias, availability of the information and relevance as well (Kothari 2004:74).

4.5.1.2.1 Reliability

Reliability is the degree to which the tool is dependable and consistent during repeated measurement (Bhattacherjee 2012:56). The reliability of this study was enhanced by different measures. Prior to data collection, the structured interview questionnaire were piloted and revised based on identified deficiency. The data collectors were nurses who have proximity with TB treatment strategy. The data collectors were trained on how to obtain informed consent, conduct structured interviews and record the information accurately on the questionnaire. The overall activities of data extraction were monitored by the researcher and there was strict supervision during data collection. The following measures were carried out:

1. Filled questionnaires were examined daily by the researcher for completeness during data collection.
2. The database template was created by the researcher then the data clerks were oriented.
3. Double data entry was done by experienced Data Clerks into SPSS software.

The electronic data were checked for consistency during analysis. Internal reliability of the items in the questionnaire was ensured by analysing Cronbach's alpha coefficients

value by SPSS software. The Cronbach's alpha value greater than 0.7 for the different scales of data collection tool was considered as acceptable since the tools are researcher designed (Field 2009:675).

4.5.1.2.2 Availability of information and freedom of bias

The quantitative data were accessed through interviewer-administered pretested questionnaire which enables to assess the TB patients' satisfaction and patient centeredness of DOTS in randomly selected health facilities. Then the determined sample size was allocated proportional to their number of TB patients on treatment at the time of data collection. Also all study participants, TB patient on follow-up and defaulted TB patients were selected by lottery method to ensure equal chance of being selected.

The data required to answer the study objectives were availed through questionnaires, and interview guides. The respondents were well experienced about DOTS strategy since they were utilising it or deviated from follow-up due different reasons. Hence service provision related information can be easily availed at both perspectives, the deviant and current service users. TB experts provided information with the management, leadership and programme perspectives of the strategy.

4.5.1.3 Construct validity

Construct validity is the most complex and abstract form of validity, which confirms the extent of predicted correlations with other theoretical propositions. The construct validity, despite its abstractness, looks at how well a given measurement scale is determining the theoretical construct required to be measured. In quantitative approach either correlation or exploratory factor analysis can be done to assess construct validity (Bhattacherjee 2012:37). This research ensured the construct validity by carrying out correlation or exploratory factor analysis where appropriate in the pilot study for each section of the questionnaires. The items that did not meet the expected norms of factor loading criteria were amended or dropped from the questionnaire (Bhattacherjee 2012:58-60).

4.5.2 External validity

External validity is mainly concerned with the generalisability of the research findings to other populations and settings. The external validity of different designs varies since its perspectives, randomness and framework varies (Bhattacherjee 2012:36). This research have enhanced external validity due to its multiple perspectives DOTS treatment strategy users and leaders and the service organisation itself. Moreover, this study measurered many variables based on a standardised 5-point Likert scale in multiple frameworks from randomly selected study participants. Sample size calculation also considered the design effect correction values to increase the representativeness of the study participants to the population.

4.5.3 Trustworthiness

This research provided emphasis on credibility, validity, reliability of findings and their transferability to similar and other contexts as described in Chapter 1. According to Yin (2011:19-21), trustworthiness of the qualitative research can be achieved through transparency, prolonged engagement and Methodic-ness of the research.

Transparency of this study was achieved through clear communication from inception to final research project with UNISA PhD student supervisor. The proposal was submitted to UNISA and AACAHB hence approved ethically by institutional research and Higher Degrees Committee of UNISA and permission given from AACAHB ethics review committee. Moreover, the research objectives and right to participate were described clearly to the study participants with its risk, so as to describe their real feeling.

The study had prolonged engagement during data collection, from September 2015 to November 2015. Only a few number of respondents' information were collected per day to reduce single day's episodic feeling of the patient. The study participant ranges who have taken their TB treatment at least for fifteen days hence this could reflect the study participants as have prolonged exposure with the DOTS.

In addition, the study used sound methodology; field-based study that integrated triangulation of data collected from multiple sources. Multiple sources are TB patient who are following TB treatment, deviant from the treatment (defaulted) and TB experts

who manage and lead the implementation of the strategy. Further, the study sites were owned by government, private for profit, and private for not profit thus exhibited varied TB caseloads and different management.

4.6 CONCLUSION

This chapter described the research approach, design and method, population, sampling technique, sample size and ethical issues related to sampling and study participants. This study deployed questionnaire, interview guides of telephone interview and FGDs to collect data. This chapter also discussed how the data management and analysis was carried out, the internal and external validity, and trustworthiness of the study kept. Further, this chapter explained various measures taken to enhance the study's validity, reliability trustworthiness and to keep the research ethical principles. The findings of this study is presented and discussed in later chapter.

CHAPTER 5

DATA PRESENTATION AND ANALYSIS

5.1 INTRODUCTION

The previous chapter, Chapter 4, described the research approach, methods of data collection and analyses to achieve the stated objectives and rigor of the study. This chapter presents the data analysis outcome of quantitative and qualitative findings in the form of text, tables and graphs in two sections.

Section 1 describes quantitative data analysis and presentation about DOTS strategy patient centeredness', level of satisfaction of TB patients and associated factors with patient centeredness and satisfaction level.

Section two describes qualitative data analysis and presentation about driving factors to default from TB treatment from defaulted TB patients perspective and TB experts' perception about DOTS strategy patient centeredness' and satisfaction.

5.2 SECTION 1: QUANTITATIVE DATA ANALYSIS AND PRESENTATION

In Section 1 quantitative data collection, handling, and analysis are described. The descriptive and inferential analysis outcomes are also presented.

5.2.1.1 Data collection and handling

The interviewer-administered questionnaire comprising of close-ended questions were used to collect data from respondents. The questionnaire had three parts: part one consist of socio-demographic characteristics of the respondents and DOTS strategy pertinent questions extracted from different literatures. Part two and part three consist of 5-point Likert scale items to determine the DOTS strategy patient centeredness and TB patients' satisfaction level, respectively.

The data were collected by trained data collectors in hard copy and then double entered into SPSS. The consistency, accuracy and missed values were monitored by the researcher both at the time of data collection and data entry. Furthermore, 5% of digital output responses cross checked and verified against the hard copy of the questionnaires.

5.2.1.2 Data analysis

A total of 605 TB patients were interviewed and the compliance rate was 601(99.3%). Three hundred ninety eight (66%) respondents were on intensive phase and 203 (34%) were on continuation phase of the TB treatment.

The analysis was done based on the following subsection; socio-demographic and DOTS-related variables, patient centeredness' and associated factors, and satisfaction level and associated factors.

Both the descriptive statistics such as frequency, percentage, mean, standard deviation and inferential statistics such as X^2, r, p-values,and odds ratios were carried out by the SPSS software version 21. In addition, Microsoft Excel 2007 was used particularly to generate graphs.

5.2.2 Socio-demographic and general characteristics' of the respondents

Description of sociodemographic characteristics of the respondents and the cross tabulation of gender and type of TB, Occupation, family-income and type of TB, type of TB and treatment category, type of TB and presence of TB symptoms, and place of residence and type of TB are presented below.

5.2.2.1 Socio-demographic characteristics

Gender, age, marital status, education and religious affiliations of the respondents presented in Table 5.1. The majority, 494 (82%) of the respondents were between 18−44 years of age and 336 (56%) of the respondents were male.

Table 5.1: Demographic characteristics of the respondents (N=601)

Items		F	%	Cumulative %
Gender	Male	336	56	56
	Female	265	44	100
Age in years	18-24	127	21.1	21.1
	25-34	219	36.4	57.5
	35-44	148	24.6	82.1
	45-54	58	9.7	91.8
	55-64	31	5.2	97
	≥65	18	3.0	100
Marital status	Married	255	42.4	42.4
	Single (never married)	278	46.3	88.7
	Separated	12	2.0	90.7
	Divorced	20	3.3	94.0
	Widowed	28	4.7	98.7
	Cohabiting	8	1.3	100.0
Educational level	Diploma and above	143	23.8	23.8
	Secondary school (9-12)	196	32.6	56.4
	Primary school (5-8)	145	24.1	80.5
	Primary school (1-4)	47	7.8	88.4
	No formal education	70	11.6	100.0
Religious affiliation	Orthodox	401	66.8	66.9
	Protestant	74	12.4	79.2
	Catholic	8	1.3	80.5
	Muslim	117	19.3	99.8
	No religion	1	0.2	100.0

*Do not have formal house of residence both in rural and urban; *f*: frequency; %: percentage

5.2.2.2 Gender and type of TB

Among 336 male respondents, 159 (47%) were smear positive pulmonary TB and 13 (3.9%) were MDR-TB patients. While among 265 (44%) female respondents, 104 (39%) had smear (+) pulmonary TB and 19 (7.2%) had MDR-TB (Table 5.2).

Table 5.2: Gender and type of TB (N=601)

Gender		Type of TB				Total
		Smear Positive PTB	Smear Negative PTB	Extra pulmonary TB	MDR-TB	
Female	*f*	104	65	77	19	265
	%	39.2	24.5	29.1	7.2	100
Male	*f*	159	82	82	13	336
	%	47	24.4	24.4	3.9	100
Total	***f***	**263**	**147**	**159**	**32**	**601**
	%	**43.8**	**24.5**	**26.5**	**5.3**	**100**

5.2.2.3 Treatment category and gender

Treatment category of respondents were 501 (83%) new in both genders and treatment after failure were 2 (0.8%) and 10 (3%) female and male respondents, respectively. The details are presented in Table 5.3.

Table 5.3: Gender and treatment category (N=601)

Gender		Treatment category TB patients						Total
		New	Relapse	Treatment after failure	Return after default	Transfer-in	Other	
Female	*f*	221	33	2	1	5	3	265
	%	83.4	12.5	0.8	0.4	1.9	1.1	100
Male	*f*	280	35	10	3	8	0	336
	%	83.3	10.4	3.0	0.9	2.4	0.0	100
Total	***f***	**501**	**68**	**12**	**4**	**13**	**3**	**601**
	%	**83.4**	**11.3**	**2.0**	**0.7**	**2.2**	**0.5**	**100**

5.2.2.4 Occupation, family-income and Type of TB

Among 601 respondents, 104 (17%) were permanently employed, 219 (36%) were self-employed, 86 (14%) were temporarily employed, 83 (14%) were unemployed and 23 (3.8%) were on pension. The rest 74 (12.2%) and 12 (2%) were housewives and students, respectively.

The average monthly family-income of the respondents was $115 (SD= $97), while the median monthly income was $95 (1st Quartiles $48 and 3rd quartile $147). From the total of 237 smear positive pulmonary TB patients, 144 (61%) of smear positive TB patients' average monthly family-income was below $95 (Table 5.4).

Table 5.4: Average monthly family-income and type of TB (N=546)

Average monthly family-income in USD		Type of TB				Total
		Smear Positive PTB	Smear Negative PTB	Extra PTB	MDR-TB	
9.40-47.00	*f*	78	37	55	22	82
	%	42.9	20.3	30.2	6.6	100
47.1-95.00	*f*	66	35	39	7	147
	%	44.9	23.8	26.5	4.8	100
95.01-143.0	*f*	33	25	19	4	81
	%	40.7	30.9	23.5	4.9	100
143.1-957.0	*f*	60	32	38	6	136
	%	44.1	23.5	27.9	4.4	100
Total	***f***	**237**	**129**	**151**	**29**	**546**
	%	**43.4**	**23.6**	**27.7**	**5.3**	**100**

$: United state dollar; Figures are computed at Ethiopia average National Bank exchange rate of Birr 20.8979 to $1 in october 2015. PTB: Pulmenary TB

5.2.2.5 Type of TB and treatment category

Among 601 respondents, 501 (83.4%) were new TB patients, 68 (11.3%) had relapsed, 12 (2.0%) were on treatment after failure, 4 (0.7%) were returned after default, 13 (2.2%) were transfer-in and 3 (0.5%) were in other treatment category. Thirty-three percent of TB patients who were on treatment after failure had MDR-TB whereas; only 8 (1.6%) of new TB patients had MDR-TB Table 5.5).

Table 5.5: Type of TB and treatment category (N=601)

Type of TB	*f / %*	Treatment category						Total
		New	Relapse	Treatment after failure	Return after default	Transfer-in	Other	
Smear positive pulmonary TB	Count	233	25	3	0	0	2	263
	% within Type of TB	88.6	9.5	1.1	.0	0.0	0.8	100
	% within Treatment Category	46.5	36.8	25.0	0.0	0.0	66.7	43.8
	% of Total	38.8	4.2	0.5	0.0	0.0	0.3	43.8
Smear Negative pulmonary TB	Count	126	13	3	2	3	0	147
	% within Type of TB	85.7	8.8	2.0	1.4	2.0	0.0	100
	% within Treatment Category	25.1	19.1	25.0	50	23.1	0.0	24.5
	% of Total	21.0	2.2	0.5	0.3	0.5	0.0	24.5
Extra pulmonary TB	Count	134	14	2	1	7	1	159
	% within Type of TB	84.3	8.8	1.3	0.6	4.4	0.6	100
	% within Treatment Category	26.7	20.6	16.7	25	53.8	33.3	26.5
	% of Total	22.3	2.3	0.3	0.2	1.2	0.2	26.5
MDR-TB	Count	8	16	4	1	3	0	32
	% within Type of TB	25.0	50.0	12.5	3.1	9.4	0.0	100
	% within Treatment Category	1.6	23.5	33.3	25.0	23.1	0.0	5.3
	% of Total	1.3	2.7	0.7	0.2	0.5	0.0	5.3
Total Count		**501**	**68**	**12**	**4**	**13**	**3**	**601**
% within Type of TB		**83.4**	**11.3**	**2.0**	**0.7**	**2.2**	**0.5**	**100**
% of Total		**83.4**	**11.3**	**2.0**	**0.7**	**2.2**	**0.5**	**100**

5.2.2.6 Type of TB and presence of TB symptoms

Among 601 respondents, 414 (68.4%) did not have any symptoms of TB illness at the time of responding. There was no significance difference between type of TB and presence of TB symptoms (p=0.6) (Table 5.6).

Table 5.6: Type of TB and presence of TB symptoms (N=601)

Type of TB	***f* / %**	**Presence of TB symptoms**		**Total**
		Yes	**No**	
Smear positive pulmonary	Count	81	182	263
	% within Type of TB	30.8	69.2	100
	% within presence of TB symptoms	43.1	44.1	43.8
	% of Total	13.5	30.3	43.8
Smear pegative pulmonary	Count	47	100	147
	% within Type of TB	32.0	68.0	100
	% within presence of TB symptoms	25.0	24.2	24.5
	% of Total	7.8	16.6	24.5
Extra pulmonary	Count	47	112	159
	% within Type of TB	29.6	70.4	100
	% within presence of TB symptoms	25.0	27.1	26.5
	% of Total	7.8	18.6	26.5
MDR-TB	Count	13	19	32
	% within Type of TB	40.6	59.4	100
	% within presence of TB symptoms	6.9	4.6	5.3
	% of Total	2.2	3.2	5.3
Total	**Count**	**188**	**413**	**601**
	% within Type of TB	**31.3**	**68.7**	**100**
	% within presence of TB symptoms	**100**	**100**	**100**
	% of Total	**31.3**	**68.7**	**100**

5.2.2.7 Place of residence and type of TB

The majority 511 (85%) of the respondents were urban residents, of these 228 (46.6%) were smear (+) PTB patients. The proportion of type of TB among residence of TB patients shows a significant difference (p=0.03). The detail presented in Table 5.7.

Table 5.7: Place of residence and type of TB of the respondents (N=601)

Residence	*f* / %	Type of TB				Total
		Smear Positive PTB	Smear Negative PTB	Extra pulmonary TB	MDR-TB	
Urban	*f*	228	126	132	25	511
	%	44.6	24.7	25.8	4.9	100
Rural	*f*	32	17	16	4	69
	%	46.4	24.6	23.2	5.8	100
Homeless*	*f*	3	4	11	3	21
	%	14.3	19	52.4	14.3	100
Total	***f***	**263**	**147**	**159**	**32**	**601**
	%	**43.8**	**24.5**	**26.5**	**5.3**	**100**

* TB patients do not have formal house at either urban or rural

5.2.3 Experience, perceived communication and expectations

Among 601 respondents, only 177 (29.5%) visited the HCO before their current TB illness, for which they were being treated. The respondents', who ever visited, median visit frequency were 2 times with the maximum of 5 times. Fifty-eight (32%) respondents visited one time, 36 (20%) respondents visited two times, 19 (10%) respondents visited three times, 4 (2%) respondents visited four times and 60 (34%) respondents visited five times before the TB illness for which they were treated.

From all 601 respondents, 544 (90%) respondents had good communication with HCPs while they were taking their TB treatment.

Four hundred and twelve (69%) of respondents did not expect the TB treatment duration to be as they were taking, to and from home to health institution to be observed

while they take their TB drugs during intensive phase of their treatment and refill every week during their continuation phase of the treatment.

Cross tabulation of perceived good communication with HCPs and experience and expectation are presented in Table 5.8. Perceived good communication and experiences show that a significant association (p=0.04) whereas, expectation did not show significant association with perceived good communication (p=0.15).

Table 5.8: Cross-tabulation of perceived communication, experience and expectation (N=601)

Variables	Response		Perceived good communication with HCPs		Total
			Yes	No	
Experience (ever used at interviewed health organisation)	Yes	*F*	154	23	177
		%	87.0	13.0	100
	No	*F*	390	34	424
		%	92.0	8.0	100
Expectation (about treatment duration and frequency of back and forth home-to-health institution)	Yes	*F*	175	14	189
		%	92.6	7.4	100
	No	*F*	369	43	412
		%	89.5	10.5	100

HCPs: Health care providers

5.2.4 Perceived patient centeredness of DOTS strategy

DOTS strategy patient centeredness was determined based on WHO people centred health care framework. The framework consists of four dimensions. The dimensions are patient, family, and community concern dimension, HCPs dimension, HCOs dimension and health care delivery system dimension (WHO 2007b:7). The overall questionnaire Cronbach's Alpha was 0.935. As the questionnaire is a purposefully self-designed, a Cronbach alpha of 0.7 and above was regarded as being acceptable (Field A. 2009:675; Burns & Grove 2005:374).

5.2.4.1 Patient, family and community concern dimension

The patient, family and community concern dimension mean score was 3.72 (SD=0.59). This dimension in turn divided into six sub-dimensions. The sub-dimensions were information provision, keeping preferences, recognition, improving capacity for self-care management, treatment supporter and family and friends involvements. The mean score of the sub-dimensions are presented in Figure 5.1. The maximum mean score was 3.67 (SD=0.85) for information provision sub-dimension and the lowest mean score was keeping preference sub-dimension 2.11 (SD=0.58).

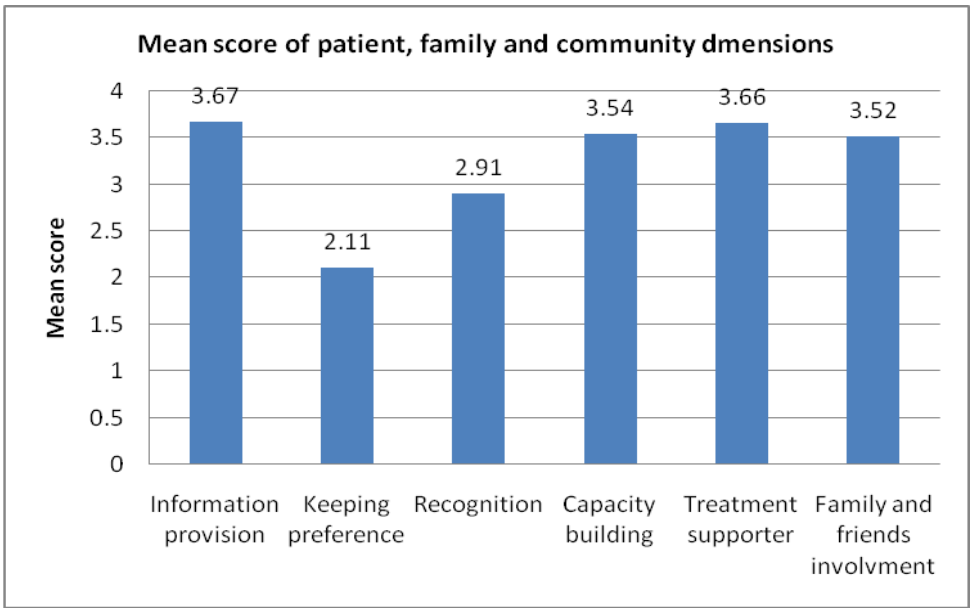

Figure 5.1: Mean score of patient, family and community dimensions of PCC (N=601)

The total items included in the patient, family and community dimension were 20 items. Each sub-dimension contains 2-4 measuring items. The frequency, percentage and mean score of items are illustrated in Table 5.9. Among the 20 measuring items in the patient family and community concern dimension, the lowest mean score 1.17 (SD=0.37) was keeping choice of preference where to take the TB treatment either at home, work place or in the community. Whereas, the highest mean score 3.84 (SD=1.07) was knowledge of treatment supporter about way of TB transmission, prevention and treatment of TB.

Table 5.9: Patient, family and community concern dimension items mean scores (N=601)

Items	Strongly disagree *f (%)*	Disagree *f (%)*	Neutral *f (%)*	Agree *f (%)*	Strongly agree *f (%)*	Mean (SD)
Information provision about:						
ransmission, prevention and treatment	40 (6.7)	51 (8.5)	17 (2.8)	415 (69.1)	78 (13.0)	3.73 (1.01)
importance of treatment supporter	35 (5.8)	53 (8.8)	32 (5.3)	394 (65.6)	87 (14.5)	3.74 (1.00)
prognosis of health condition	44 (7.3)	49 (8.2)	49 (8.2)	386 (64.2)	82 (13.6)	3.70 (1.01)
wrong practice about TB	55 (9.2)	75 (12.5)	49 (8.2)	349 (58.1)	73 (12.1)	3.51 (1.10)
Keeping preference of:						
choices where to take the treatment	498 (82.9)	103 (17.1)	0 (0)	0 (0)	0 (0)	1.17 (0.37)
drug collection time	195 (32.4)	227 (37.8)	43 (7.2)	136 (22.6)	0 (0)	2.19 (1.12)
treatment supporter	99 (16.5)	131 (21.8)	107 (17.8)	221 (36.8)	43 (7.2)	2.96 (1.23)
Recognition:						
taking part in treatment plan	107 (17.8)	162 (27.0)	92 (15.3)	215 (35.8)	25 (4.2)	2.81 (1.21)
taking consent during decisions	105 (17.5)	131 (21.8)	74 (12.3)	255 (42.4)	36 (6.0)	2.97 (1.25)
role acknowledgment	108 (18.0)	129 (21.5)	70 (11.6)	265 (44.1)	29 (4.8)	2.96 (1.25)
Improving capacity for self-management and self-care with:						
health education	51 (8.5)	61 (10.1)	42 (7.0)	380 (63.2)	67 (11.1)	3.58 (1.08)
counselling	38 (6.3)	53 (8.8)	27 (4.5)	417 (69.4)	66 (11.0)	3.69 (0.99)
written, pictorial and audiovisual material	98 (16.3)	69 (11.5)	42 (7.0)	315 (52.4)	77 (12.8)	3.33 (1.30)
T**B treatment supporter:**						
know the transmission route, prevention and treatment of TB	40 (6.7)	40 (6.7)	20 (3.3)	374 (62.2)	126 (21.0)	3.84 (1.04)
observe while taking drugs	33 (5.5)	70 (11.6)	43 (7.2)	364 (60.6)	91 (15.1)	3.68 (1.04)
regularly communicate and discuses	43 (7.2)	102 (17.0)	48 (8.0)	341 (56.7)	67 (11.1)	3.64 (1.11)
Family and friends involvement in TB care:						
families encouraged and allowed to participate	47 (7.8)	54 (9.0)	42 (7.0)	379 (63.1)	79 (13.1)	3.64 (1.06)
friends encouraged and allowed to participate	60 (10.0)	87 (14.5)	73 (12.1)	313 (52.1)	68 (11.3)	3.40 (1.16)
discussions of pros and cons about tb with friends	58 (9.7)	118 (19.6)	48 (8.0)	293 (48.8)	84 (14.0)	3.77 (1.22)
discussion of pros and cons about tb with families	45 (7.5)	49 (8.2)	54 (9.0)	358 (59.6)	95 (15.8)	3.68 (1.07)
Total Mean Score						3.27 (0.59)

SD: standard deviation; *f*: frequency; %: percentage

5.2.4.2 Health care providers (HCPs)

The second dimension category of the framework, HCPs dimension, overall mean score was 3.79 (SD=0.49). Characteristics of HCPs, consideration of the patient as unique person, communication with the patient, physical, emotional and psychosocial support to TB patients of HCPs were sub-dimensions of HCPs dimension. The sub-dimension's mean scores are presented in Figure 5.2.

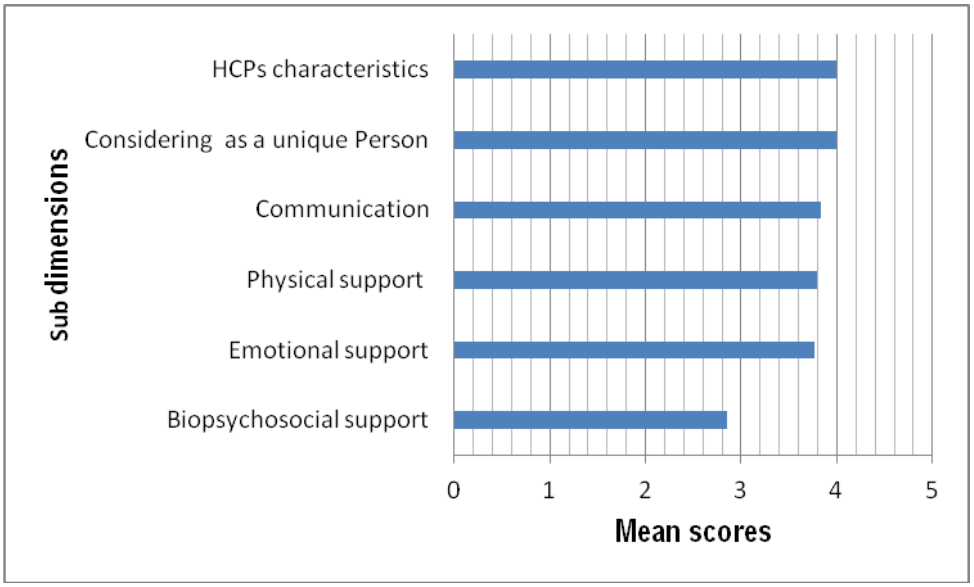

Figure 5.2: Sub-divisions mean score dimensions of HCPs (N=601)

The six sub-dimensions in HCPs dimension consist of 24 items. In each sub-dimension 2-6 measuring items were included. The lowest mean score among 24 items in the HCPs dimension was concern of HCPs about the financial issue of the TB patients, 2.68 (SD=1.24). The detail mean score, frequency and percentage of each item are depicted in Table 5.10.

Table 5.10: Health care provider perspective items mean scores (N=601)

Items	Strongly disagree *f (%)*	Disagree *f (%)*	Neutral *f (%)*	Agree *f(%)*	Strongly agree *f (%)*	Mean (SD)
HCPs characteristics:						
honesty, respectfulness, compassionate and tolerance	18 (3.0)	14 (2.3)	16 (2.7)	415 (69.1)	138 (23.0)	4.06 (0.78)
self-reflective	15 (2.5)	27 (4.5)	44 (7.3)	376 (62.6)	139 (23.1)	3.99 (0.84)
accountability	17 (2.8)	12 (2.0)	26 (4.3)	403 (67.1)	143 (23.8)	4.06 (0.78
commitment	18 (3.0)	10 (1.7)	24 (4.0)	404 (67.2)	145 (24.1)	4.07 (0.78)
each other's involvement awareness	19 (3.2)	17 (2.8)	70 (11.6)	391 (65.1)	104 (17.3)	3.90 (0.82)
provision of value, share information and responsibilities(each others)	20 (3.3)	24 (4.0)	82 (13.6)	360 (59.9)	115 (19.1)	3.87 (0.87)
Considering a patient as a unique person:						
respect idea, culture and religion	11 (1.8)	18 (3.0)	23 (3.8)	411 (68.4)	137 (22.8)	4.07 (0.73)
recognise and provides values	15 (2.5)	35 (5.8)	56 (9.3)	390 (64.9)	105 (17.5)	3.89 (0.84)
understand feelings	15 (2.5)	25 (4.2)	31 (5.2)	401 (66.7)	128 (21.3)	4.00 (0.81)
HCPs and patient communication:						
on prioritising patient's problem	13 (2.2)	20 (3.3)	20 (3.3)	443 (73.7)	105 (17.5)	4.01 (0.73)
free discussions	15 (2.5)	40 (6.7)	30 (5.0)	416 (69.2)	100 (16.6)	3.9 (0.83)
based on careful listening and understanding	15 (2.5)	33 (5.5)	30 (5.0)	459 (76.4)	64 (10.6)	3.87 (0.76)
built on mutual relationship	12 (2.0)	40 (6.7)	62 (10.3)	419 (69.7)	68 (11.3)	3.81 (0.79)
clear and summarised	31 (5.2)	41 (6.8)	54 (9.0)	405 (67.4)	70 (11.6)	3.73 (0.93)
regular and properly about medical condition	27 (4.5)	59 (9.8)	63 (10.5)	373 (62.1)	79 (13.1)	2.69 (0.97)
Physical support:						
keeping physical comfort	23 (3.8)	40 (6.7)	61 (10.1)	397 (66.1)	80 (13.3)	3.78 (0.89)
provision of assistance while feeling tire	23 (3.8)	39 (6.5)	55 (9.2)	398 (66.2)	86 (144.3)	3.80 (0.89)
emotional support to cope with:						
TB disease	28 (4.7)	18 (3.0)	18 (3)	432 (71.9)	105 (17.5)	3.94 (0.86)
relationships and mood changes	18 (3.0)	26 (4.3)	29 (4.8)	422 (70.2)	106 (17.6)	3.95 (0.81)
problems related to employment	59 (9.8)	81 (13.7)	95 (15.8)	283 (47.1)	83 (13.8)	3.41 (1.17)
Biopsychosocial perspective: ***HCPs were concerned to discus about:***						
life history and development	103 (17.1)	192 (31.9)	97 (17.1)	176 (29,3)	32 (5.3)	2.73 (1.20)
family and social interactions	112 (18.6)	166 (27.6)	90 (15)	200 (33.3)	33 (5.5)	2.79 (1.23)
financial issues	126 (21)	179 (29.8)	87 (14.5)	178 (29.6)	31 (5.2)	2.68 (1.24)
psychological status	91 (15.1)	94 (15.6)	57 (9.5)	313 (52.1)	46 (7.7)	3.21 (1.24)
Total mean score						3.72 (.49)

SD: standard deviation; *f*: frequency; %: percentage

5.2.4.3 Health care organisation (HCO)

The third dimension of the framework, HCO dimension, comprises eight measuring items categorised into two sub-dimensions. The first sub-dimension of HCOs was ensuring access, effective and efficient coordination of care; the second sub-dimension was strengthening multi-disciplinary care teams. The mean score of ensuring access, effective and efficient coordination of care sub dimension was 3.65 (SD=0.69), and establishing and strengthening multidisciplinary care teams sub-dimension was 1.75 (SD=0.53). The frequency, percentage and mean score of each item are described in Table 5.11.

Table 5.11: HCOs concerned measuring items mean score (N=601)

HCO	Strongly disagree *f (%)*	Disagree *f (%)*	Neutral *f (%)*	Agree *F (%)*	Strongly agree *f (%)*	Mean (SD)
Ensuring access, effective and efficient coordination of care:						
travelled longer distance to access health facility	86 (14.3)	132 (22)	32 (5.3)	276 (45.9)	75 (12.5)	3.20 (1.2)
presence of reminder(how to cover mouth while coughing, hand and mouth care)	57 (9.5)	32 (5.3)	30 (5)	360 (59.9)	122 (20.3)	3.76 (1.2)
designed to keep comfort and safety	14 (2.3)	22 (3.7)	39 (6.5)	420 (69.9)	106 (17.6)	3.96 (0.77)
provision of health education at waiting rooms and premise	42 (7.0)	54 (9.0)	46 (7.7)	376 (62.6)	83 (13.8)	3.67 (1.04)
Establishing and strengthening multidisciplinary care teams: ***Availability of patient support service:***						
availing transport	566 (94.2)	11 (1.8)	2 (1.3)	19 (3.2)	3 (0.5)	1.13 (0.61)
food support	460 (76.5)	113 (18.8)	1 (0.2)	5 (0.8)	22 (3.7)	1.36 (0.85)
spiritual support	102 (17)	59 (9.8)	36 (6.0)	351 (58.4)	52 (8.7)	1.04 (0.27)
social support	547 (91)	16 (2.7)	22 (3.7)	14 (2.3)	2 (0.3)	3.32 (1.27)
Total mean score						**2.70(0.42)**

SD: standard deviation; *f*: frequency; %: percentage

5.2.4.4 DOTS care delivery system

The fourth dimension of the framework, DOTS service delivery system, encompasses 13 measuring items categorised into 3 sub-dimensions. Teamwork and team building, health care monitoring and addressing patient and community concerns about health care quality, and assisting people who have experienced adverse events in the health

care system are the sub-dimensions of TB care delivery system dimension. The total mean score of the measuring items was 3.62 (SD=0.52). The highest mean score among 13 measuring items was 3.96 (SD=0.92) TB care service integration with HIV/ART services item. The measuring items frequency, percentage and mean scores are described in the Table 5.12.

Table 5.12: TB care delivery health system concerns measuring items (N=601)

Items	Strongly disagree *f (%)*	Disagree *f (%)*	Neutral *f (%)*	Agree *f(%)*	Strongly agree *f (%)*	Mean (SD)
Monitoring and addressing patient and community concerns about DOTS care quality:						
TB care delivery system:						
transition from diagnosis to treatment	31 (5.2)	57 (9.5)	95 (15.8)	329 (54.7)	89 (14.8)	3.64 (1.01)
appointment arrangement for follow-up	22 (3.7)	26 (4.3)	36 (6.0)	401 (66.7)	115 (19.1)	3.93 (0.86)
TB care integration with HIV/ART	27 (4.5)	23 (3.8)	34 (5.7)	376 (62.6)	141 (23.5)	3.96 (0.92
HCPs mutual agreements about the care given to you	22 (3.7)	25 (4.2)	67 (11.1)	387 (64.4)	100 (16.6)	3.86 (0.86)
The presence of the name and contact details of the person in charge of TB care	68 (11.3)	65 (10.8)	49 (8.2)	303 (50.4)	116 (19.3)	3.55 (1.23)
Confidentiality of clinical information	19 (3.2)	19 (3.2)	48 (8.0)	341 (56.7)	174 (29)	3.60 (1.04)
Teamwork and teambuilding						
The TB care service delivery system has:						
good inter-facility referral system	41 (6.8)	43 (7.2)	88 (14.6)	366 (60.9)	63 (10.5)	3.60 (1.00)
good intra-facility referral system	35 (5.8)	53 (8.8)	89 (14.8)	376 (62.6)	48 (8.0)	3.58 (0.96)
good collaboration among registration, laboratory, treatment and discharge services	32 (5.3)	44 (7.3)	86 (14.3	380 (63.2)	59 (9.8)	3.64 (0.94)
Assisting people who experienced adverse events in the health system						
assistance while you faced difficult situations in the TB care provision	36 (6)	74 (12.3)	97 (16.1)	342 (56.9)	51 (8.5)	3.49 (1.01)
compensation system for difficult situation, where appropriate	55 (9.2)	94 (15.6)	122 (20.3)	282 (46.9)	47 (7.7)	3.28 (1.1)
fixed contact persons is assigned for questions, problems and complaints	90 (15)	118 (19.6)	83 (13.8)	279 (46.4)	31 (5.2)	3.07 (1.2)
reassurance for inconveniences	41 (6.8)	56 (9.3)	76 (12.6)	372 (61.9)	56 (9.3)	3.57 (1.01)
Total mean score						**3.63 (0.52)**

SD: standard deviation; *f*: frequency; %: percentage

The total items used to measure the patient centredness of DOTS strategy in four dimensions were 65. The overall mean score of the 65 measuring items in the framework was 3.44 (SD=0.44) (Figure 5.3).

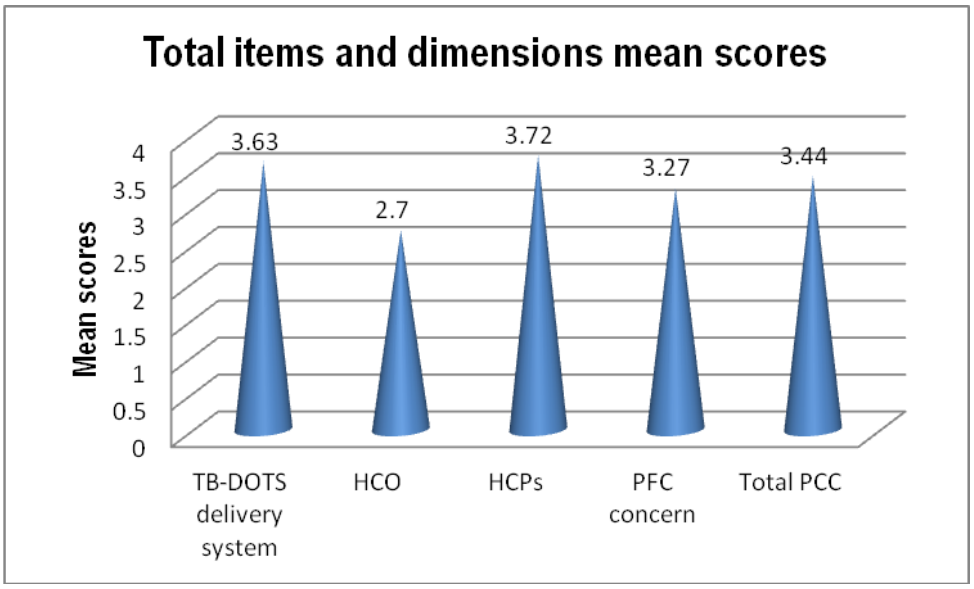

Figure 5.3: Mean score of PCC dimensions(N=601)

To determine the overall patient centeredness of DOTS strategy, the mean score of each respondent were adjusted into a 0-to-100 scale by utilising a Likert's transformation formula as described in section 4.4.4.8.2 (Liu, Wang & Lu: 2010:2).

The mean adjusted score was 61 (SD=11). The adjusted mean score was used as a cut point to categorise either TB patients received PCC with DOTS strategy or not. The respondents, who score below the mean score of 61 regarded as did not receive PCC whereas, equal or above mean score of 61 considered as they received PCC with DOTS. About 40% of the respondents perceived as they did not receive PCC with DOTS.

5.2.4.5 Perceived PCC and gender

From 601 respondents, 358 (60%) were perceived as they received PCC with DOTS strategy. Of which 174 (49%) were female and 181 (51%) were male. Among 265 female respondents, 91 (34.3%) of female did not perceive as they received PC-TB care while among 336 male respondents, 148 (45%) respondents were perceived as they did not receive PCC as illustrated in Figure 5.4. Male and female respondents perception about received PCC was significantly different (p=0.009).

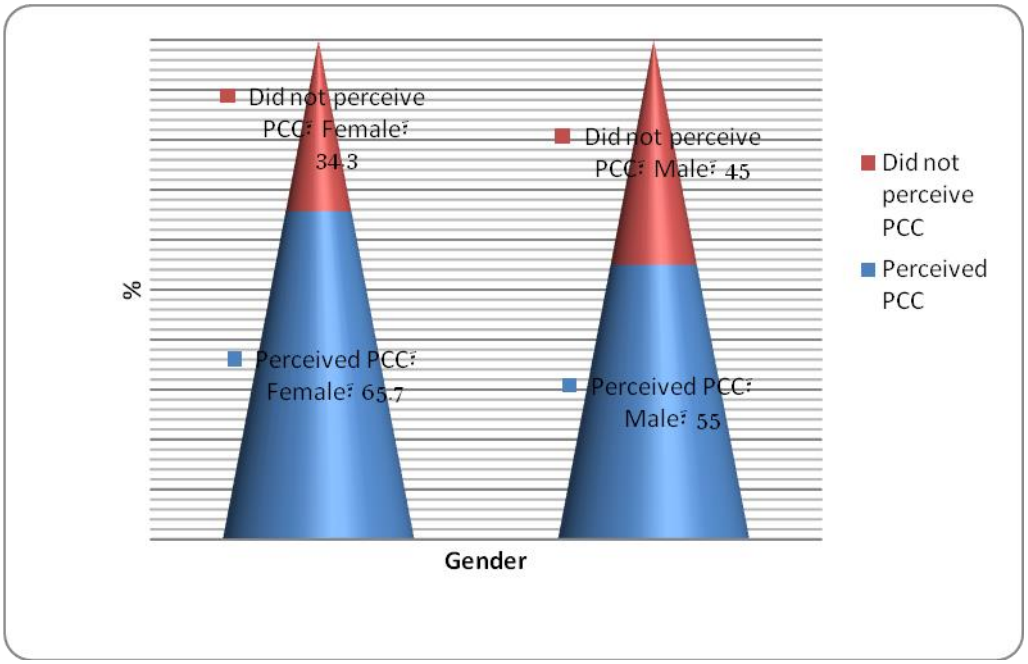

Figure 5.4: Perceived PCC by gender (N=601)

5.2.4.6 Perceived PCC and Type of TB

From 242 respondents who did not perceive as they received PCC 16 were MDR TB patients (50% of MDR-TB patients), 114 were smear positive PTB (47% of smear positive pulmonary TB patients), 57 smear negative PTB (38% of smear negative pulmonary TB patients) and 55 were EPTB (35% of extra pulmonary TB patients). There was no significant association between PCC received with type of TB in DOTS strategy (p=0.177).

5.2.4.7 Perceived PCC and treatment category of respondents

Among 496 new TB patients, 304 (61%) were received PCC with DOTS strategy. Whereas, among 12 respondents who were on treatment after treatment failure, only 3 (25 %) perceived as the received PCC (Figure 5.5). Perceived PCC with DOTS and treatment category of the respondents had significant association (p=0.019).

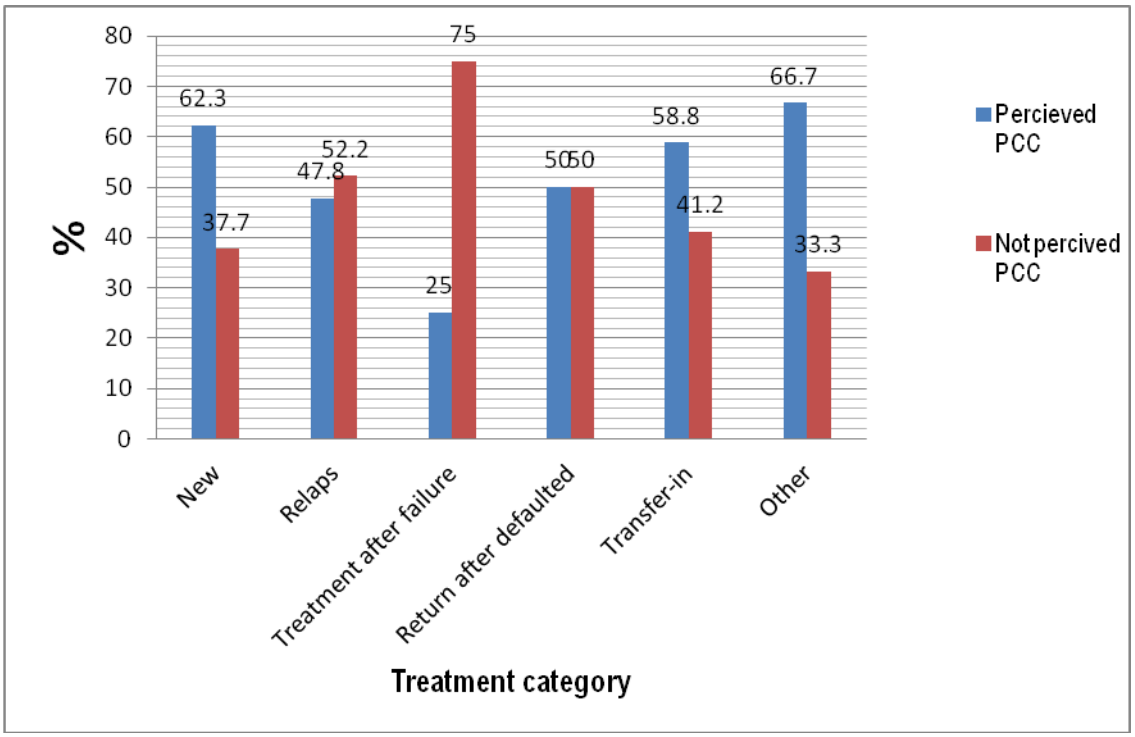

Figure 5.5: Perceived PCC and registration category

5.2.4.8 Perceived PCC and educational level

Among all 242 (40%) of respondents who did not feel as they receive PCC with DOTS strategy, 46 (33% of diploma and above, 70 (37% of secondary school), 66 (46% of primary school (5-8), 27 (57%) of primary school (1-4) and 30 (44% of had no formal education). The highest educational level achieved did not perceive as they received PCC of DOTS service. The highest educational level attained respondents and perceived PCC with DOTS strategy had no significant association (p=0.10).

5.2.4.9 Perceived PCC and average family monthly income of the respondent

The proportion of average monthly income of the family against received PCC of respondent is described in Table 5.13. Perceived PCC and average monthly income of the patient show that weak positive correlation, Spearman's rho(r) correlation coefficient was 0.013, where r=1 is perfect positive correlation.

Table 5.13: Perceived PCC and average family monthly income (N=546)

Income category in USD	Perceived PCC n (%)	Not perceived PCC n (%)	Total n (%)
9.40–47.00	105 (57.7)	77 (42.3)	182 (100)
47.1–95.00	85 (57.8)	62 (42.2)	147 (100)
95.01–143.0	54 (66.7)	27 (33.3)	81 (100)
143.1–957.0	79 (58.1)	57 (41.9)	136 (100)
Total	**323 (60%)**	**223 (40%)**	**546 (100)**

5.2.4.10 Perceived PCC, communication, experience and presence of symptoms

Cross-tabulation of the perceived PCC with perceived communication, experience and presence of TB symptoms is depicted in Table 5.14. There was a significant association between PCC of DOTS received and perceived good communication with HCPs ($p<0.001$), experience on utilisation of health care service ($p=0.011$) and presence of symptoms at the time of interview ($p=0.016$).

Table 5.14: Cross-tabulation of PCC, perceived communication, experience and presence of TB symptoms (N=601)

Items	Response	Perceived PCC received		Total
		Yes n (%)	No n (%)	n (%)
Perceived good communication with HCPs	Yes	331 (60.8)	213 (39.2)	544 (100)
	No	38 (66.7)	19 (33.3)	57 (100)
Experience(ever used)	Yes	89 (50.3	88 (47.7)	177 (100)
	No	261 (61.6)	163 (38.4	424 (100)
Presence of symptoms at the time of interview	Yes	96 (51.1)	92 (48.9)	188 (100)
	No	254 (61.5)	159 (38.5)	413 (100)

5.2.5 Factors associated with PCC of DOTS

In this section analyses of factors associated with perceived PCC received of TB patient with DOTS strategy is presented. The analysis aims to identify the presence and strength of the association between dependent and independent predictors. The dependent variable, PCC received with DOTS strategy was categorised based on adjusted mean score; below the mean score of 61 regarded as they had not received PCC with TB-DOT strategy while equal and above regarded as they had received PCC.

The categorical variables and DOTS patient centeredness related factors were assessed for the presence of association based on direct response of the respondents. Whereas continues variable, the average monthly family income, dichotomised into two based on the mean family-income value, $115. Those respondents who had above the $115 were considered as “less-poor” whereas respondents who had below and equal to $115 of average monthly income regarded as “poor”.

The association between dependent and independent variables were assessed by logistic regression. To determine the association X^2, p-values, crude and adjusted Odds Ratios with 95% confidence intervals were calculated.

Gender, age, educational level, occupation, experience, presence of symptoms, treatment supporter and perceived good communication had significant association with perceived PCC with DOTS strategy before adjusting the confounder. However, after adjusting the confounders in multiple logistic regression with the model fitness, Hosmer and Lemeshow test $X^{2=}12.939$, df=8 and p=0.114; gender, communication and type of treatment supporter had association with perceived PCC DOTS strategy. In the analysis, male gender respondents were 55% less likely to receive PCC with DOTS strategy (AOR= 0.45; 95%CI (0.3, 0.7)) compared to female respondents. On the other side, respondents who had good communication with HCPs were more likely to receive PCC with DOTS strategy (AOR= 3.2; 95% CI (1.6, 6.1)) compared to those who did not have good communication with HCPs.

Respondents who had HCP treatment supporters were more likely to perceive PCC received with DOTS strategy than those who had family member treatment supporter (AOR=3.4; 95% CI (2.1-5.48)). The detail logistic regression analysis is presented in Table 5.15.

Table 5.15: Logistic regression analysis of variables with perceive PCC DOTS strategy

Variables		Perceived PCC		COR (95 % CI)	P-value	AOR (95 % CI)	P-value
		Yes	No				
Gender	Male	181	148	0.64 (0.46, 0.89)	0.009	0.45 (0.3, 0.7)	000
	Female	174	91	1.00		1.00	
Age	18-24	64	63	1.00		1.00	
	25-34	125	89	1.38 (0.89, 1.43)	0.15	1.1 (0.65, 1.8)	0.68
	35-44	103	4	2.4 (1.4, 3.8)	0.001*	1.8 (1.1, 3.9)	0.01
	45-54	39	19	2.0 (1.0, 3.8)	0.034	2.4 (1.1, 5.1)	0.06
	55-64	15	16	0.9 (0.4, 2.0)	0.84	0.9 (0.3, 2.2)	0.52
	>/=_65	9	9	0.98 (0.4, 3.6)	0.97	1.0 (0.3, 3.1)	0.42
Educational level	Diploma and above	46	95	1.5 (0.9, 2.9)	0.12	1.6 (0.75, 3.5)	0.20
	Secondary school(9-12)	70	122	1.3 (0.77, 2.3)	0.30	1.4 (0.73, 2.8)	0.41
	Primary school (5-8)	66	79	.92 (0.5, 1.6)	0.77	0.9 (0.5, 1.9)	0.75
	Primary school (1-4)	27	20	0.57 (0.2, 1.2)	0.14	0.7 (0.3, 1.7)	0.68
	No formal education	30	39	1.00		1.00	
Occupation	permanent employee	68	33	1.00		1.00	
	Self employee	148	68	1.1 (0.6, 1.7)	0.83	1.0 (0.6, 1.8)	0.25
	Temporary employee	39	46	0.4 (0.2, 0.7)	0.003	0.4 (0.2, 0.8)	0.25
	House wife	40	34	0.5 (0.3, 1.0)	0.075	0.4 (0.17, 0.8)	0.20
	Unemployed	43	40	0.5 (0.2, 0.94)	0.03	0.58 (0.3, 1.1)	0.95
	Pensioner	12	11	0.53 (0.21, 1.33)	0.17	0.7 (0.2, 2.0)	0.96
	Student	5	7	0.35 (0.1, 1.1)	0.089	0.4 (0.09, 1.5)	0.86
Average monthly ncome	Poor	186	141	1.5 (1.07, 2.2)	0.01	1.35 (0.9, 2.0)	0.16
	Less poor	142	70	1.00		1.00	
Experience	Yes	92	84	0.65 (0.45, 0.92)	0.016	0.76 (0.5, 1.1)	0.18
	No	263	155	1.00		1.00	
Good communicate-on with HCPs	Yes	338	199	4 (2.2, 7.20)	000	3.2 (1.6, 6.1)	000
	No	17	40	1.00		1.00	
Treatment supporter	HCP	294	87	2.7 (1.8, 4.0)	000	3.4 (2.1, 5.48)	000
	Family	61	152	1.00			
Presence of TB symptoms	Yes	96	90	0.61 (0.43, 0.87)	0.006	0.69 (0.45, 1.0)	0.07
	No	259	149	1.00			

HCP: Health care providers; 1.00: reference category; COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio; CI: confidence interval:*Fisher exact test

5.2.6 Exploratory factor analysis

Exploratory factor analysis was conducted to determine continuous latent variables that are needed to explain the PCC framework**.** Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Chi-square were performed and results are presented in Table 5.16.

Table 5.16: KMO and Bartlett's test for PCC DOTS measuring items per dimensions

Patient, family and community concern dimension			**HCO dimension**		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.864	Kaiser-Meyer-Olkin measure of sampling adequacy		0.605
Bartlett's test of Sphericity	Approx Chi-Square	5244	Bartlett's test of sphericity	Approx Chi-Square	708
	Degree of freedom	190		Degree of freedom	28
	Significance	.000		Significance	.000
HCPs dimension			**DOTS care delivery system dimension**		
Kaiser-Meyer-Olkin measure of sampling adequacy		0.874	Kaiser-Meyer-Olkin measure of sampling adequacy		0.816
Bartlett's test of sphericity	Approx Chi-Square	6919	Bartlett's test of sphericity	Approx Chi-Square	2452
	Degree of freedom	276		Degree of freedom	78
	Significance	.000		Significance	.000

HCO: Health Care Organisation; HCP: Health care providers

Sixty-seven percent of the total variability of PCC framework was explained by 17 measuring items, which scored above one eigenvalue, among the total of 65 measuring items in the framework. The components eigenvalues and total variability explained in the table attached in the Annex A.

Among the 20 variables included in patient, family and community dimension, 63% of the total variability was explained by five items, and for the 23 measuring items in the HCPs dimension, 66% of the variance was explained by six measuring items. Among 8 measuring items in HCO dimension, 59% variability was explained by three measuring items. Among 13 items in DOTS care delivery system dimension, 57% of the total variability was explained by three items.

Table 5.17: Items extracted from principal component analysis by dimension

Dimensions	Explaining measuring items	Total variability explained the dimension
Patient, family and community concern	Information provision	63%
	Consent and taking part in treatment plan	
	Treatment supporter communication,	
	Encouragement of friends to involve in TB care	
	provision of place of choice where to follow the treatment	
HCPs	Communication of HCPs and patient, ,	66%
	Concerned discussion about family and social issue	
	Discussion on employment and financial status	
	Recognition	
	Value provision	
	Emotional and physical support	
HCOs	Availability of transport,	59%
	Comfortable ness of the premises	
	Food support	
TB care delivery system	Referral system,	57%
	Service integration	
	Compensation system for faced difficult situation	

5.2.7 TB patients' level of satisfaction

The TB patient's satisfaction level with DOTS strategy was determined by two approaches; 10-point scale single item and Donabedian quality health care model.

The first approach, a 10-point scale single item that measures the overall satisfaction level ranges from 0 to 10 for minimum and maximum satisfaction with DOTS strategy they received, respectively. Based on this single overall satisfaction measuring item, the mean TB patients satisfaction with DOTS strategy was 8.4 (SD=1.57) (Figure 5.6).

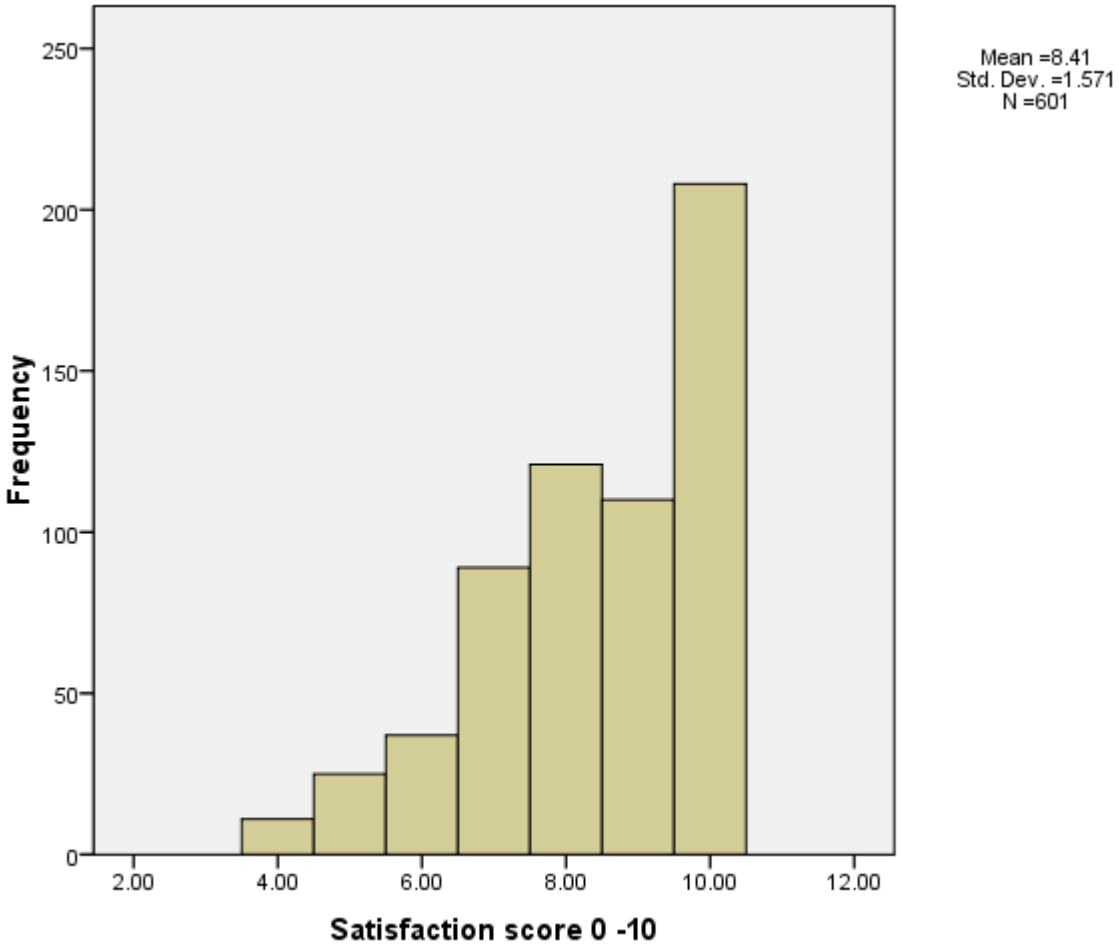

Figure 5.6: Satisfaction level of the respondents by single overall measuring item

The second approach was by using Donabidian quality health care model. The model contains structure, process and outcome dimensions. Based on these dimensions a questionnaire was developed with extensive literature review with consideration of DOTS strategy treatment guidelines. The questionnaire contains 23 5-point Likert scale items; 10 items focused on structure, 10 items focused on process and 3 items for outcome of DOTS treatment strategy. The questionnaire's overall reliability test was done during pilot study and after actual data collected. Cronbach's alpha of 0.88 and 0.85 were calculated pilot study data and actual data collected, respectively, Cronbach's alpha of 0.7 and above is regarded as acceptable (Burns & Grove 2005:374).

The total mean score of TB patients' satisfaction measuring items was 3.78 (SD=0.5), maximum and minimum scores were 5 and 1, respectively. The level of satisfaction of the respondents on each measuring items with mean scores are presented in Table 5.18.

Table 5.18: Level of satisfaction and mean scores of satisfaction measuring items

Measuring items	Very dissatisfied *f (%)*	Dissatisfied *f (%)*	Neutral *f (%)*	Satisfied *f (%)*	Very Satisfied *f (%)*	Mean (SD)
Structure; you are satisfied with:						
availability of necessary drugs, laboratory reagents	31 (5.2)	51 (8.5)	87 (14.5)	312 (51.9)	120 (20)	3.73 (1.03)
access of the HCPs	15 (2.5)	44 (7.3)	32 (5.3)	365 (60.7)	145 (24.1)	3.96 (0.90)
easy access to re fill drugs	27 (4.5)	38 (6.3)	37 (6.2)	368 (61.2)	131 (21.8)	3.89 (0.96)
friendliness of the environment	100 (16.6)	107 (17.8)	75 (12.8)	252 (41.9)	67 (11.1)	3.13 (1.30)
the waiting, registration and treatment room	30 (5)	49 (8.2)	52 (8.7)	357 (59.4)	112 (18.6)	3.78 (1.00)
safeness of the facility	20 (3.3)	36 (6)	37 (6.2)	364 (60.6)	144 (24)	3.95 (0.91)
availability of signage/ directions	49 (8.2)	47 (7.8)	36 (6)	337 (56.1)	132 (22)	3.75 (1.12)
cleanness, goodness and working order of the latrine	45 (7.5)	65 (10.8)	87 (14.5)	289 (48.1)	115 (19.1)	3.60 (1.13)
treatment room privacy	11 (1.8)	23 (3.8)	44 (7.3)	387 (64.4)	136 (22.6)	4.02 (0.78)
availability of safe water to ingest in pills	83 (13.8)	109 (18.1)	62 (10.3)	240 (39.9)	107 (17.8)	3.29 (1.32)
Process; you are satisfied with:						
explanation and response of HCPs to questions	17 (2.8)	23 (3.8)	25 (4.2)	375 (62.4)	160 (26.6)	4.06 (0.85)
HCPs ability of the diagnosis, treatment and care of TB	14 (2.3)	32 (5.3)	43 (7.2)	357 (59.4)	155 (25.8)	4.0 (1.00)
the cost you paid for TB diagnosis and treatment	34 (5.7)	47 (7.8)	55 (9.2)	316 (52.6)	149 (24.8)	3.83 (1.06)
costs paid for transport	76 (12.6)	101 (16.8)	95 (15.8)	227 (37.8)	102 (17)	3.29 (1.28)
carefulness and allotted time of HCPs to check clinical condition	17 (2.8)	37 (6.2)	47 (7.8)	355 (49.1)	145 (24.1)	3.95 (0.90)
HCPs welcoming, respect and courteous	13 (2.2)	32 (5.3)	25 (4.2)	379 (63.1)	152 (25.3)	4.03 (0.84)
HCPs considerer you are unwise	45 (7.5)	87 (14.5)	73 (12.1)	302 (50.2)	94 (15.6)	3.52 (1.14)
appointment system	45 (7.5)	87 (14.5)	73 (12.1)	302 (50.2)	94 (15.6)	3.98 (0.83)
waiting time for processes	108 (18)	294 (48.9)	65 (10.8)	75 (12.5)	59 (9.8)	3.52 (1.20)
HCPs usage of medical terms/jargon	51 (8.5)	71 (11.8)	38 (6.3)	314 (52.2)	127 (21.1)	3.65 (1.18)
Outcome; you are satisfied with your:						
TB Symptoms reduction	12 (2)	24 (4)	30 (5)	322 (53.6)	213 (35.4)	4.16 (0.85)
physical wellbeing-ness	12 (2)	33 (5.5)	33 (5.5)	325 (54.1)	198 (32.9)	4.10 (0.87)
psychological wellbeing-ness	11 (1.8)	36 (6)	20 (3.3)	330 (54.9)	204 (33.9)	4.13 (0.87)
Total mean score						**3.78 (0.5)**

SD: Standard deviation; HCPs: health care providers

TB patients' satisfaction level based on 10 points scale and Donabedian quality health care model based measuring items score shows a positive correlation (r=0.419). However, overall single item measurement shows that higher mean satisfaction score than Donabedian quality health care model based measurement ($p<0.05$).

The researcher choose the second approach satisfaction level of the respondent, Donabedian quality health care model outcome, for further analysis. Therefore, to produce binary variables related to satisfaction, the mean score of the responses were calculated for each respondent; the respondent who got the mean score of 2 and less were classed as unsatisfied respondent while the respondent who got the mean score of 4 and above regarded as satisfied respondent. For the respondent who scored between greater than 2 and less than 4 the median was calculated; then the respondent who scored less than the median, 3.69 (SD=0.5) were classed as "unsatisfied" and equal and above the median classed as "satisfied" (Bahrampour & Zolala 2005:907)." (Bahrampour & Zolala 2005:907). Based on this category 67.7% of the respondents were satisfied with DOTS.

5.2.7.1 Gender and TB patients' satisfaction

From 601 respondents, 406 (67.7%) respondents were satisfied with DOTS service they received. Among 406 satisfied respondents, 208 (51.2%) were male and 198 (48.8%) were female respondents. There was significant association between the satisfaction with DOTS and gender (p=0.001). About 75% of female respondents were satisfied with DOTS (Figure 5.7).

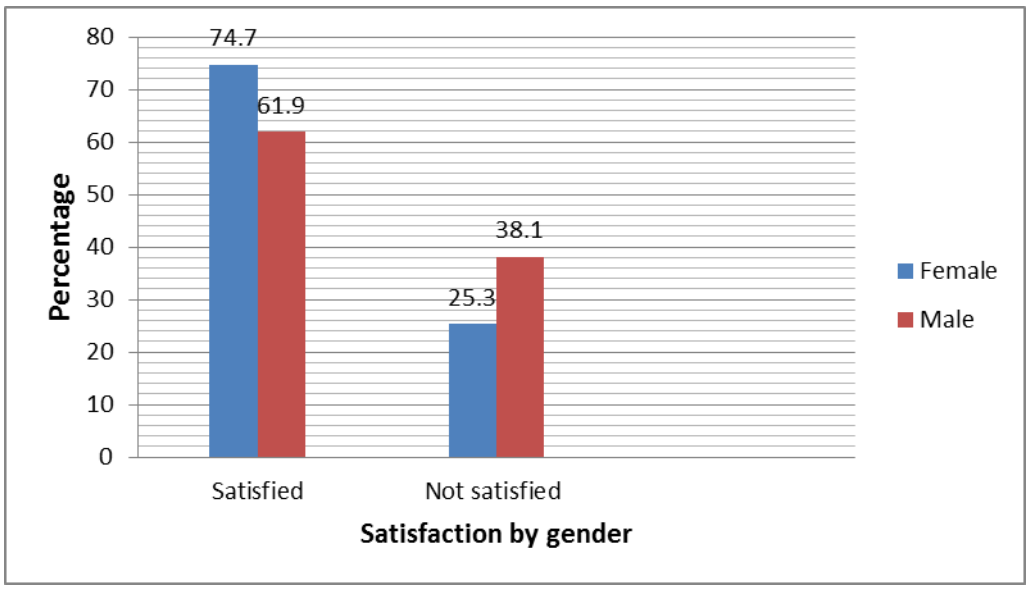

Figure 5.7: Proportion of satisfaction by gender (N=601)

5.2.7.2 Type of TB and satisfaction

Among the 601 respondents, 406 respondents were satisfied with DOTS. Of whom 170 (64.6% of smear positive pulmonary TB) 108 (73.5% of smear negative pulmonary TB), 105 (66.0% of extra pulmonary TB) and 23 (71.9% of MDR-TB patients) were satisfied with DOTS. There was no significant association among satisfaction with DOTS and type of TB (p=0.28).

5.2.7.3 Treatment category and satisfaction

Among 195 unsatisfied respondents, 155 (30.9% of new), 23 (33.8% of relapse), 9 (75% of treatment after failure), 2 (50% of return after default) and 5 (38% of transfer-in) were TB patients (Figure 5.8). There was marginally insignificant association among treatment categories and satisfaction of the respondent with DOTS (p=0.06).

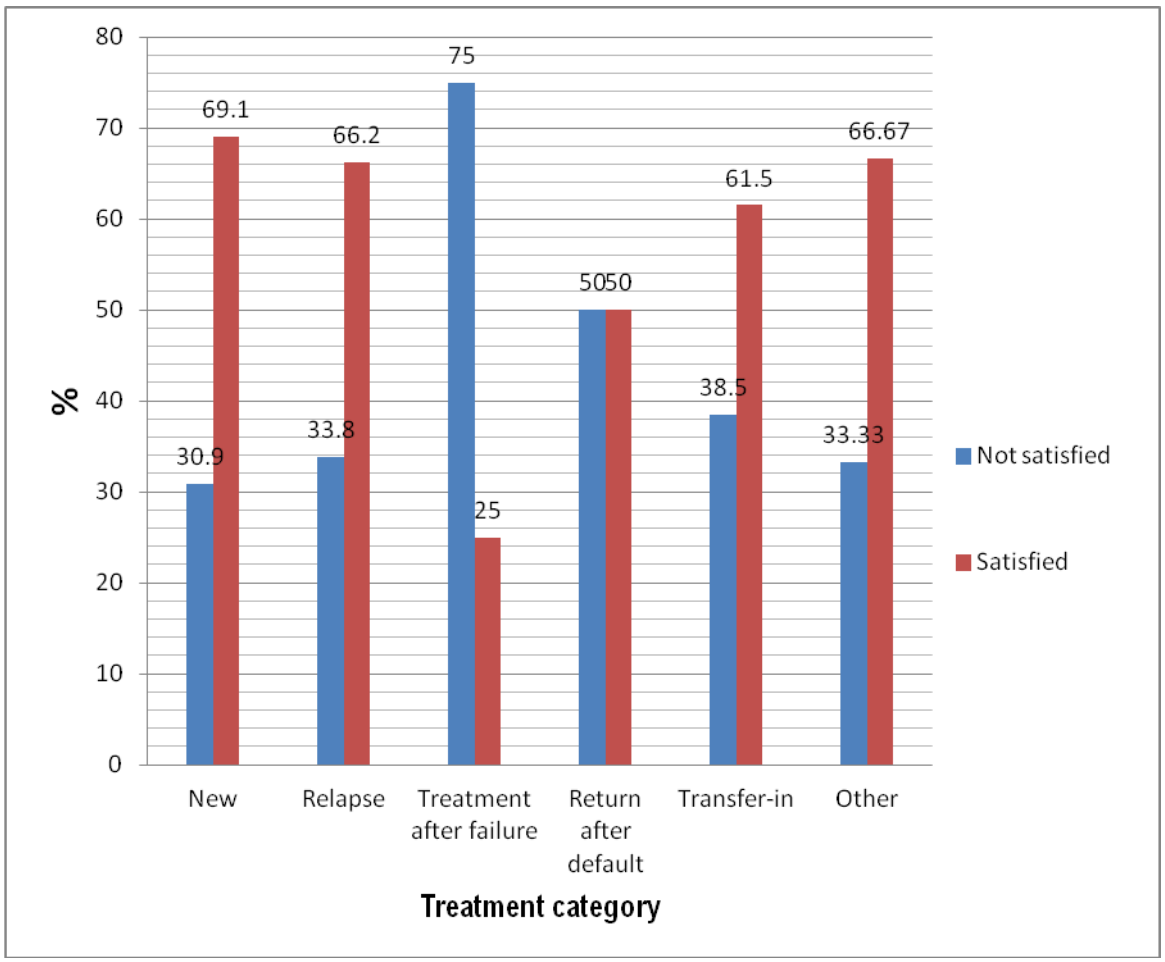

Figure 5.8: Level of satisfaction with treatment category of respondents (N=601)

5.2.7.4 Educational level and satisfaction

From all satisfied respondents, 93 (15.5%) were diploma and above holders, 129 (21.5%) were secondary school (9-12), 100 (16.6%) were primary school (5-8), 33 (5.5%) were primary school (1-4), and 51(8.5%) had no formal education. There was no association between education level achieved and satisfaction with the DOTS.

5.2.7.5 Age category and satisfaction

Among 406 satisfied respondents, 82 (13.6%) were between 18-24 age category, 145 (24.1%) were between 25-34 age category, 106 (17.6%) were between 35-44 age category, 41 (6.8%) were 45-54 age category, 23 (3.8%) were 55-64 age category and 9 (1.5%) were above 65 years old. There was no significant association between age category and satisfaction with DOTS.

5.2.7.6 Income category and satisfaction

There was significant association among income category and satisfaction with DOTS (p=0.02). Cross tabulation of satisfaction with income category presented in Table 5.19.

Table 5.19: Cross-tabulation of average family income with satisfaction (N=546)

Level of satisfaction	*f* /%	Average monthly income category in USD				Total
		9.4–47.0	47.1–95.0	95.01–143.0	143.1–957.0	
Not satisfied	Count	48	56	19	51	174
	% within Satisfaction level	27.6	32.2	10.9	29.3	100
	% within Average monthly income	26.4	38.1	23.5	37.5	31.9
	% of Total	8.8	10.3	3.5	9.3	31.9
Satisfied	Count	134	91	62	85	372
	% within Satisfaction level	36.0	24.5	16.7	22.8	100
	% within Average monthly income	73.6	61.9	76.5	62.5	68.1
	% of Total	24.5	16.7	11.4	15.6	68.1
Total Count		**182**	**147**	**81**	**136**	**546**
% within Satisfaction level		**33.3**	**26.9**	**14.8**	**24.9**	**100**
% of Total		**33.3**	**26.9**	**14.8**	**24.9**	**100**

5.2.8 Logistic regression analysis

Binary and multivariable logistic regressions were conducted to identify the predictors associated with satisfaction with DOTS strategy. In binary logistic regression model perceived predictor for patient satisfaction extracted from literature and variables related to DOTS strategy was assessed. In multivariable regression the variable which had p value <0.05 in binary logistic regression were considered. Goodness of the model was assessed by Hosmer and Lemeshow Test, X^2=5.904, df =8 and p=0.658 revealed the model adequacy. The outcome of the regression displayed in Table 5.20.

Table 5.20: Logistic regression outcome of satisfaction with DOTS and independent variables

Variables	Category	Satisfaction		COR (95 % CI)	P-value	AOR (95 % CI)	P-value
		Satisfied	Not satisfied				
Gender	Male	208	128	1.00		1.00	
	Female	198	67	1.81 (1.2,2.6)	0.001	2.2 (1.3, 3.57)	0.001
Residence	Urban	340	171	1.00		1.00	
	Rural	56	13	2.2 (0.9,5.2)	0.016	3.4 (1.6, 7.6)	0.003
	Homeless*	10	11	4.7 (1.6, 13.5)	0.080	1.1 (0.3,3.7)	0.78
TB symptoms presence	Yes	113	75	0.6 (0.43, 0.9)	0.009	0.6 (0.40, 0.94)	0.02
	No	293	120	1.00		1.00	
Perceived good Communication	Yes	375	169	1.00		1.00	
	No	31	26	1.8 (1.0,3.2)	0.02	1.6 (0.8, 3.3)	0.01
Occupation	Permanent employee	38	36	1.00		1.00	
	Self-employee	166	53	1.6 (0.9, 2.7)	0.051	1.5 (0.87, 2.7)	0.13
	Temporary employee	47	39	0.6 (0.33, 1.1)	0.133	0.48 (0.2, 0.9)	0.03
	House wife	57	17	1.7 (0.9, 3.5)	0.096	1.0 (0.4, 2.4)	0.88
	Unemployed	48	35	0.7 (0.4, 1.3)	0.291	0.56 (0.23, 1.3)	0.20
	Pensioner	12	11	0.5 (0.2, 0.4)	0.238	0.56 (0.2, 1.6)	0.28
	Student	8	4	1.0 (0.2, 3.7)	0.930	1.3 (0.11, 15)	0.82
Income in USD	9.40–47.0	134	48	1	0.022	1.00	
	47.01–95.0	91	56	0.6 (0.4, 0.9)	0.024	0.6 (0.3, 1.1)	0.15
	95.01–143	62	19	1.1 (0.6, 2.1)	0.616	1.3 (0.6, 2.6)	0.47
	143.01–957	85	51	0.59 (0.3, 0.9)	0.035	0.6 (0.3, 1.1)	0.15
Treatment supporter	Family member	53	71	1.00		1.00	
	HCPs	349	122	3.8 (2.5, 5.7)	000	4.3 (2.7, 6.8)	000

HCPs: Health care providers; 1.00: reference category; COR: Crude Odds Ratio; AOR: Adjusted Odds Ratio; CI: confidence interval:* No formal living houses both in urban and rural

5.2.9 Correlation of TB patient satisfaction and received PCC with DOTS

The correlation of scores of patient satisfaction and perceived PCC of DOTS strategy was done. The correlation of perceived PCC and satisfaction level of TB patients were positive (r=0.58) as shows in Figure 5.9 in scatter plot diagram.

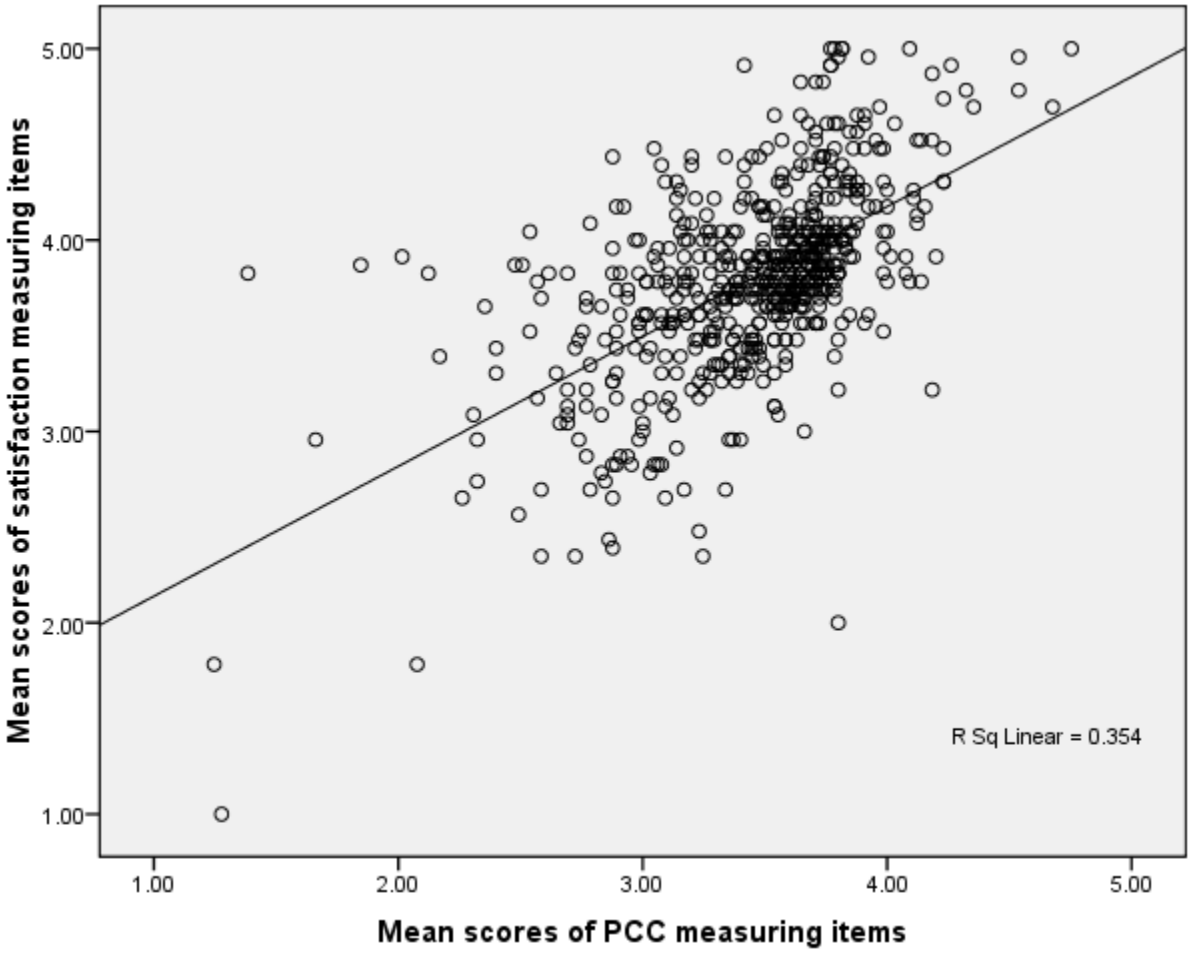

Figure 5.9: Scatter plot diagram of PCC and satisfaction mean score measuring items

5.3 SECTION 2: QUALITATIVE DATA ANALYSIS AND PRESENTATION

The qualitative component of the study was intended to achieve the following objectives:

- Explore driving factors to default TB patients from TB treatment.
- Explore TB experts' and defaulted TB patients' perception about DOTS strategy patient centeredness and satisfaction level.

These objectives were achieved through FGDs with TB experts and telephone interview with defaulted TB patients.

This section has presented firstly, FGDs and telephonic interview process. Secondly, the qualitative data analysis procedure carried out to answer the objectives. Thirdly, present composition of the discussants of FGDs and telephonic interview. Finally, themes revealed by qualitative data analysis will be discussed.

5.3.1 Composition of FGDs and telephonic interview participant

The FGDs and telephonic interview participants' composition in terms of age, gender, educational and work experiences are described below.

5.3.1.1 FGD the participant composition

Among purposively recruited 23 FGD participants, 15 (65%) were male. TB related work experiences of TB experts ranges from 2-15 years with the mean of 5.3 years (Table 5.21). Twelve (55%) the FGDs participants had Masters degree and 11 (45%) had Bachelor degree.

Table 5.21: Demographic details of FGD (N=23)

Variable	Category	*f* (%)
Sex	Male	15 (65.2)
	Female	8 (34.8)
Age in years	20-30	8 (34.8)
	31-40	3 (13.0)
	41-50	10 (43.5)
	51-60	2 (8.6)
TB-related work experience (in years)	2-4	8 (34.8)
	5-6	5 (21.7)
	7-8	6 (26.1)
	9-15	4 (17.4)

5.3.1.2 Telephonic interview participant composition

Among 25 defaulted TB patients, 3 (12%) recorded addresses were wrong address, 2 (8%) did not hang up for repeated telephone calls 1 (4%) did not volunteer to discuss and 19 (76%) participated in the interview.

Among 19 fully interviewed defaulted TB patients, 11 (58%) were male respondents. The mean age of the respondents was 39.4 years, range was 31 and the minimum and the highest age of the respondents were 26 and 57 years, respectively.

5.3.2 Qualitative data analysis

Qualitative data analysis was started simultaneously with the data collection. During data collection field notes were taken, audio digital recorder (ADR) and non-verbal and gestural cues were observed. All the Amharic recorded data were translated and transcribed verbatim by the researcher and research assistant independently for the discussions and telephonic interview.

Based on Yin (2011:177-8), after the verbatim transcription and translation of collected data, the qualitative data were analysed. The researcher compiled all the collected data using telephonic interview, discussions and field notes. Read and re-read both Amharic and English transcripts and listed the emerging ideas from both. He then created codes, categories and sub-categories from the listed ideas. He related the categories by drawing lines between categories. Recoding was done when necessary. Themes were generated from these categories. The transcripts were also given to a public health specialist, who was also an expert in qualitative research methodology to independently create codes and categories, and identify emerging themes. A consensus meeting between the researcher and the public health specialist was held, where the categories and themes identified were compared, revised and then used as research findings for this study.

5.3.3 Themes identified in FGDs

Five themes were revealed in the FGD discussions The themes were:

- Implementation of DOTS strategy
- Challenges with DOTS strategy
- DOTS strategy’s patient centeredness
- Contributing factors associate with patient centeredness
- TB patients’ satisfaction with DOTS strategy

5.3.3.1 Theme 1: Implementation of DOTS strategy

The theme 1, implementation of DOTS strategy at government and private health institutions had two categories and numerous sub-categories as shows in Table 5.22.

Table 5.22: Theme 1: Implementation of DOTS strategy − categories and sub-categories

Theme 1	Categories	Sub-categories
Implementation of DOTS strategy	Implementation at government and private health facilities	• Supervision • Standardised treatment guideline usage • Provided by trained HCPs • Daily bases observation during intensive phase • Weekly base follow-up during continuation phases • Trained HCPs
	Treatment outcome	• Improved TB treatment outcome

5.3.3.1.1 Implementation at government health facilities

The FGDs participants explained that DOTS strategy has been implemented at public and private health institutions. The treatment strategy is expected to have daily observations of TB patients at least for the first 56 days and weekly follow-up for the rest, continuation phase in both private and public health institutions. These have been supported by TB/HIV treatment guideline of Ethiopia (EFMOH 2013:36). The strategy implementation and treatment provision has specific implementation guideline.

Moreover, the discussant emphasised that the treatment is being provided by HCPs trained on this specific treatment guideline. The national treatment guideline standardise the treatment provision for better treatment outcome and patients. The following views were given by FGD participants about the standardisation of the treatment:

> "Previously, before 15 and 16 years, as DOT started, I was in the system and I know it. The patient whether smear positive or negative was entitled to take streptomycin injection but now the drug burden to the patient reduced. We even had the experience of pateients throwing the pills at home before DOT."

The participants also indicated that the strategy's implementation is tied with quarterly supervision and report; the report shows that DOTS has brought better treatment outcome and has contributed to reduction of TB prevalence in the country. The reduction of TB incidence and prevalence in Ethiopia is also reported (EFMOH 2014a:3).

In addition, the FGD participants explained that there are activities to trace and back the defaulted TB patients to the treatment. The following views were forwarded by one participant in the discussions:

> "When the patients default for some time the HCPs call and trace to know the cause and back to the service."

5.3.3.1.2 Implementation at private health facilities

The DOTS strategy has been implemented at some of non-government hospitals in Addis Ababa. The implementation of the strategy at private health institution is similar with government health facilities. The similarities are in terms of using standardise treatment guideline, daily bases observation during intensive phase, weekly base follow-up during continuation phases, supervision schedule and provision by trained HCPs. The FGD participants explained that the implementation of DOTS strategy at non- government hospitals similarity as follows:

> "… the treatment is being provided at health stations, hospitals and other private clinics. The treatment services is accompanying with supervision. And a report is also presented to the responsible body on a quarterly basis regarding the respective level."

5.3.3.1.3 Treatment outcome

The FGD participants explained that the DOTS strategy has brought better treatment outcome than before the DOT was in place. The FGD participant explains that the treatment outcome improvements as follows:

> "As the report indicates the treatment outcome of TB patients has shown improvement and reduction of prevalence especially with in the last five years. This is due to usage of standard treatment guideline across all TB treating health institutions and bringing the DOTS strategy in place."

Scholars also report that DOTS has brought better treatment outcome (Getahun et al 2013:521; Biadglegne et al 2013:85; Gebrezgabiher et al 2016:1).

5.3.3.2 Theme 2: Challenges with DOTS strategy

In the theme 2 four categories were revealed. The categories were daily observation, HCPs, supply, care integration perspectives and Public private partnership (PPP). The detail categories and sub-categories stated in Table 5.23.

Table 5.23: Theme-2: Challenges with DOTS strategy − categories and sub-categories

Theme 2	Categories	Sub-categories
Challenges with DOTS strategy	Daily observation	• Obliged TB patients to be observed daily and weekly • Transport cost
		• Unavailability of permanent address • Mobility of patients • Patients insist the HCPs to get many days' pills.
	HCP-related	• Incentive inquiry • Staff turn over • Less interest to work with TB particularly with MDR-TB • risk allowance inquiry,
	Supply shortage	• Short expiry date of TB drugs, reagent
	Weak PPP	• Weak interest of private institutions to provide TB treatment • Inconsistency of utilising standard treatment guideline at private health institutions • Less participation in the training

5.3.3.2.1 Daily observation

TB patients who were on intensive phase of the treatment were supposed to be observed daily in the health facility while s/he take-in the pills at least for two months'

time and this in turn force the TB patients to be absent from their work. This was reported in the discussion as it was a challenge for most of TB patients particularly for those who had low income. However, this part of the community is the widely TB affected society. In addition, daily observations expose TB patients to spend more money for transportation and other related costs. The following statement were mentioned in the discussion by the participants.

> "TB patients have to come on daily bases during intensive phase whereas, for instance the patient might be industry employees who are expected to enter to work early in the morning. In addition, bedridden critical TB patients have to come to health facility daily with transport and should pay for that."

Moreover, the daily observation's phenomenon requires permanent address of TB patients and it is less flexible to TB patients' mobility from one health institution to another, once they are registered at a given facility. The inflexibility of the phenomenon was brought up in the discussions as challenge with DOTS. For this reason, the TB patients insist to receive many days' pills and obliged to give wrong address. The importance of TB patients having permanent address was explained by participants as:

> "Patients do not have permanent resident addresses and has become difficult to reinstate them to the treatment process every time they change their addresses."

5.3.3.2.2 Health care providers (HCPs)

In the discussions, the existences of high staff turnover intra facility and out of the facilities were quoted as a challenge with DOTS strategy. As motioned in the discussions the more experienced and familiarised staffs with DOTS strategy are leaving and others taking their places. This creates a huge gap between implementation of DOTS strategy and its proposed goals.

Despite HCPs' belief to get better benefits only by working with TB control activities, unavailability of risk allowances and related benefit packages for TB care provider were raised in the discussions. This is thought to contribute to a high turnover rate at the section by the participants and it was explained as follows:

> "When health care providers work for long period of time with TB patients, they always request incentives by comparing themselves with midwives and anaesthetists who has professional fee."

As a result of above mentioned reasons and fear to contract TB while working with TB patients, HCPs' poor interest to work with TB patients particularly with MDR-TB patients were also raised. The following verbatim sentences were mentioned in the discussions:

> "Involuntariness of HCPs to work with MDR-TB patients; even sometimes HCPs do not let in the MDR-TB patients to the TB treatment room to refill the TB drugs they serve through window."

5.3.3.2.3 Supply

Another challenge mentioned by participants was shortage of supplies. Shortage of supplies were mentioned as a chronic problem particularly on some drugs especially loose form of TB drugs for re-treatment category of TB patients and laboratory reagents. The participants added that even the newly applied kit system for medication has very short expiry date and requires a speedy request on supply whereas failing on doing so is associated with shortage of supply. The following sentences were forwarded by FGD participants to explain the supply shortages were challenge:

> "... for instance for long period of time Ethambutol was not available."

> "The supply issue is always the desk agenda even for Pharmaceutical Fund Supply Agency (PFSA) and the higher officials including Mayer know."

5.3.3.2.4 Public private partnership (PPP)

Despite the provision of training for the HCPs and TB drugs for-free, for private health institutions, weak participation of private health institutions in TB treatment programme was noticed. The participants considered this weak participation of private health institution as a challenge. The participants described less involvement of the private health institutions to TB programme might be due to the demand of additional room dedicated only to TB treatment and they are expected to deliver the treatment follow-up

service for free. The participants pointed out that there was less involvement of private health institutions as:

> "Despite the availability of numerous private health institutions in the city, less than 10% of the facility is involved in TB programme. Most private health institutions have limited interest to work with TB programme due to the inquiry of separate room dedicated for TB and obliged to deliver the TB treatment for free. Even those involved in TB programme are not well sticky with the TB treatment guideline and less interested to send participant for trainings."

5.3.3.3 Theme 3: DOTS strategy on patient centeredness

Patient centeredness perspective of DOTS strategy theme had 6 categories: patient preferences, treatment supporter, DOTS delivery system and its integration, HCPs, and similarity and difference of PCC and DOTS strategy.

Table 5.24: Theme 3: DOTS strategy on patient centeredness − categories and sub-categories with FGDs

Theme 3	Categories	Sub-categories
DOTS strategy on patient centeredness	Patient preferences	• Home-based treatment provision for bed ridden patients with initiative of HCPs • Patient choose health facility where to take the treatment • Convince the patient to follow daily observation • Health extension worker • Private institution • Government institution • Workload imbalance • Time of drug collection
	Treatment supporter	• Family member • Any one who have close relationship • Difficulty to report to HCPs • None-feasibility of treatment supporter card • Continuation phase • Choice • Counsel • Treatment supporter card • Family member • Wrong person
	Similarities and difference of PCC with DOTS strategy	• Planning • Follow-up duration • Health condition improvement • Flexibility required • Observed by different observer such as HEW • Patient knowledge • Health education • HCPs knowledge • HCPs commitment • Sick leave • Community awareness • Community empowerment

5.3.3.3.1 Patient preferences

The issue of keeping preferences of TB patients' with DOTS strategy was raised in the discussions repeatedly and was declared as it is existed in "principle" only and depends on HCPs personal inspiration. As a principle, after diagnosed as they have TB,

provision of place of choices to TB patients to decide where they can follow their treatments with strong advice to patients to choose nearby health facility. Majority of defaulted TB patients' response also affirmed the provision of choice where the treatment follow-up takes place. The FGD participants explained the provision of choices as:

> "Soon after a patient is diagnosed for TB, the patient is asked for a place of preference where to follow a treatment."

However, the FGDs participants mentioned that TB patients prefer to go to well-known facilities, which have already treated a lot of patients before, rather going to nearby health facility. Selecting famous health facilities was reported to cause work imbalance among district health centres. As a result, HCPs insist the TB patients not to select such facilities. The FGD participants explained the TB patient case load imbalance across the facilities and influence to choose as:

> "Some district health stations will bear the burden of providing the treatment process."

> "The rest of the process, however, is more of a guided procedure."

In addition, TB treatment follow-up also can be carried by health extension worker although not well practiced in the region. The FGD participant explained the possibility of getting treatment through health extension workers as**:**

> "They are also being treated through the health extension workers."

In the discussion, starting DOTS service provision time adjustment early in the morning, at 1:30 am, earlier than official starting working hour was reported. This adjustment existed where there are HCPs that have extra motivation. The time adjustment enables some of TB patients to take-in their TB drugs and go to their work. Besides, with HCPs personal initiation, provision of TB treatment at home bases for seriously ill TB patients was reflected in the discussion. The verbatim explanation of extra motivated HCPs support to keep TB patients preferences in the discussion was as:

> "There are professionals who on a personal initiative are delivering the treatment in such a way. Some others prefer to receive the treatment from home ..."

However, the FGDs discussant mentioned that there were many preference requests and preference changes through time of TB patients. TB patients' preference usually changes from what they have preferred primarily, after two weeks or so of treatment. The change of preference through time reported to be related with patients' health condition improvement. Among mentioned preferences taking the drug at home at least a week doses during intensive phase. The place of choice and unkempt preferences were explained by the defaulted TB patients as:

> "Though I chose the treatment centre, I requested at least to give me a week doses, I told him my reason but he strongly rejected to do so. Am I not responsible even to take the drug? Who is benefited primarily?"

Another defaulted TB patient explained that the DOTS service provision system's incapability to keep choices of the TB patients as:

> "It surprised me when there was imposition to bring advocator at the time of treatment initiation; of course I took since I had no choice to get the drug."

The FGDs discussants reported that patient preferences such as taking the drugs and swallow without direct observation were difficult to align with DOTS principles. The following sentence was forwarded about keeping preferences of TB patents' by the FGD participants:

> "Considering all patients' preference throughout the entire process of treatment will jeopardise the applicability of the DOTS service."

5.3.3.3.2 Treatment supporter

The FGD discussant explained that the treatment supporter can be a family member of TB patients or anybody who is living in close relationship with the TB patients. The patients usually get counselled about the importance of treatment supporter by HCPs and obliged to choose and bring treatment supporter before the start of treatment.

However, as raised in the discussions some patients get difficulties to choose and bring the treatment supporter and are obliged to bring a person that may not support them at all. The FGD participants explained about the difficulties of bringing treatment supporter as:

> "Some patients bring people that they do not know, who later fail to show up."

The treatment supporters' roles stated in the discussions were observing the TB patient while taking in the drugs and reports to the HCPs about the adherence level of the patient. The treatment supporters are also expected to come every week with TB patients, for whom they are accounted for, to communicate the HCPs based on checklist (treatment supporter card). The roles of the treatment supporter discussed were in line with the recommendation of TB treatment guideline of Ethiopia (2013:124). However, the roles of treatment supporters' were mentioned as it is not feasible in application. The following verbatim sentences were forwards by the FGD participants as:

> "At the end of the week the patients just tick all the days by themselves even without taking the pills. Let alone the supporters, the patients themselves sometimes have to go and ask for the pills from other patients as they could not make it to the health institution.''

The FGD discussants also agreed that using the treatment supporter and treatment supporter cards may not objectively indicate whether the TB patients' were adherent with TB treatments. As long as daily record of treatment supporter card requires daily observation of the patient, treatment supporter may rely on and trust the TB patients information and fill the treatment supporter card. The participants explained the treatment supporter roles and treatment supporter card weak contribution for adherence with TB treatment by the FGD participants as:

> "I don't think things are working quite...the idea of treatment supporter is more of subjective than objective."

5.3.3.3.3 PCC in DOTS

The FGD participants explained that at the initiation of the treatment process, the patient discuses with HCPs to start the treatment follow-up as in line with the principle of PCC. The participants explained that the discussion includes how long the treatment takes, and do's and do not's of the treatment. Furthermore, they add that Information provision and counselling are integral part of the treatment initiation with DOTS. As a result the patient will reach to informed decision; and most TB patients agree to follow their treatment at health facility at which their TB was identified. If they do not need to follow, referral will be written for those who choose other facility. The following sentences were forwarded to compare DOTS with PCC as perceived by participants in the discussion.

> "Obviously the first 15 days are totally patient-centred."

> "DOTS is a patient-centred strategy in general. Patients agree on all the preconditions of the treatment at the start and may tell you that they are from the regions and cannot pursue the treatment anymore. Even in such cases, the strategy is that the patient should be transferred to another clinic near by the patients' destination.''

The FGD participants explained that after the TB patients started the follow-up, the decision of most of the TB patients to follow the treatment at the health facility he/she selected will be changed, usually after two weeks or so. A participant explained how daily observation is difficult with respect to TB patients as follows:

> "Patients are seen to have faded up with visiting the health centres on a daily basis."

The discussants also mentioned that the TB patients usually request to follow their treatment by themselves rather than coming back on a daily basis after taking sometime. However, the principle of DOTS does not allow the patients to take the treatment at their home without direct observation during intensive phase. They added that DOTS lack flexibility whiles the patients' preference changes. Hence, agreed as a

conclusion as DOTS is not fully patient centred. The participants explained DOTS patient centeredness' verbatim as:

> "We cannot say it is entirely patient-centred."

5.3.3.4 Theme 4: Contributing factors to DOTS patient centeredness

DOTS strategy implementation system and its integration with other health care services, community perspectives and HCPs perspectives were revealed categories in the discussion to make feasible PCC in DOTS strategy.

Table 5.25: Theme 4: Contributing factors associated with DOTS patient centeredness − categories and sub-categories

Theme 4	Categories	Subcategories
Contributing factors associated with DOTS PCC	Service provision	• Flexibility provision of alternative to where to do follow-up window follow-up • Follow-up checklist • Patient education
	Service integration	• Nutrition support • HIV/AIDS • Mental health • Referral • Counselling • Ambulance
		• Bedridden • Prisons • Social service • Sick leave
	HCPs	• Communication • Motivation • Characteristic • In-service training for HCPs
	Community	• Community awareness towards TB • Community education

5.3.3.4.1 DOTS service provision system

As reflected in the discussion, practically DOTS implementations particularly after diagnosed as the patients identified as have TB, is rigged, does not allow flexibility to change the place where you do follow-up and treatment supporter. Besides, once

you registered and started treatment the refill of TB drugs is through window at majority of health institution. However, this could hinder the relationship of HCPs and patients so it might be barrier to provide one to one patient counselling, education and fully track the prognosis of the patients. The participants explained how the counselling is not well practiced in the implementation of DOTS strategy aligning with PCC comparing with others strategy as follows:

> "Counselling must be an area of priority like other programmes such as the PMTCT. Counselling should not also be passing the information; there should be a way to do it in a more detailed manner."

The way of service provision on TB treatment and the negative consequences was explained by the participants as follows:

> "When you come to the TB treatment process, the patient is received through windows after the first registration instance."

> "I remember a case from Ormoiya region, where a patient collapsed and was carried to the clinic due to ionised drug. Professionals did not hold close discussions with their patients unless the patient shows symptoms of a need for another treatment."

To improve these circumstances, the participants suggest that the presence of daily checklist that can track the way TB-treatment service is given for TB patients during their treatment follow-up.

5.3.3.4.2 Health care service integration

Both inter and intra integration of different health care services with DOTS are the essential parts to provide PCC in TB control programme. Intra health service integration of nutrition support and HIV testing services are integrated with TB treatment. However, in both integrations limitations were mentioned. Due to stigma for anti-retroviral treatment (ART) service the patients prefer to take their ART at the farthest place where they perceived no one know them. Disruption of nutrition supply was limitation factor to fully integrate for all TB patients so that nutrition support is dedicated only for MDR-TB patients.

Most of the discussants raised this as a major factor to default from the treatment and suggest that nutrition and financial aid projects to be linked with the TB treatment in order to reinforce PCC with DOTS even to reduce defaulting TB patents.

As reported in the discussion, the existing system has no place alongside screening of TB patients for a diagnosis other than TB and HIV. The participants explained weak integration of DOTS with other services in these words:

> "Recently the organisation that supports that integration has pulled out. So such integration now is only available at those with the necessary supply."

> "The TB room maintains integration with HIV cases but not with nutrition ."

In addition, the participants perceived TB treatment service provision and nutrition were given little attention compared to HIV service. The participants had the following to say about the limited attention of TB treatment provision:

> "It is a question to me sometimes comparing the HIV and TB treatment processes. The latter is not given due attention despite its long history."

Apart from this, other health care services such as psychological support and mental health services have to be integrated with DOTS strategy. A participant explained faced situation on the importance of psychological and mental health integration as:

> "I had an experience during defaulter tracing with a defaulted patient. It is sad that I have latter learned that a patient has gone through insanity. I was wondering if the problem of insanity would have been detected and cured if a psychological service had been integrated into the DOT care service."

The integration of DOTS service with Ministry of Civil Servant and Social Affairs, and Ministry of Justice was also mentioned as a factor to make DOTS patient-centred. The health care service needs to integrate with Ministry of Civil Servant and Social Affairs to arrange flexible time for TB patients, and apply the sick leave application while TB patients follow their treatment. The practice of sick leaves for TB treatment follow-up was explained by the participant as follows:

> "Back in the days, there was a sick leave issued by the health centres for a patient for TB treatment. Now that is not the case anymore. It is of course quite difficult to issue a sick leave for a patient for the entire 6 months, but at least a sick leave during the intensive phase would help in following the DOTS strategy more seriously and having into consideration the patients' preference."

The importance of integration of DOTS with Ministry of Justice was associated with informing the health institution whenever one TB patient prisoner relocates one prison sit to another site. The participants explained their experience and perception about loose integration as follows:

> "I remember once a patient went to jail after starting the TB treatment and we tried to contact the clinic within the prison repeatedly. We lost patience of follow-up after that. We cannot say there is a tangible form of integration unless the patients are within the treatment setting."

5.3.3.4.3 Health care provider (HCP)

The FGD discussants were encircling repeatedly about the HCPs characteristic, communication skill and motivation to make health care delivery system patient-centred in particular DOTS. One of the participants explained the way of the communication between HCPs and patients as:

> "HCPs need to engage in teaching patients respectfully and systematically how important it is to complete the treatment and taking the pills the entire time. I am sure patients, once aware of the impacts, are willing to complete a 2 years treatment process, let alone a 6 months one."

In-service training was also mentioned in the interaction to build PCC in a given health care system in terms of provision of knowledge about the principles and practice of PCC and as a motivator as well. The importance in service training was highlighted in the discussion repeatedly by the participants as:

> "Even the TB treatment process is more than our undergraduate lessons, not the principles and practice of PCC."

"Professionals need to be aware that if they have to be engaged in creating PCC."

"There needs to be a work to be done to boost not only the awareness on PCC but the commitment to live up to that awareness among the professionals providing the service."

5.3.3.4.4 Community awareness

The FGDs participants explained that the work that increases community awareness about TB has to be reinforced in order to increase the knowledge of the general population. When the knowledge of a given population increases, PCC feasibility at each service delivery point at health sectors increases. Moreover, it is one of the factors to make informed decision. Community awareness can be achieved through consistent and programmed health education in the community. The participants explained the importance of increasing the community awareness as follows:

"First and foremost there needs to be an awareness creation work at the community level in provision of programmed and consistent health education about TB in the community."

"I would agree with the awareness work that must be done at a community level."

5.3.3.5 Theme 5: TB patients' satisfaction with DOTS

The theme of TB patients' satisfaction with DOTS strategy as perceived by TB experts had three categories: presence of satisfaction survey exclusively for TB patients with DOTS strategy, integrated patient satisfaction measurement and the level of satisfaction of TB patients with DOTS as illustrated in Table 5.26.

Table 5.26: Theme 5: TB patients' satisfaction with DOTS strategy − categories and sub-categories

Theme 5	Categories	Subcategories
TB patients' satisfaction with DOTS strategy	Presence of satisfaction survey for TB patient	• Availability of survey • Exit interview with TB patients • Indicator • Tool • Homogeneity • Good reception • Good communication
	Integrated satisfaction survey	• Writing on recording book • Identifying tag • Every year • Suggestion box utilisation • Satisfaction not objectively measured

5.3.3.5.1 Presence of satisfaction survey for TB patient

The FGDs participants explained that there is no regular and standardise satisfaction survey for TB patients as a strategy to understand the level of TB patients' satisfaction particularly with DOTS strategy. The participants described unavailability of TB patients' satisfaction survey as follows:

> "There is no satisfaction evaluation scheme for the TB treatment individually."

However, at some facilities, the participants declared that there are fragmented ways of understanding the satisfaction level of TB patients. Opinion recording books and boxes presented in the health institutions and random interview of TB patients during supportive supervision schedules help to understand the level of TB patients' satisfaction. The practice so far tried to understand the level of TB patients' satisfaction at some facilities was explained in the discussion as:

> "We conduct supervision quarterly. We interview the patients in person on the treatment they have been given by the professionals in the TB room. We also have the public opinions gathering boxes on every department room. Those who can write drop their opinions there and other uses the chance during the interviews."

However, the recording books and suggestion boxes were criticised for their lack of effectiveness to measure the level of satisfaction objectively since the two extremes; either so much dissatisfied or so exited patients write their feelings. The deficiency of the record book as a tool for satisfaction survey was augmented by FGD participant's personal experiences as service user and it was explained as:

> "I remember once, I went to a clinic to have my eyes treated and I was very upset. I wrote away my temper but forgot to drop it in the box. These are the kinds of opinions we are talking about and they may not be bias free enough to evaluate to gauge client satisfaction."

The FGD participants agree that there is TB patients satisfaction measuring mechanism that apply for TB patients in Addis Ababa. In addition, the discussants suggested that the indicator of TB patient satisfaction survey to be scrutinised. A way of understanding their satisfaction level and the time interval to be yearly, biannually or quarterly at which the level of satisfaction should be measured.

5.3.4 Themes identified in telephonic interview

In the telephonic interview three themes were revealed. The themes are reason to default from TB treatment, DOTS centeredness with defaulted TB patients and defaulted TB patients satisfaction with the DOTS.

5.3.4.1 Theme 1: Causes to default from TB treatment

In theme 1 three categories were identified from the interview with defaulted TB patients. The categories were DOTS delivery system, incompatibility of diagnosis and patient induced as described in Table 5.27.

Table 5.27: Theme 1: Causes to default from TB treatment − categories and sub-categories

Theme 1	Categories	Subcategories
Causes to default from anti-treatment	DOTS delivery system	• Incapability to daily follow-up • Less flexibility to write referral • Expose for different costs • Work-related • Change of place
	Incompatible of diagnosis	• Diagnosed as have TB at government • Not TB at private health institution
	Patient belief	• Feeling good • Discouraged to be cured • Exhaust to take for long • Alternative treatment inquiry

5.3.4.1.1 DOTS delivery system

From the interview, one of the reasons explained to default the TB treatment was the DOTS delivery system. As it has been stated in the FGDs and TB treatment guideline the patient should follow the treatment at least daily for the first 56 days. However, the daily follow-up exposed the TB patients for different direct and indirect costs as the respondents mentioned. The respondents explained the delivery system as the cause to default as follow:

> "I was supposed to go to health facility daily and wait at least for 30 minutes there except Saturday and Sunday and also I had to buy breakfast, water and pay for transport."

> "I am factory employee; I should be available at 6 am since the service reach at this time, otherwise I had to pay 12 Ethiopian birr per trip to reach to the factory where I work even I may reach at 10 am or so. However, they obliged me to go health facility daily to take the drug."

> "I and my wife were supposed to take him to health centre daily to follow-up. I got few days' work permission and took him but after that my wife alone could not take him since he was bad-tempered. Now sadly, he went crazy and on the road."

In addition, the DOTS delivery system is resistance to change and due to little attention to give referral paper to another place. Hence this was also mentioned as the cause to default in relation to DOTS delivery system. The respondents explained the resistance as:

> "I told him that my husband should have to will move to another place for work with me and to write me a referral paper. He asked me where? ... he responded that I need to give him exact name of the facility where I would follow but I knew only the area but not specific health centre's name."

5.3.4.1.2 Incompatibility of diagnosis

The existence of incompatible diagnosis result between health facilities was declared by the respondents. The respondents reported incompatible diagnosis results were the cause to default from treatment follow-up. Two respondents' explained the incompatibility of the diagnosis as follows:

> "I went to health centre where you find my address and had been told that as I had Extra Pulmonary TB and stared TB treatment. After a week I went to private clinic and have been informed as I had no TB."

> "I diagnosed as I had TB at health centre and started TB treatment after three days I went to another health institution and I have been informed to stop TB treatment, after being informed that I had no TB."

Existence of incompatibility of diagnosis was also mentioned in FGD by the discussant as follows:

> *"Patients sometimes go to private clinics amidst their treatment and claim that they have been told their case is not TB related."*

5.3.4.1.3 Patient-related

The sub-categories, patient-related, extracted from interview was among mentioned reason to default from the treatment. TB patients feeling of better health condition, discouragement and exhaustion to take and follow the whole course of the treatment duration, and alternative treatment inquiries were extracted reasons from patient related aspects. The respondent who felt better health condition explained as:

> "Now I feel good, no symptoms at all hence I did not want to take more."

Other respondents who disheartened and exhausted described as:

> "People talk once you have TB, it is associated with incurable disease so that is why I ..."

> "I took it consistently for four and half months; then fade up even to see the health centre."

> "I took the treatment for a month and then went to holy water."

5.3.4.2 Theme 2 defaulted TB patients view of DOTS patient centeredness

In this theme three categories were identified. The categories are DOTS delivery system, DOTS service integration and HCP perspectives.

5.3.4.2.1 DOTS delivery system

In DOTS service delivery system, information provision, respect and value provision to TB patients were reported as less emphasised components by the telephone interview respondents.

Table 5.28: Theme 2: DOTS strategy patient centeredness with the view of defaulted TB patients− categories and sub-categories

Theme 2	Categories	Sub-categories
DOTS strategy on patient centeredness	DOTS delivery system	• Information • Respect patient • Value patient
	DOTS integration	• Transport • Nutrition • Mental health
	HCP	• Support to self-care management • Support to cope with mood change • Support to keep relationship • Psychological support • Communication • Commitment • Politeness

- **Information provision**

Information provided about TB during TB care delivery was considered very limited and lacked continuity and persistency. The information provision about TB at TB care delivery point was expressed by the respondents as:

> "I have been informed TB ... at the first day of the treatment, and then after, no one talked about it and you just swallow the drug and go."

> "When I was diagnosed of TB, a lot of information about TB was given to me but I forget them since I was in stress thinking about the TB."

- **Respect and value**

The defaulted TB patients report that respect and value are not provided during diagnosis and treatment process of DOTS service. However, they explained that they deserve respect and value. The value and the respect might start from simple recognition of the patient as a person who gives much attention about his health and family, and of course as have many responsibilities in other sector. The concern of the respect and values were reflected by the respondents as:

> "Do not remind me! One day I had to go as early as possible and told him about …….. but he was treating me as I cannot tell you how."

Another respondent explained as:

> "It is hazy to speak about respect and value; sometimes give you much respect another day almost may throw your drug through a window."

5.3.4.2.2 DOTS delivery integration

As the defaulted TB patients explained the only integrated service that is made with TB treatment was HIV diagnosis services. Most of the respondents mentioned that as they received HIV testing whereas the respondents strongly suggest that availing other services such as nutrition support, transport and mental health service to be integrated. The defaulted TB patients explained DOTS service integration and require of integration as follows:

> "My blood tested for HIV infection, while I was following the TB treatment."

> "May be I would not default if I had transport availability to go daily."

> "I got HIV testing service but I would love there was nutrition support for us."

5.3.4.2.3 Health care providers (HCPs)

Some of the defaulted TB patients' explained that the HCPs were not devoted to provide TB care service while some of the respondents explained as they were so keen. The disagreement views of defaulted TB patients are explained as:

> "The HCP started writing while I was talking with, even was not willing to see my face and respond."

Whereas others defaulted TB patient explained that the HCPs' compassionated care and support as:

"He, the HCP, was so kind while I was tired; even he was the one who holds me up to get into the car at the first week of the treatment."

The defaulted TB patients explained that HCPs commitment and psychological support to TB patients was not consistent among themselves and across health institution. The respondents put the level of commitment at two extremes. The extremes are range from holding up the weak patient to getting into the car to turning the face while the TB patients request or raise an issue. These extremes were explained by a respondent as:

"I remember that, the HCP gave me my drugs in the car, almost 50 metres far from TB room."

Nonetheless, another respondent explained other extremes of HCPs, having less commitment as:

"The HCP was waiting for me until I really combat on to TB room window let alone provision of the drug to a place where I was."

Majority of the FGD participants' agreed with the side of showing less commitment of HCPs to work with TB patients as it was explained in challenges related with DOTS in theme 2.

5.3.4.3 Theme 3 Defaulted TB patients' satisfaction with DOTS strategy

In this theme four categories were revealed in telephonic interview. The categories are HCPs, DOTS delivery process, HCO premises and aligned services.

Table 5.29: Theme 3: Defaulted TB patients' satisfaction with DOTS strategy − categories and sub-categories

Theme 3	Categories	Subcategories
TB patients' satisfaction with DOTS strategy	HCPs	• Availability • Communication • Reception • Respect • Information provision
	DOTS delivery process	• Registration • Treatment • Referral • Diagnosis compatibility • Treatment supporter
	Premises	• Convenience the compound • Availability of chairs • Access of toilet
	Aligned services	• Nutrition • Ambulance

5.3.4.3.1 Health care providers (HCPs)

As it was explained in theme one by the FGD participants, defaulted TB patients assured HCPs who were engaged on DOTS service delivery were available at their working hours though they were not so punctual. With this perspective majority of the respondents reported as they had good feeling. Few of telephone respondents had reservation to fully agree with HCPs availability. One of the respondents explains as follows:

> "While I was following my treatment HCPs were available usually after 8 am though they appointed us at 7:30 am."

However, when the patients arrived earlier than HCPs at TB treatment room they tend to contempt the TB patients.

> "If I reached earlier than the HCPs I usually sit aside of the TB room to prevent myself from being visible to HCPs when they come in."

The HCPs reception on the first day of the treatment mentioned as it is with due respect, in polite way and provide required information. Whereas the days goes on they may throw the drugs through window. One of the respondents explained this mood swing on respect and information provision as follows:

> "I could not tell you how he received me, respect, advise... when I was diagnosed as I had TB but it lasts on the same day."

5.3.4.3.2 DOTS delivery process

Most of the telephone respondents report that the TB diagnosis and examination was started on the registration date without much time desecrated. However, the respondents' cause of illness was not detected in the same day; at least lasted for three days. The registration and process starting day was explained as:

> "As I went they registered me and I was seen by doctors. With this perspective I want to say thank you."

As it was reported by defaulted TB patients, the time elapsed to have apparent TB diagnosis was displeasing. One of the respondents explained the dissatisfaction due to elapsed time as follows:

> "I started my examination on August 5 2015; I did not receive the definite diagnosis until August 12, 2015."

Another discontented issue described by the respondents in the DOTS service delivery process was an obligation to treatment supporter. This issue was reported by the respondent as:

> "After you are diagnosed with TB, you should bring somebody on the behalf of you. Should not I be responsible for me?"

Some of the "registered as defaulted TB patients" received controversial diagnosis result from different facilities; TB in one facility and other disease at another facility.

The controversy result exposed the patients unwanted cost. One of the respondents explained the controversy results and its financial consequences as follows:

> "In one health facility I was told that I had TB but after few days, in another facility they rejected the findings as I had TB. I did not go to third facility due to money shortage."

5.3.4.3.2 Premise of the health facilities

The premises of the HCOs were not so much appreciated by telephone respondents. The respondents explained that though there were improvements in availing chair around TB room, no water to take in the drugs and clean toilet which enables you to use cosily near to treatment room. The respondent explained premise inconvenience.

> "I had to go to health facility after I emptied my colon at home since there were no convenient toilets."

5.3.4.3.3 Aligned services

As reported by the respondents, at health facilities where the defaulters got TB-treatment service there was minimal nutrition support and absence of transport for TB patients even for seriously ill TB patients. The respondent explained the less availability of aligned services as:

> "I saw the ambulance which stood in the compound and I requested the HCP to tell the driver but the HCP replied as this is only for bleeding mother."

> "I had seen that some of TB patients were receiving nutrition and asked to give me too but the response was you are not MDR-TB patient."

5.4 CONCLUSION

This chapter presented the response of three study groups in the form of numbers, graphs, tables and texts to achieve the stated objectives of the study in two sections. Section 1 achieved the level of TB patient centeredness' and satisfaction of TB patients' with DOTS strategy and associated factors quantitatively.

Section two presented the explored perceptions of TB experts about DOTS strategy's patient centeredness and satisfaction level of TB patients. Furthermore, section two presented the defaulted TB patients' perception about DOTS strategy patient centeredness, satisfaction level and the driving factors to default from the TB treatment follow-up in qualitative analysis approaches.

The next chapter, Chapter 6 will discuss the pertinent discussion, recommendation and conclusion of the study.

CHAPTER 6

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

The previous Chapter presented the quantitative and qualitative findings of the study and explained how the innings are explored. This chapter explores and discusses the core findings of the study and presents conclusions. The later part includes the contribution, limitations and recommendations of the study.

This study arose from the critical concern that despite the wide use and implementation of DOTS strategy across the world, there have been critics who argue that the strategy offered limited preferences to TB patients. Cognisant of this criticism, the researcher has conducted this study in Addis Ababa, Ethiopia and achieved the following objectives:

- Determined the level of patient centeredness' of DOTS strategy.
- Determined the level of satisfaction of TB patients with DOTS.
- Described factors related to TB patient centeredness and satisfaction with DOTS.
- Explored TB experts' and defaulted TB patients' perception about DOTS strategy patient centeredness and satisfaction level.
- Explored defaulted TB patients' driving factors to default from TB treatment.
- Proposed a descriptive model that will support DOTS strategy with regard to patient centeredness and satisfaction.

6.2 RESEARCH APPROACH, DESIGN AND METHOD

The study explored a complex phenomenon of DOTS strategy from TB patients, defaulted TB patients and TB experts in the region. The study used mixed method sequential explanatory design in two phases.

Phase I followed the quantitative approach to collect primary data from TB patients. Data were collected using a pre-tested interviewer-administered questionnaire organised in a

five-point Likert scale response. The primary aim of the quantitative approach was to achieve the first three objectives of the study. The data were analysed using SPSS version 21 software.

Phase II followed a qualitative approach using FGDs with TB expert and telephonic interviews with defaulted TB patients primarily to achieve objective four and five, respectively. While the sixth objective, the model proposed by using synthesis of qualitative and quantitative data findings and then substantiated by literature review

In both quantitative and qualitative data collection procedures, important validity and reliability measures were taken to insure data quality and consistency. The study strictly followed ethical considerations to safeguard participants' rights in accordance with standard ethical principles of human subjects' research that are stated in Chapter 4 of the study.

6.3 DISCUSSION OF THE RESEARCH FINDINGS

Although the main interest of this study was to evaluate DOTS to the perspective of patient centeredness and satisfaction of TB patients, it is useful to understand the respondents' general characteristics.

The response rate for questionnaires was 99.3%. Among all the respondents, the male respondents constituted 56% (336), significantly higher than the female study participants (p=0.009). Similarly, the gender disproportion was reported in other studies and report conducted in Ethiopia (Nezenega, Gacho & Tafere 2013:3; EHNRI 2011:45; WHO 2014a:58). The disproportionate of gender related to different TB prevalence proportion between genders, high proportion of TB occur with men. The epidemiologic difference is related to differences in social roles, risk behaviours and activities which are conducive to transmission of TB, such as more social contacts and engagement in professions associated with a higher risk for TB for men (Nhamoyebonde & Leslie 2014:102-103).

Similar with other studies conducted on TB in Ethiopia (Getahun et al 2013:524; Nezenega, Gacho & Tafere 2013:3) the majority, 494 (82%) of the respondents of this study were in productive age groups (18-44 years).

The MDR-TB proportion among all TB patients reported in this study is 32 (5.3%). Of which 8 (1.6%) were among new TB patients, and this is similar to WHO's (2014a:73) report and 24 (3.7%) were among retreatment TB patients. However, the proportion of MDR-TB patients in retreatment category was by far lower than WHO (2014a:73) estimated report for Ethiopia and globally, 12%.

6.3.1 DOTS strategy implementation

Otu's (2013:229) review reflected that DOTS strategy is remaining as a cornerstone of TB control in developing countries and globally. Similarly, the DOTS strategy is a main approach to control TB at public and private health facilities in Addis Ababa, Ethiopia (EFMOH 2013:36). Both government and non-government health facilities provide standardised TB treatment service by trained HCPs on the guidelines for clinical and programmatic management of TB, TB/HIV and Leprosy in Ethiopia. Gebrekidan et al (2014:5) asserted that non-governmental health facilities usage of the stated guideline. Abiding and implementing this guideline standardised TB treatment provision reduced dissimilarity of treatment provision across the region and enables to monitor individual TB patients. Similarly, though with provision of flexibility, most TB treatment guideline supports the use of direct observation to monitor TB patient's treatment adherence (Horsburgh, Barry & Lange 2015:2157).

The TB patients are observed daily for the first two months of treatments and then after will collect their drugs weekly. However, different times studies report that the number of travel frequencies to be observed and collect the drugs exposes the TB patients for different costs and exhaustion in Ethiopia and elsewhere in Africa (Vassall, Seme Compernolle & Meheu 2010:608; Tadesse Demissie Berhane Kebede & Abebe 2013:6; Fiseha & Demissie 2015:6).

Even if DOTS is criticised (Otu 2013:230), different scholars described that implementation of DOTS strategy has brought better treatment outcome and contributed for reduction of TB prevalence (Marais 2013:89; Moonan et al 2011:1; Yen

et al 2012:178-180; Chien, Lai, Tan, Chien, Yu & Hsueh 2013:1916; Hamusse, Demissie & Lindtjorn 2014b:1). Similarly, the study demonstrates that DOTS strategy improved treatment outcome of TB patients and contributed to reduction of TB prevalence compared to before it was not in place. However, Horsburgh et al (2015:2152) in their review raised the criticism that though direct observation is important to TB treatment, it is deficient to solve cause of non-adherent with TB treatments entirely and related with number of limitations.

6.3.2 Challenges related with DOTS

As evidenced by Gebrekidan et al (2014:7) and Gebreegziabher, Yimer and Bjune (2016:3), the study pointed out a number of challenges with DOTS strategy. Among the challenges inconsistent supply of laboratory reagents and drugs are major, as reported elsewhere in Ethiopia. In cognisant of this challenge particularly related to TB drugs logistics problem kit system has been started and reached to 70% of national geographic coverage (EFMOH 2015a:63). However, the kits also criticised for having short expiry date.

The daily observation of TB patients while they take-in their drugs is indicated as the DOTS delivery system related challenge since it demands effort from TB patients. The efforts are the ability of TB patients to pay daily for transportation fee, undesired implications on their work and social lives disturbance (Fiseha & Demissie 2015:1; Gabriel & Mercado 2011:2178). Consequently, this may lead to non-adherent to full course of the treatment (Tanimura et al 2014:1770). This has been reported as a cause to default from the treatment elsewhere in Ethiopia (Tesfahuneygn, Medihin & Legesse 2015:8).

Alike Wynne, Richter, Banura and Kipp (2014:8) inflexibility of TB patients referral system, once after they started the follow-up at a given health facility, is another reported weakness related to TB care delivery system.

As Fiseha and Demissie (2015:9) and Behzadifar, Mirzaei, Behzadifar, Keshavarzi, Behzadifar and Saran (2015:3) indicate, incentive inquiry and having less interest to work with TB particularly with MDR-TB of HCPs and trained staff turnover are challenges related to human resource of TB control programme.

The study explains that the need of treatment supporter is mandatory to start TB treatment. The treatment supporter could be anybody who is living in close relationship with the TB patients alike Soomro et al (2012:16) stated. However, the study highlight that bringing the right treatment supporter is difficult to some of TB patients particularly for TB patients who are living alone and came from outskirt of the city.

A review made by Otu (2013:229) indicates that different types of treatment supporter or observers do not have significant difference on treatment outcome of TB patients. In addition, a study conducted in Botswana affirmed that TB patients who got their treatment by direct observation did not show better treatment outcome than those who took their treatment at the community health care centre (Mugisha et al 2013:93).

The study identified weak PPP in the TB control activities particularly participation of private for profit health facilities. Despite provision training for free for HCPs who work in private health sector, drugs and laboratory reagents; less than 10% of non-government health facilities is providing TB treatment. Limited number of private health facilities involvement in TB control activities are stated in Ethiopia (EFMOH 2015:65).

6.3.3 Patient-centeredness of DOTS

Although components of PCC were not boldly put in DOTS, the concept of PCC as a component was started at the introduction of DOTS (Grant 2013:3). In stop TB strategy and end TB strategy, the PCC is a required component and a core pillar for TB control, respectively (WHO 2013c:10).

Nevertheless, the PCC focuses on considering patient's point of view, situations in the PCC decision-making process goes far beyond simply setting target with the patient (Locatelli et al 2015:24). Empowering people with TB and communities, social support programmes, communication and partnership between health sectors are components of the stop TB strategy that reflects patient centeredness of TB care (WHO 2012:4).

The study used overarched framework to determine patient centeredness of DOTS as pioneer work to the researcher's knowledge level. As a result, the study shows that, although feeling of the respondents was not similar across dimensions, overall

perceived PCC was 60% among TB patients who were on follow-up of their treatment. However, none of the defaulted TB patients was in a position to feel as they received the PC-TB care. TB experts also agreed that the current TB treatment provision is not entirely PCC.

Among PCC dimensions, the lowest mean score was reported on HCO's particularly with regard to establishing and strengthening multidisciplinary care teams to TB care. However, evidences (Pulvirenti, McMillan & Lawn 2014:306; Carver & Jessie 2011:4) stated that coordinated health care services are starting position for PCC. Subsequently, coordinated health care service help to avail the health care service in reduced cost. Allied health care services such availing transport, food, spiritual and social support to TB patients are limited, however, the availability of these services is imperative for TB patients not only to avail PCC but also to provide health care services with affordable cost (Berhe et al 2012:7).

The perceived PCC received is significantly different between gender; males are less likely to feel as they received PCC (AOR= 0.45, 95%CI 0.3, 0.7) while level of education did not show significant difference with perceived PCC. The level of perceived PC-TB care received did not show any significant difference among the patients' type of TB, and TB patients expectation.

PCC determined by quality of interaction between HCPs and patient (Epstein, Fiscella, Lesser & Stange 2010:1490). Pre-service and in-service training that focus on good communication skill provision for the HCPs can improve the ability to interact with TB patients (Otero et al 2015:30). In the study perceived to have good communication with HCPs and experience on using health care services show significant association with perceive alike Jayadevappa & Chhatre (2011:21) stated in their review.

Communication and prioritising patients' concerns are stated factors to increase patient centeredness of a given health care (Ahmad et al 2011:185; Constand et al 2014:6). The highest mean score reported by the TB patients with HCPs' perspective was prioritising patients concern and communication of HCPs with patients.

Consistently numerous evidence (Greene et al 2012:49; Sevin et al 2009:25; WHO; 2007b:14; Scholl et al 2014:6) stated that keeping preference of patients is a key

component of PCC. However, although the guideline provides a choice to TB patients where to follow the treatment either at home, workplace or health institution (EFMOH 2013:36), TB patients were allowed only to follow nearby health facilities against preference request and dynamicity of TB patients preferences.

One of the components of DOTS is the requirement of treatment supporter who watches and witnesses whether the patient takes in the drug or not and communicate with HCPs to improve treatment adherence (EFMOH 2013:36). However, the study identified that none of treatment supporters, either family or closes friends, had a regular communication with HCPs about the TB patients accounted for. Despite the fact, all TB patients are obliged to take an individual, who is in charge of them, to health institution to start a treatment.

The obligation and detention to take the treatment at home or in the community may lead to the question of “human rights” issue and may reflect a violation of right to health as stated in Article 12.1 of the International Covenants on economic, social and cultural rights. The extended right not only to timely and appropriate health care but also to the underlying determinants of health International (CESCR General Comment No. 14: The Right to the Highest Attainable Standard of Health Art. 12). However, through providing quality and accessible community-based DOTS, or the use of mobile-health technologies the role of treatment supporter might be replaced and defaulters and non-adherent TB patients can be reduced (Slagle, Youssef, Calonge & Amor 2014:8).

Similarly with report in Uganda (Kisambu, Nuwaha & Sekandi 2014:799) DOTS delivery system in this study is tied with inflexibility to get referral paper once after treatment started. However, taking into account the patients' preferences during referral is essential to address access barriers to treatment adherence and improved treatment outcome. In addition, the referral system needs to supplement with feedback from recipient facility to referral facility which enables to assess and trace barriers related to referral system (Islam Hirayama, Islam, Ishikawa & Afsana 2015:239).

The community and individual patient’s level of knowledge about TB is a requirement to reinforce the PCC. Limited level of knowledge of individual TB patients and community is one of the limiting factors to enhance PCC (Tolossa, Medihin & Legesse 2014:10). Mosadeghrad (2014:77) explained that the requirement of patients' knowledge helps

the patients to involve in the care and to follow consistently with require instruction of the care.

Counselling while taking TB care, programmed and consistent targeted education about TB prevention and control at the community and health facility is of paramount importance to improve the knowledge limitation of the community and individual TB patients (Tolossa, et al 2014:1; Addis et al 2013:170).

Empowering the community and TB patients is a key strategy that are required to settle the PCC across the health care delivery as it has been stated in this study and other study empowerment can be achieved through community education, counselling of the patients and mobilisation (Pulvirenti, McMillan & Lawn 2014:8).

The study shows that weak provision of information particularly after the TB treatment started and the value for the TB patients are intrinsic with DOTS. Consequently, this may hinder to follow the full course of treatment, patient involvement and informed decision. However, these are factors that reinforce the patient centeredness of the TB care (Scholl et al 2014:8).

The study indicates that a way of improving patient centeredness through health education at the community to build the knowledge of the community is one approach. As a result a knowledgeable community could be the foundation to reinforce the patient centeredness of TB care (Tolossa et al 2014:10). Similar to another study (Mohr, Hughes, Snyman, Beko, Harmans, Caldwell, Duvivier, Wilkinson & Cox 2015:633), the study indicates that in addition to provision of clinical TB care service, the HCPs' enhanced engagement onto counselling and health education while they come to drug refill are paramount importance to reinforce the PCC of TB care.

6.3.4 TB patients' satisfaction

Satisfaction measurement is a core component to design and evaluate modern health care services and delivery system (Dansereau et al 2015:9). It is also one of the measurements that evaluate quality health care service that plays a positive role in evaluation of health care service especially their perceptions concerning care they received (Onyeonoro et al 2015:26). In addition, patient satisfaction measurement regarding the process of care as seen through the patients' eyes that cannot be replaced by other performance indicators (Schoenfelder 2012:2). Mpinga and Chastonay (2011:149) concluded that satisfaction measurement, beyond the quality indicator, is a neutral indicator of the right to health that can be easily monitored and capable of integrating individuals and populations in to the decision-making process in the health sector.

Although the Ethiopian Federal Ministry of Health has given due attention and priority to the quality of health care service since the first health sector development plan in 1997, a health care quality strategy is developed recently. The Ethiopia health care quality strategy has included patient satisfaction as one of success indicator for the provision of quality service for the patients at HCO (EFMOH 2015a:23). Even during Ethiopian hospital performance recognition ceremony in Addis Ababa, Ethiopia, in 2016, the Ethiopian Federal Ministry of Health minster stressed that "the next selection of hospital awardees will be mainly based on survey of client satisfaction. Client satisfaction will be the main indicator." In addition Ethiopia's 2015-2020 health sector plans are focused on quality health care delivery and equity in health (EFMOH 2015b:71).

Regular measuring and knowing satisfaction level of the patients emphasized as indicator in quality services provision (Onyeonoro et al 2015:29; EFMOH 2015b:17). However, the current study indicates that the DOTS implementation in Ethiopia is not tied with regular mechanism which enables to capture level of satisfaction of TB patients with DOTS; except the presence of few fragmented capturing tools such as opinion record book and suggestion box in the facilities. The use of opinion record books and suggestion boxes are criticized to capture the level of satisfaction of TB patients because they are usually used by few highly excited TB patients. Therefore, TB experts that participated in this study could not affirm whether the dissatisfaction of TB patients with DOTS existed. The study highlights the importance of the presence of regular and

consistent measuring mechanism to understand satisfaction level of TB patients across the facilities.

The study reveals different level of satisfaction with DOTS among different study's participant groups. Similar to studies conducted in SNNPR, Ethiopia (Nezenega, Gacho & Tafere 2013:1), Uttar Pradesh, in India (Gupta 2015:36), KwaZulu-Natal, in South Africa (Chimbindi, Barnighausen & Newell 2014:3) and in Rio de Janeiro, Brazil (Portela et al 2014:505) majority (67%) of TB patients that were on follow-up of their TB treatment were satisfied with DOTS. However, in contrary to TB patients who were on follow-up of TB treatment, the defaulted TB patients were totally dissatisfied with DOTS. Even similar with another study conducted in Ethiopia the defaulted TB patients pointed out that dissatisfaction was one of the reasons to default from the treatment (Nezenega, Gacho & Tafere 2013:2).

In a study conducted in Pakistan (Ahmad et al 2011:40) age, gender and income of the patients shows that significant association with satisfaction level with the care they received, similarly the study shows that a significant association of gender and income with satisfaction level of Tb patients. Similar with another study female TB patients were 2.2 times more likely to be satisfied with the service they received than male. In contrary, another study shows that although female has more tendencies to be satisfied than male, gender was not significantly associated with satisfaction (Young, Meterko, & Desai 2000:325). In addition, alike with Ahmad et al (2011:40) reported, the study shows that residence and presence of TB symptoms were associated factors with feeling of satisfaction with DOTS strategy.

Dissimilar to the studies (Rahmqvist & Bara 2013:89; Onyeonoro et al 2015:30), in this study educational level was not associated factor with satisfaction level. However, highly educated patients are less likely to be satisfied than who have less educational level due to expectation difference, patients with high expectations tend to be less satisfied with health care service.

Similar with Ahmad et al (2011:184), attributes of patient satisfaction from the side of HCPs are attitude, communication skills, technical skills and responsiveness of HCPs to patient needs. Similarly, the study shows that HCPs related attribute to level of

satisfactions are on time availability, good communication, good patients reception and provision of information and respect to the patients.

Similar with the study conducted in Khyber Pakhtunkhwa (Ahmed et al 2011:8), the study shows that attributes of patient satisfaction to the side of HCPs are communication and technical skills and responsiveness of HCPs to patient needs. In addition, similar with the study conducted Ethiopia (Nezenega, Gacho & Tafere 2013:7), the study shows that satisfaction level of TB patients are influenced by on time availability, good reception, provision of information and respect to the patients and waiting time.

Alike Pefoyo and Wodchis (2013:9) suggest that the study indicates that the patients' satisfaction is related with access and convenience of the HCOs premises such as availability of comfortable chair to get health education and clean toilets. Similar with the other studies (Nezenega, Gacho & Tafere 2013:6; Sagbakken, Frich, Bjune 2008:7), the study shows that unavailability of consistent nutrition support and absence of transport for TB patients especially for seriously ill TB patients were the cause for dissatisfaction; even they are highlighted as causes to default from treatment.

The current study reports that TB patient satisfaction level and perceived PCC received have positive correlation. This correlation may indicate that the presence of PCC have important role to enhance patient satisfaction and can play as evaluation scheme of health programmes, and reduce symptom severity, use of health care resources and health care costs (Jayadevappa & Chhatre 2011:16).

6.3.5 Reason to default from TB treatment

Defaulting from TB treatment may increase the risk of drug resistance, relapse and death and may also prolong infectiousness (Da Silva Garrido et al 2012:6). Studies show that the default rate in Ethiopia ranges from 1.5% to 5.1% (Getahun et al 2013: 527; Tesfahuneygn, Medihin and Legesse 2015:9; Addis et al 2013:171).

Similar with the study conducted in Nairobi, Kenya (Muture, Keraka, Kimuu, Kabiru, Ombeka & Oguya 201:1) and Uganda (Buregyeya et al 2014:7) the present study

shows that the TB patients' reasons to default are related with DOTS delivery system, incompatibility of diagnosis at different health institutions and patient related.

As other studies have stated the DOTS delivery system exposes TB patients to direct and indirect cost associated with the daily follow-up at health facilities. The direct costs are incurred for transport, food and water while on the road for follow-up while the indirect cost associated with work absenteeism (Tadesse et al 2013:6; Tesfahuneygn, Medihin & Legesse 2015:1).

Similar with the study findings extracted from mixed study conducted in Karachi, Pakistan (Chida, Ansari, Hussain, Jaswal, Symes, Khan & Mohammed 2015:7) and in South Africa (Finlay, Lancaster, Holtz, Weyer, Miranda & Van der Walt 2012:5) cause to default with the patient perspectives are feeling good health after taking a treatment for a while, discouragement and exhaustion to take and follow the whole course of the treatment duration, and alternative treatment inquiries. However, strategies such as phone call reminder would be possible to reduce defaulters and minimise the effort required from TB patients instead of daily come and forth to the health facilities (Chaudhry, Al-Tawfiq, Ba-Essa & Robert 2015:2).

Despite the use of the standard TB treatment guideline across the nation (Gebrekidan et al 2014:6), incompatibility of diagnosis among health institutions particularly government vs non-government health facilities is one of the causes to default. Even though evidences to substantiate the incompatibility of diagnosis among the facilities are limited, the TB experts share the presence of incompatibility of the diagnosis and explained the deference as "In the private health providers, we also have problems of administering the DOTS in the proper way."

As reported in Kampala, Uganda, (Elbireer, Guwatudde, Mudiope, Sekandi & Manabe 2011:984), TB patients feeling of good health condition, discouragement and exhaustion to take and follow the whole course of the treatment duration are cause to default in the current study.

6.4 CONTRIBUTION OF THE STUDY

The general purpose of this study was to evaluate the DOTS strategy with respect to patient centeredness and satisfaction, and propose a model that supports DOTS strategy with regard to patient centeredness. This section looks at the extent to which the objectives of the study have been met and the contribution of the study.

Objective 1: Determine the level of patient centeredness' of DOTS strategy

This objective achieved through the overarched dimension of people centred framework and augmented by defaulted TB patients and TB experts. There were TB patients who denied getting PCC that focused on their need, value, preference, and choices while they receive TB care with DOTS strategy.

Objective 2: Determine the level of satisfaction of TB patients' with DOTS strategy

This objective achieved by the quantitative approach with two modalities: Donabedian health care quality model and single overall satisfaction measuring item. Though majority of TB patients were satisfied with the TB care they received, there were TB patients who were following their TB treatments with dissatisfaction. Moreover, not all defaulted TB patients were satisfied. TB experts did not assert this since there was no survey that can indicate the level of TB patient's satisfaction with DOTS.

Objective 3: To describe factors related to TB patient centeredness and satisfaction with DOTS strategy

From the quantitative analysis perceived good communication, gender and treatment supporter type were significantly associated with PCC of DOTS strategy. Moreover, seventeen measuring items were explored as principal determinant of the variability of PCC with DOTS strategy by principal component analysis.

The qualitative data findings also pointed out that DOTS delivery system inflexibility, loose integration, HCPs' characteristic, communication skill and motivation and the

community awareness levels were mentioned as factor to enhance PCC with DOTS strategy.

Gender, place of residence, presence of TB symptoms, perceived good communication and the type of treatment supporters were significantly associated with level of satisfaction with DOTS strategy from logistic regression outcome.

Objective 4: To explore TB experts' perception about DOTS strategy patient centeredness and satisfaction level

This objective achieved through FGDs of TB experts. DOTS strategy implemented in the region was not entirely patient-centred with view of TB experts. Availing aligned service such as transport and nutritional support, making the TB care delivery system flexible with preference of TB patients recommended to enhance DOTS patient centeredness.

Even though, there was lack of TB patients' satisfaction level measuring mechanism across the region, availing aligned service such as transport and nutritional support are required in convenient premise of HCOs. Moreover, characteristics, timely availability, communication skill, good reception and respect of HCPs, and quality service have to be in place to increase TB patients' satisfaction.

Objective 5: To explore defaulted TB patients' driving factors to default from TB treatment

This objective was met by in-depth telephonic interview of defaulted TB patients and of course asserted by TB experts. The thematic analysis extracted that TB patients' belief, DOTS delivery system related and incompatibility of diagnosis between different institutions were the reason to default.

Objective 6: To propose a descriptive model that will support DOTS strategy with regard to patient centeredness and satisfaction.

The researcher proposed a PC-TB care descriptive model that could support the TB-care delivery system. The researcher proposes the model from synthesis of quantitative

and qualitative data findings and literatures. The proposed model contains overarched core players to provide TB patient-centred care.

The model proposed by the researcher in support of the TB care delivery is a high point for Ethiopian Federal Ministry of Health and the AACAHB to improve patient centeredness and satisfaction level of TB patients in TB care delivery activities. Intern, it supports TB improvement of ant-TB treatment adherence and better TB treatment outcome. If the Ethiopian government is able to effect the proposed model, Ethiopia may then be an example and be in a good position to implement post 2015 WHO proposed end TB strategy to achieve stated goals toward TB. The TB care delivery system increase to satisfy TB patients, reduce defaulters and improve TB treatment outcome of TB patients. In addition, it may encourage first line HCPs to work with TB care delivery in HCOs and motivate the population to utilise TB care delivery.

Moreover, the study contributed in showing the correlation of patient satisfaction level with PCC. Thus, the study's overarched PCC framework can use to assess the level of DOTS patient centeredness in other settings. In turn, determining patient centeredness level of health care programme could pave a way to augument the patient satisfaction measurement as a quality indicator of other health programmes.

6.5 LIMITATION OF THE STUDY

Addis Ababa is among the eleven geographic regions in the Ethiopian government structure, and is an autonomous administrative region and the largest and capital city of Ethiopia and the population is totally considered as urban dwellers (CSA 2013). Hence, the majority of the respondents were urban dwellers; therefore, its generalisation might be compromised for rural settings. In addition, satisfaction ratings in this study do not replace TSRs or other treatment outcome indicators in DOTS strategy. The study followed "the model-building process" proposed by Bhattacherjee (2012:15) while the use of other model development strategies such as those proposed by Chinn and Kramer (2011) and Walker and Avant (2011) may alter the feature of the model's constructs.

6.6 RECOMMENDATIONS

As it is well known one of the research outcomes is to provide recommendations based on the findings. Therefore, in this section recommendations are provided.

These are provided at different levels that the researcher thought the most relevant to use and implement the specific recommendations: health care policymaker and leaders of health programmes, researchers and HCPs.

6.6.1 To health care providers

- HCPs should improve their communication skills and interaction to convey the information to the TB patients and the patients' family. A good relationship can be built by listening carefully to the patient.
- It is important at the beginning of treatment to create a time to counsel patients regarding the disease, the prescribed treatment, and how the diagnosis and treatment may affect their lifestyle.
- Ongoing patient education needs to be provided consistently.
- The health care worker should discuss expectations of the treatment period, identify potential barriers to completing treatment, give a sense of emotional support, and identify if the patient needs to take his or her medicine in a "TB treatment facility" other than the management unit itself.
- A plan of care need to be participatory and agreed between the HCP and the patient based on the patient's individual needs and concerns.
- Must provide a TB care service with using standard precautions for all TB patients without discrimination of either MDR-TB or susceptible TB patients.
- The capacity of HCPs also needs to be enhanced with regards to provision of psychological support to TB patients that could support better treatment outcome.

6.6.2 To health care policy makers and leaders of TB care services

The policy makers at National, Regional, Zone and Woreda levels, health bureaus need to continue playing a significant role in ensuring and improving the TB patient

centeredness of TB care delivery at public and private health institutions. In addition, they have to gear or support the TB care delivery system policy to give attention for patients' right to receive a service focused on their need, value, respect and preference.

One of the ways to improve patient centeredness and satisfaction level of TB patients is endorsing fully or partially the proposed PC-TB care model of this study at policy level and then support the HCOs to implement progressively from few numbers of health organisations to all health organisations both at public and private health care organisations.

Support the proposed PC-TB care model implementation through provision of guidance, training, supportive supervision and monitoring and evaluation of its effectiveness.

Design an effective survey mechanism that can reflect the TB patients feeling whether they feel that they are receiving a care focused on their need and satisfaction with the TB care delivery system in the nation. So as to able amend when there is a gap in the TB care delivery system.

The National, Regional, Zone and Woreda health bureaus need to facilitate the training that increases the HCPs communication skill, attitude and reinforce programmed community education that give emphasis on route of transmission prevention and treatment of TB and the importance of the communities role in improvement of health care services in the nation and regions as well. In addition, monitor the happening of ongoing patient education by HCPs at service delivery point during refill of the treatment is important.

The health care organisation's capacity has to be built and reinforced to provide integrated TB care service with nutritional support, HIV/AIDS services, psychological support, mental health care and social support for TB patients. Moreover, the HCOs' premise comfortableness must be improved and should encourage to TB patients to sit and listen the health education.

It is essential not to overlook the importance of reliable laboratory reagents and drug supply lines and buffer stock management with contingency planning in case of failure of supply lines.

The health care policy makers and leaders of TB care services also need to have regular supportive supervision schedule by skilled professionals in discussion with the supervisees. The supportive supervision should aim to hold-up observed improvements and identify gaps that may need intervention.

6.6.3 To researchers

As Cobelens et al (2012:14) pointed out there are numerous areas of TB that need research particularly programmatic activities of TB control. In addition, research and innovation is one of the pillars to end TB in combination with integrated PCC of TB (WHO 2015:7). Therefore, the following research agendas are forwarded:

- Pilot the proposed PC-TB care model whether support TB control strategy in terms of the patient centeredness of TB care, TB treatment outcome, TB patients' satisfaction and cost effectiveness in community trial design.
- Assess the quality of TB care service provision across government and non-government TB care service rendering health facilities.

6.7 CONCLUSION

This chapter discussed the study's finding in comparison with other literatures, how far the study's objectives have been met, contribution and limitation. Furthermore, the recommendations for health care policymaker, leaders of health programmes, researchers and HCPs are provided.

The following final chapter, Chapter 7 will present the descriptive model development process and the proposed model that would enhance TB patient centeredness of the TB-care.

CHAPTER 7

MODEL TO ENHANCE TB PATIENT CENTEREDNESS OF TB CARE

7.1 INTRODUCTION

One of the objectives of this study was to propose a model that supports the TB patient centeredness of the DOTS strategy. Therefore, this chapter describes the triangulated findings of the study that drive the development of the proposed model, background to the model which includes a rationale, aim, context and assumptions of the model. In addition, the Chapter contains a description of the proposed model, its weaknesses and strength.

The methodology followed in the development of the model was “the model-building process” proposed by Bhattacherjee (2012:15). In this methodology, the deductive and inductive reasoning are proposition to draw conclusion in the model development process. Deductive reasoning used to draw a conclusion in initial set of the premises of a phenomenon based on the framework while inductive reasoning, draws a conclusion based on observed evidences (Bhattacherjee 2012:4). The syntheses were repeated back and forth of deductive and inductive reasoning of the findings.

The quantitative findings that come out from TB patients who were on follow-up, who have live experience with DOTS, and qualitative findings from a different set of populations (defaulted TB patients and TB experts) were synthesised. Synthesis is a process of combining parts into a whole and explaining the whole. It is the final activity of analysis and a process by which knowledge of a part is aggregated into knowledge of a whole (Polit & Beck 2008:751).

Deduction of factors for patient centeredness of DOTS strategy identified from overarched WHO people centred framework measuring items was used to extract core constructs. Inductively, the qualitative data findings enriched the constructs of the model and shape indicated prepositions and pattern of the core constructs. Further, the proposed model substantiated by literatures. These approaches, synthesising the qualitative and quantitative data findings from a different set of populations enable the

model to take an advantage of both qualitative and quantitative approaches and get a full picture of the model.

7.2 TRIANGULATED FINDINGS

The study findings from the different study population group were a ground for the proposed TB PC-TB care model. The DOTS is provided almost at all government health facilities and at some private health institutions. Since its endorsement, the DOTS implementing health institution have been increased and better treatment outcome of TB patients reported. However, DOTS demands the patients' effort to undergo daily observation, limit the patients' preference, respect and value. It also demands the provision of the service by private health facilities for free against their reason of existence, "for profit". Furthermore, DOTS has weak service integration and provision of allied patient service that support the provision of patient-centred TB-care.

About 40% of TB patients who were on follow-up of TB treatment scored below the adjusted score of the mean. They categorised as they did not receive PC-TB care without significance difference across the treatment centres and the type of TB they had. The FGDs participants also affirmed that DOTS strategy as it is not entirely patient-centred. In addition, the defaulted TB patients fully agreed that DOTS strategy as it is not patient-centred except at the initiation of the treatment with the provision of choice to select where they can follow the TB treatment and discussion to do and do not's with the treatment.

The factors associated with PCC of DOTS extracted from regression model were communication of HCP with TB patients, income and gender. Moreover, the exploratory factor analysis extracted 17 measuring items among 65 measuring items which explained 65% of the total variability PCC dimension of the study. The extracted items had equal or greater than one eigenvalue, (Table 5.17).

Sixty-three percent of the patient, family and community concern dimension variance was explained by five measuring items. The measuring items that explained the dimension variability were information provision, consent and taking part in treatment plan, treatment supporter communication, friends' involvement and provision of choice.

Sixty-six percent of HCPs dimension variability explaining measuring items were free communication of HCPs and patients, concerned discussion about family, social issue, employment and financial status, recognition and provision of value, emotional and physical support.

Fifty-nine percent of the total variability of HCO sub-dimension was explained by availability of transport, comfortableness of the premises and food support. Fifty-seven percent of total variability of health care delivery dimension was explained by referral system, service integration and compensation system for faced a difficult situation. In addition, DOTS service provision system and integration, and HCPs attitude and community awareness were perceived factors with DOTS patient centeredness.

Similar to the quantitative findings, the qualitative findings show that integrating DOTS service with nutritional support, HIV/AIDS, mental health and availing transport to the TB patients are explored factors related to integration of TB care delivery. Moreover, attitude, character, communication skill and motivation to HCPs' of TB care service are explored factors related with HCPs' to provide PC-TB care. Community awareness about TB and the availability of consistent counselling and patient educations are explored factors with patient centeredness of DOTS.

About 32% of TB patients who were on follow-up and defaulted TB patients were not satisfied with DOTS. However, the TB experts did not affirm the dissatisfaction level of TB patients as long as they had no similar and systematic measurement of TB patients' satisfactions level across the region. HCPs' on time availability, communication, reception and provision of respect to the patient and information provision with in the DOTS delivery process, and convenience of compound such as availability of chairs and access of toilet and presence of allied patient services were pointed out factors with TB patients' satisfaction.

The perceived PC-TB care received was positively correlated with satisfaction level of TB patients. In addition, most of the factors explored for satisfaction of TB patients and received PC-TB care were similar.

The reported reasons to default from TB treatments were related to DOTS delivery system; inability to afford the cost of transport for daily follow-up and incompatibility of

diagnosis at different health institutions. Moreover, patients' feeling of good health, discouragement to be cured, exhausting to take the drug for long period of time and alternative treatment inquiry were reasons.

7.3 BACKGROUND TO THE PROPOSED MODEL

This section of the chapter illustrates the rationale, aim, context and assumptions of the proposed model.

7.3.1 Rationale of the model

Although different scholars (WHO 2016:145; Gebrezgabiher et al 2016:1) reported Ethiopia's TSR rate is in line with the WHO TSR target, we argue that this target has partly been achieved through a process involving involuntary enforcement of the TB patient to adhere to TB treatment, specifically through incarceration to come at HCOs. This raising concerns regarding the appropriateness of these approaches to achieve treatment objectives. Further DOT lacks a rigorous evidence base and is often at odds with patient needs and preferences (O'Donnell, Daftary, Frick, Hirsch-Moverman, Amico, Senthilingam, Wolf, Metcalfe, Isaakidis, Davis & Zelnick 2016).

As it has been revealed in the results section, the TB patients did not entirely receive PC-TB care and were not fully satisfied with the DOTS service they received. These findings have been strongly affirmed by TB experts and defaulted TB patients**.**

Ethiopia's 2015-2020 health sector plans are focused on quality health care delivery and equity in health (EFMOH 2015b:13). In 2016 Ethiopian hospital performance recognition ceremony, the Ethiopian Federal Ministry of Health Minster stressed that "the next selection of hospital awardees will be mainly based on survey of client satisfaction. Client satisfaction will be the main indicator."

Even if TB drug is provided for free, the cost of TB in Ethiopia is catastrophic for the TB patients due to transport cost for daily observation, additional food support, guardian pre diagnostic and diagnostic costs and other indirect costs (Getahun, Wubie, Dejene & Manyazewal 2016:5). However, PCC is a proven strategy to better treatment outcome, reduce cost of health service and to the patient, increase patients' satisfaction and it is

legitimate inquiry of the patient (Pelzang 2010:916). It is also one of the recommended pillars to end TB strategy (WHO 2013c:7), quality indicators of health care system (WHO 2008:14) and it is substituent for acceptability of the care (WHO 2006:9).
However, no well agreed PCC model developed with the context of TB care delivery system particularly for developing countries like Ethiopia. Therefore, PC-TB care model is paramount importance to guide the TB care delivery activities and even may pave a way for other health care delivery to be patient-centred as a whole.

7.3.2 Aim of the model

The primary aim of the proposed model is to enhance the patient centeredness of TB care delivery. In turn, it will help to better TB treatment outcome with optimum cost to the patient and reduced defaulter rate during TB treatment follow-up.

7.3.3 The context of the model

This model provides a framework to support TB care delivery with respect of patient centeredness' of the TB care. The model recognise the requirement of enhanced the TB patients and community participation. Further the model provides HCPs, HCOs, and TB care delivery system adjustments necessitate to ward provision PCC. As a result, the proposed model may realize and reinforce PC-TB care. In turn may increase TB patients' satisfaction, reduce defaulter rate, increase favourable treatment outcome and ensures respect and value the legitimate right of the TB patients. The model also contains monitoring and evaluation system of the TB care delivery system at health care delivery point. The model can be applied entirely or partially at private and government health care settings, which deliver TB treatment activities, based on the extent that the health institutions' health care activities span.

7.3.4 Assumptions of the model

The proposed PC-TB care model was constructed based on the following assumptions:

- TB patients' knowledge is required TB patients to make right choices.
- TB patients' knowledge about TB can be built at the community level and HCOs while they come to receive TB care services.

- TB patients need to be respected, valued and participate in decision making of their TB treatment process.
- TB-care delivery system needs to integrate the service mostly in need of TB patients.
- Provision of integrated service reduce cost and required number of HCPs
- Conducive HCOs motivate HCPs and TB patients to provide care and utilize health services, respectively.
- Provisions of alternative choices to TB patients facilitate informed decision-making.
- Keeping preferences of TB patients reduce long distance travel to get the treatment and reduce cost to the patients
- Communication skill and competency of HCPs can be improved through training.
- PC-TB care improves TB patients' treatment outcome and satisfaction; quality of health care, reduce cost due to TB for patients and health service.

7.4 DESCRIPTION OF THE MODEL

A descriptive model is a representation of all or part of a given system used for representing complex systems for visualizing variables and relationships (Bhattacherjee 2012:14). The proposed descriptive model represents a complex system of PC-TB care; visualize the constructs and their relationships in the TB care delivery phenomena.

The proposed PC-TB care model contains TB-care delivery policy direction, community, HCO, TB care delivery system, TB patient, HCP and monitoring and evaluation components. PC-TB care is primary outcome of the intertwine function of the components of the model and TB patient satisfaction, reduced cost, improved treatment outcome and quality of care are secondary outcomes (Oshima & Emanuel 2013:7; Cleary 2016:675).

7.4.1 TB care delivery policy direction

A TB care delivery policy is a formal statement or procedure within an institution which defines TB care delivery goals, priorities and the parameters for action in response to health needs within the context of available resources (WHO 2004:29). PC-TB care

delivery approach is one of the accepted pillars in WHO's end TB strategy (WHO 2013c:14), and it is also believed care delivery approach for a better treatment outcome and satisfaction of the patients (Oshima & Emanuel 2013:7).

The TB care policy direction provides direction to enhance and promote quality of life of TB patients. The TB care delivery policy direction needs to endorse PC-TB care delivery approach. The promotion and implementation of the PC-TB care approach supports the TB care delivery to be responsive to the TB patients. The promotion of PC-TB care at HCOs can be achieved by enforcing TB care delivery directives; motivated HCPs, reinforcing HCOs and empowering people (WHO 2015:12).

The TB care delivery directives need to focus on structural or group level, individual level, and outcome evaluation level of the TB care delivery. Direct structural or group level focused direction is practicable to promote, support, and guide the community, HCO, and TB care delivery system. Individual focused directives support and promote HCPs to provide effective and efficient TB care service which recognise, respect, value and preferences of TB patients. In addition, individual focused direction should be able to encourage TB patients to involve in the TB care delivery they receive. In addition, the TB care delivery policy direction urges to provide a direction and procedure to monitor the outcome of the implementation of the PC-TB care delivery.

7.4.2 Community

The community is a group of people who have connected durable relations that extend beyond immediate genealogical ties, and who usually define that relationship as important to their social identity and practices (Mckenzie, Venturelli, Pinger & Fleckenstein 2014:5). The community is group of ill and healthy individuals linked each other who receive and hear opinion and feedback from the experience of TB patients' health care utilisation.

The community awareness level about TB may shape the patient's level of knowledge and ease the required effort to make the patient knowledgeable about TB during individual health education at HCOs (Poortinga 2012:292).

As reported in the result section of this study, consistent and programmed health education through peer educators and mass media are an important activity to increase the awareness of the community about TB. Once the community is aware, the member of community will be in a good position to know what to do and choose the best preference to reduce the TB transmission, adhere with prescribed TB treatment and even to reduce prevalence and incidence of TB.

7.4.3 TB care delivery system

TB care delivery system is a way that TB care is discharged to the TB patients performed by health care professionals, or by others under their direction, for the purpose of promoting, maintaining or restoring health (WHO 2004:31). As illustrated in Table 5.12 of the result section, the TB care delivery system sub-dimension got the smallest mean score. Referral system, service integration and compensation system for faced difficult situations were the most criticised but expressed the majority of variability of the TB-care delivery system sub–dimension of the study. Therefore, reinforce and reinvigorate TB patients' referral system, feedback collection mechanism and integration of TB care services with nutritional, transport and HIV/AIDS services are required for the provision of PC-TB care.

In addition, the TB care delivery system necessitates flexibility to respond to TB patients' preference. The inquiries include swallowing the TB drugs either at facility, house, at work place or in the community without observer. The adherence monitoring system of TB patients can be done using either mobile technology as a reminder or treatment supporter report as appropriate to individual TB patients.

7.4.4 Health care organisation (HCO)

The HCOs are institutions which are engaged in direct patient care (WHO 2004:28). Working area comfort is a factor to motivate HCPs to work with in the HCOs (Matsushita, Kuwahara & Morimoto 2014:475). Conducive HCO motivates HCPs to work within the HCOs and to provide TB care service. Motivated employees are happier, hardworking and more productive of a given organisation (Buchbinder & Shanks 2011:42).

Convenience of HCO to receive a TB care as it is reported as a factor to patients' satisfaction. Conduciveness of HCOs to the TB patients can be created by making clean and ventilated patient waiting area, examination rooms, laboratories, toilets and the compounds in general. Reduced waiting time, availability of the required laboratory reagents and drugs and the presence of directives in the compounds are ways to make conducive HCOs (Nezenega, Gacho & Tafere 2013:8).

Availability of transport to reach the HCOs, comfortableness of the premises and availability of integrated service such as food support were extracted issues in the study to make TB care services more patient centred in regard to HCO sub-dimension.

7.4.5 TB patients

A TB patient is an individual in whom a health worker has diagnosed TB and has decided to treat the patient with a full course of TB treatment (EFMOH 2013:21). Majority of TB patients are the poorest of the poor that need high support of finance, social and psychological support (Tanimura et al 2014:1764).

The TB patients should have the necessary knowledge about TB diagnosis, treatment and care. The knowledge is important to make informed decision, take part in TB treatment plan and to choose the best among alternatives. The TB patient's knowledge can be enhanced within the community through the programmed health education to the community, counselling and patient education at HCO while receiving TB care services. The patient education need to be on going in cultural sensitive manner with identifying his/her priorities. Patient education should include medication information such as dosage, side effects, what the pill look like treatment regimen, disease process and transmission (Kuntz et al 2014:313).

Evidence suggests that in addition to support the existence of PCC, patient education could contribute to reduction related to patient related factors to default (Toczek et al 2013:299).

7.4.6 Health care providers (HCPs)

HCPs, for patients in any level of educational qualification, are involved in providing coordinated and comprehensive TB care. The role of the HCP work in TB clinic is to improve quality of life of TB patients. HCPs' motivation, communication and counselling skills and commitment are required skills to improve quality of life of TB patients. Provision of values, respect and choices to the patients are important to implement the PC- TB care.

Health education provided in the community alone may not be enough to fully make a patient fully knowledgeable to choose the appropriate choice among the alternatives provided by HCPs**.** Therefore, HCPs should provide appropriate and enough information regarding TB and counsel TB patients about self-care management. In addition, while HCPs provide TB care service it should be in compassionate with recognition of patients' value and respect. The information provision and counselling of TB patients at HCOs should be two-way built on good communication with patients (Barry & Edgman-Levitan 2012:780). The finding of this study also reports that HCP- TB patient communication was the determinant for PCC.

In addition, PC-TB care provision approach training is important for HCPs engaged on the provision of TB care delivery so as to provide PC-TB care for the TB patients (Dwamena, Holmes-Rovner, Gaulden, Jorgenson, Sadigh, Sikorskii, Lewin, Smith, Coffey & Olomu 2012:1). The HCPs can acquire such PCC service provision' skills from universities or through on-site or off-site in-service short-term trainings (Levinson 2011:825).

7.4.7 Monitoring and evaluation

Monitoring is the systematic collection and analysis of data as a project or programme progresses. It helps to gauge and guide a direction to improve the efficiency and effectiveness of a project, programme or organisation based on indicators planned during the planning phases of work (Royse, Thyer & Padgett 2015:19).

The proposed PC-TB care model performance can be monitored by using selected indicators (Table 6.1). The proposed indicators can be collected from routine service report, patients' feedback survey and supportive supervision.

Table 7.1 Proposed Indicators to measure the performance of PC-TB care model

Intervention level	Selected indicators	Data source
Individual	• Knowledge of TB patients • TB patients waiting time • Proportion of TB Patient satisfied. • Proportion of HCPs attrition	• Survey • Document review • Routine service report
Structural	• Proportion of TB patients who received HIV service, nutrition support, mental health service • Adherence level to TB treatment	• Routine service report • Survey • Document review
Outcome	• Proportion of TB TSR • Proportion of defaulter • Cost of TB patients from illness to treatment • Satisfaction of TB patients	• TB register • Routine service report • Survey

Evaluation is the assessment of the actual project's or programme's impact on the expected goals to be achieved (Royse, Thyer & Padgett 2015:20). In order to evaluate the proposed PC-TB care model, survey the level of expected listed outcome, through document review or primary data is encouraged. Comparing level of the patient centeredness of TB care delivery, satisfaction level of the TB patient, treatment outcome of TB patients and cost reduced to the patient and services before and after implementation of the model are proposed variables to evaluate the effectiveness as stated above in Table 6.1.

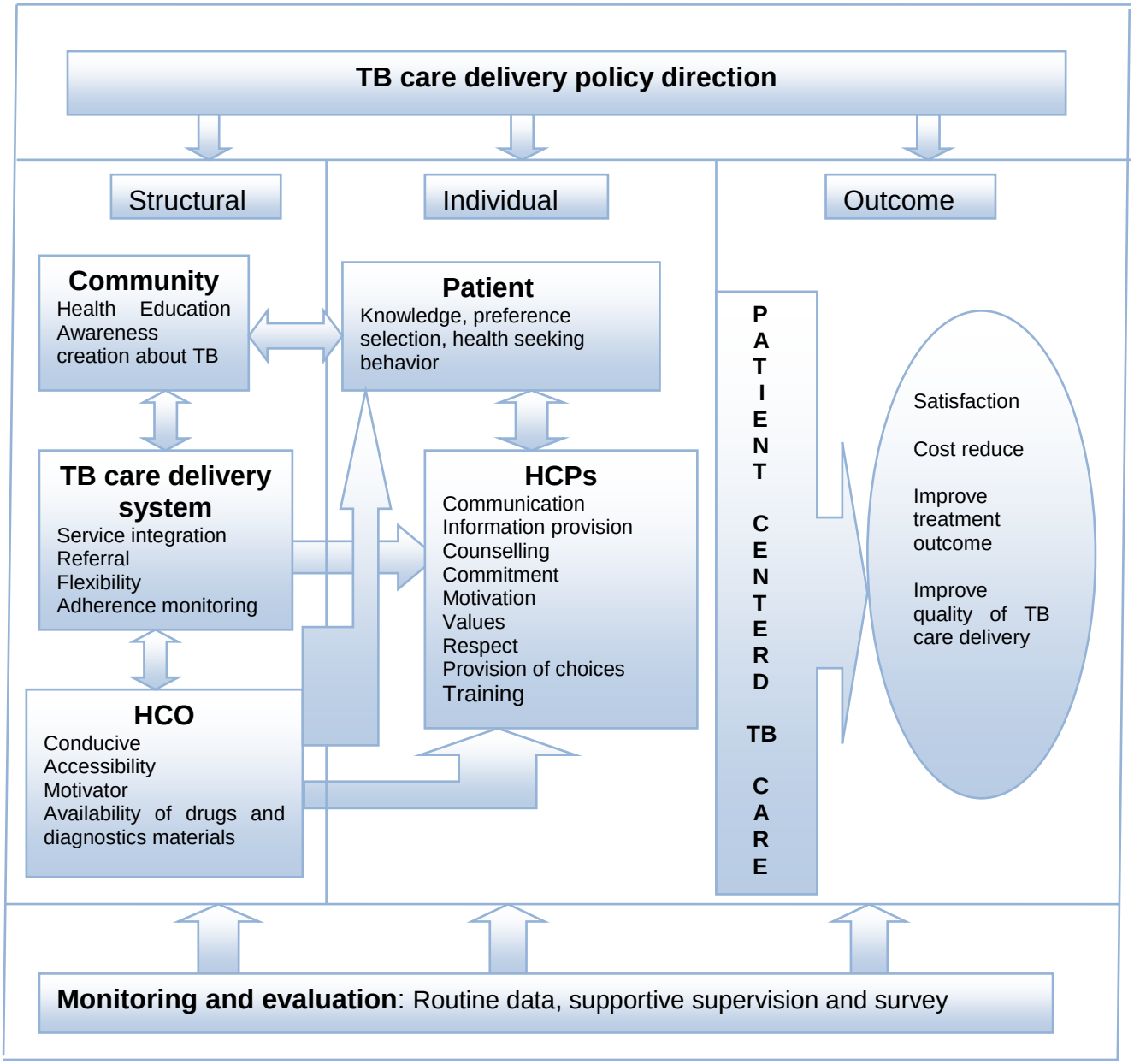

Figure 7.1: Diagrammatic presentation of proposed patient-centred TB care model

7.4.8 Strength and weakness of the model

The proposed model is based on both the qualitative and quantitative findings, synthesis and literatures thus provide a complex understanding of patient centeredness and associated outcomes of TB care delivery. It has also acknowledged that due to the complexity of the phenomenon, the model does not provide the exclusive variables that may have input in the development of the PC-TB care model.

The model, however, illustrated the most critical and often less emphasised in the TB care, the researcher also acknowledges that the implementation of this model depends on the policy direction of TB-care delivery system, HCPs counselling skills and motivation. Another notable strength of the model is indicating if the model applied at which level need to be monitored and proposed the possible indicators at each level to check the performance of the model.

7.5 CONCLUSION

This chapter presented the triangulated findings of quantitative and qualitative approaches; the proposed PC-TB care delivery models both in diagrammatic and descriptive presentation. In addition, the chapter shows that the assumption and the context, monitoring and evaluation indicators while applying the proposed model, and limitation and strength of the model.

REFERENCES

AACAFEDB see Addis Ababa City Administration Finance and Economic Development Bureau.

Addis Ababa City Administration Finance and Economic Development Bureau. Population Affairs Coordination Sub process. 2013. Addis Ababa population images. Addis Ababa, Ethiopia*: AAFEDB.*
Available at: www.aabofed.gov.et/document/final20image.pdf (accessed 20 July 2015).

AACAHB See Addis Ababa City Adminstration Health Bureau.

Addis Ababa City Adminstration Health Bureau. 2015. *Annual activity report*. Addis Ababa, Ethiopia: AACAHB.

Addis, Z, Birhan, W, Alemu, A, Mulu, A, Ayal, G, & Negash, H. 2013. Treatment Outcome of Tuberculosis Patients in Azezo Health Center, North West Ethiopia. *International Journal of Biomedical and Advance Research* 04(03):168-173.

Adewole, OO, Oladele, T, Osunkoya, AH, Erhabor, GE, Adewole, TO, Adeola, O, Obembe, O & Ota, MO. 2015. A randomized controlled study comparing community based with health facility based direct observation of treatment models on patients' satisfaction and TB treatment outcome in Nigeria. *Transactions of the Royal Society of Tropical Medicine and Hygiene* 109(12):783-792.

Adugna, A. 2014. Population policy and projection.
Available at: www.ethiodemographyandhealth.org (accessed 31 July 2015).

Ahmad, I, Nawaz, A & Din, S. 2011. Dynamics of patient satisfaction from health care services. *Gomal Journal of Medical Sciences* 9(1):37-41.

Ahmad, I, Nawaz, A, Khan, S, Khan, S, Rashid, AM & Khan, HM. 2011. Predictors of patient satisfaction. *Gomal Journal of Medical Sciences* 9(2):183-188.

Al-Abri, R & Al-Balushi, A. 2014. Patient satisfaction survey as a tool towards quality improvement. *Oman Medical Journal* 29(1):3-7.

Amare, H, Gelaw, A, Anagaw, B & Gelaw, B. 2013. Smear positive pulmonary tuberculosis among diabetic patients at the Dessie referral hospital, Northeast Ethiopia. *Infectious Diseases of Poverty* 2(6):1-8.

Arshad, A, Salam, AR, Lassi, SZ, Das, KJ, Naqvi, I & Bhutta, AZ. 2014. Community based interventions for the prevention and control of tuberculosis. *Infectious Diseases of Poverty* 3:27.

Au-Yeung, C, Kanters, S, Ding, E, Glaziou, P, Anema, A, Cooper, CL, Montaner, SG, Hogg, SR & Mills, EJ. 2011. Tuberculosis mortality in HIV-infected individuals: a cross-national systematic assessment. *Clinical Epidemiology* 3:21-29.

Bahrampour, A & Zolala, F. 2005. Patient satisfaction and related factors in Kerman hospitals. *Eastern Mediterranean Health Journal* 11(5/6):905-912.

Balcha, TT, Sturegård, E, Winqvist, N, Skogmar, S, Reepalu, A, Jemal, ZH, Tibesso, G, Schon, T & Bjorkman, P. 2014. Intensified tuberculosis case-finding in HIV-positive adults managed at Ethiopian health centers: diagnostic yield of Xpert MTB/RIF compared with smear microscopy and liquid culture. *PloS ONE* 9(1):1-11.

Baran, ML& Jones, JE. 2016. Mixed Methods Research for Improved Scientific Study.

Barry, MJ & Edgman-Levitan, S. 2012. Shared decision-making — the pinnacle of patient-centered care. *New England Journal of Medicine* 366(9):780-781.

Behzadifar, M, Mirzaei, M, Behzadifar, M, Keshavarzi, A, Behzadifar, M & Saran, M. 2015. Patients' experience of tuberculosis treatment using directly observed treatment, short-course (DOTS): A qualitative study. *Iranian Red Crescent Medical Journal* 17(4):1-6.

Belay, M, Bjune, G, Ameni, G & Abebe, F 2012. Diagnostic and treatment delay among Tuberculosis patients in Afar Region, Ethiopia: A cross-sectional study. *Bio Med Central Public Health* 12(369):1-8.

Bensberg, M. 2007. Patient-centred care literature review. dandenong district division of general practice Dandenong. Available at: www.dddgp.com.au (accessed on 26 May 2015).

Berhe, G, Enquselassie, F & Aseffa, A. 2012. Treatment outcome of smear-positive pulmonary tuberculosis patients in Tigray Region, Northern Ethiopia. *Bio Med Central Public Health* 12(537):2-9.

Berwick, DM. 2009. What 'patient-centred should mean: confessions of an extremist. *Health Affairs* 28(4):w555-w565.

Biadglegne, F, Anagaw, B, Debebe, T, Anagaw, B, Tesfaye, W, Tessema, B, Rodloff, AC & Sack, U. 2013. A retrospective study on the outcomes of tuberculosis treatment in Felege Hiwot Referral Hospital, Northwest Ethiopia. *International Journal Medicines and Medical Science* 5(2):85-91.

Birhanu, Z, Assefa,T, Woldie, M & Morankar, S. 2010. Determinants of satisfaction with health care provider interactions at health centres in central Ethiopia: A cross sectional study. *Health Services Research* 10(78):1-9.

Bleustein, C, Rothschild, DB, Valen, A, Valatis, E, Schweitzer, L & Jones, R. 2014. Wait times, patient satisfaction scores, and the perception of care. *The American Journal of Managed Care* 20(5):393-400.

Boateng, SA, Kodama, T, Sata, F, Bonsu, G & Osawa, E. 2012. Community-involved strategy to improve tuberculosis (TB) treatment outcomes in Eastern Region of Ghana. *Journal of National Institute of Public Health* 61:357-365.

Brach, C, Dreyer, B, Schyve, P, Hernandez, ML, Baur, C, Lemerise, JA & Parker, R. 2012. *Attributes of a Health Literate Organization*. National Academy of Sciences.

Buchbinder, SB & Shanks, NH. 2011. *Introduction to health care management*. London: Jones & Bartlett.

Buregyeya, E, Criel, B, Nuwaha, F & Colebunder, R. 2014. Delays in diagnosis and treatment of pulmonary tuberculosis in Wakiso and Mukono districts, Uganda. *Bio Med Central Public Health* 14(586):1-10.

Burns, N & Grove, SK. 2005. The practice of nursing research: conduct, critique, and utilization. 5th edition. St Louis: Elsevier-Saunders.

Burns, N & Grove, SK. 2011. *Understanding nursing research: building an evidence-based practice. 5*th edition. St Louis: Elsevier Saunders.

Carver, MC & Jessie, A. 2011. Patient-centered care in a medical home. *The Online Journal of Issues in Nursing* 16(2):1-4.

CSA of Ethiopia see Central Statistical Agency of Ethiopia.

Central Statistical Agency of Ethiopia. 2013. *Population projection of Ethiopia for all regions at wereda level from 2014-2017.* Available at: www.csa.gov.et/document.pdf. (accessed 12 December 2014).

Centre for Disease Control and Prevention. 2014. Self-study modules on Tuberculosis module 9: Patient adherence to Tuberculosis treatment reading material. Available at: http://www.cdc.gov/tb/education/ssmodules/module9/ss9reading2.htm (accessed on 30 January 2015).

Chakraborty, R & Majumdar, A. 2011. Measuring consumer satisfaction in health care Sector: the applicability of SERVQUAL. *Journal of Arts, Science and Commerce 2*(4):149-160.

Chaudhry, LA, Al-Tawfiq, J, Ba-Essa, E & Robert, AA. 2015. Low rate of non-compliance to anti-tuberculous therapy under the banner of directly observed treatment short course (DOTS) strategy and well organized retrieval system: a call for

implementation of this strategy at all DOTS centers in Saudi Arabia. *The Pan African Medical Journal* 21:1-5.

Chida, N, Ansari, Z, Hussain, H, Jaswal, M, Symes, S, Khan, AJ & Mohammed, S. 2015. Determinants of default from Tuberculosis treatment among patients with drug-susceptible Tuberculosis in Karachi, Pakistan: A mixed methods study. *PloS ONE* 10(11):1-14.

Chien, JY, Lai, CC, Tan, CK., Chien, ST, Yu, CJ & Hsueh, PR. 2013. Decline in rates of acquired multidrug-resistant tuberculosis after implementation of the directly observed therapy, short course (DOTS) and DOTS-Plus programmes in Taiwan. *Journal of Antimicrobial Chemotherapy* 68(8):1910-1916.

Chimbindi, N, Barnighausen, T & Newell, LM. 2014. Patient satisfaction with HIV and TB treatment in a public programme in rural KwaZulu-Natal: evidence from patient-exit interviews. *Bio Med Central Health Services Research* 14(32):1-13.

Chinn, PL &Kramer, MK, 2011. Integrated Theory and Knowledge Development in Nursing. Mosby. *St. Louis*.

Cleary, PD. 2016. Evolving concepts of patient-centered care and the assessment of patient care experiences: Optimism and opposition. *Journal of Health Politics, Policy and Law* 41(4):675-696.

Cobelens, F, Van Kampen, S, Ochodo, E, Atun, R & Lienhardt, C. 2012. Research on implementation of interventions in Tuberculosis control in low- and middle-income countries: A systematic review. *Public Library of Science Medicine* 9(12):1-17.

Constand, KM, MacDermid, CJ, Bello-Haas, DV & Law, M. 2014. Scoping review of patient-centered care approaches in health care. *Bio Med Central Health Services Research* 14(271):1-9.

Cousin, G, Mast, MS, Roter, DL & Hall, JA. 2012. Concordance between physician communication style and patient attitudes predicts patient satisfaction. *Patient Education and Counseling 87*(2):193-197.

Creswell, JW. 2012. *Qualitative inquiry and research design: choosing among five approaches.* 3rd edition*.* Thousand Oaks, CA: Sage.

Da Silva Garrido, M, Penna, ML, Perez-Porcuna, TM, De Souza, AB, Da Silva Marreiro, L, Albuquerque, BC, Martínez-Espinosa, FE & Buhrer-Sékula, S. 2012. Factors associated with tuberculosis treatment default in an endemic area of the Brazilian Amazon: A case control-study. *PloS ONE* 7(6):1-9.

Dansereau, E, Masiye, F, Gakidou, E, Masters, SH, Burstein, R & Kumar, S. 2015. Patient satisfaction and perceived quality of care: evidence from a cross-sectional national exit survey of HIV and non-HIV service users in Zambia. *British Medical Journal Open* 5(12):1-12.

Das, M, Isaakidis, P, Armstrong, E, Gundipudi, NR, Babu, RB, Qureshi, AI, Claes, A, Mudimanchi, KA, Prasad, N, Mansoor, H & Abraham, S. 2014. Directly-observed and self-administered Tuberculosis treatment in a chronic, low-intensity conflict setting in India. *PLoS ONE* 9(3):1-5.

De Lima, FB & Tavares, M. 2014. Risk factors for extensively drug-resistant tuberculosis: a review. *The Clinical Respiratory Journal* 8:11-23*.*

Diacona, HA, Groote-Bidlingmaierb, F & Donald, RP. 2012. From magic mountain to table mountain. *Swiss Medical Weekly* 142:1-9.

Donabedian, A. 1980. *Exploration in Quality Assessment and Monitoring Volume I. Definition of Quality and Approaches to its Assessmen*t. Ann Arbor: Health Administration Press, University of Michigan.

Donabedian, A. 2005. Evaluating the quality of medical care: *The Milbank Quarterly* 83(4):691-729.

Dwamena, F Holmes-Rovner, M, Gaulden, CM, Jorgenson, S, Sadigh, G, Sikorskii, A, Lewin, S, Smith, RC, Coffey, J & Olomu, A. 2012. Interventions for providers to promote a patient-centred approach in clinical consultations. *Cochrane Database System Reviews* 12:1-180.

Easterby-Smith, M, Thorpe, R & Jackson, PR. 2012. *Management research*. London: Sage.

Economic, UN & Council, S. 2000. General Comment no. 14–The right to the highest attainable standard of health (article 12 of the International Covenant on Economic, Social and Cultural Rights). Available at: http://www. unhchr. ch/tbs/doc. nsf/% 28symbol% 29/EC 12.2000. 4 (accessed on 10February 2016).

Elbireer, S, Guwatudde, D, Mudiope, PD, Sekandi, NJ & Manabe, CY. 2011. Tuberculosis treatment default among HIV-TB co-infected patients in urban Uganda. *Tropical Medicine and International Health* 16(8):981-987.

Epstein, MR & Street, LR. 2011. The values and value of patient-centered care. *Annals of Family Medicine* 9(2):100-103.

Epstein, MR, Fiscella, K, Lesser, SC & Stange, CK. 2010. Why the nation needs a policy push on patient-centered health care. *Health Affairs* 29(8):1489-1495.

EFMOH see Ethiopian Federal Ministry of Health.

Ethiopia Federal Ministry of Health. 2011. Overview of National TB control implementation status. Gondar, Ethiopia: Sixth National TB Research Workshop, Gondar University, 6–8 June 2011.

Ethiopian Federal Ministry of Health. 2007. *Tuberculosis, TB/HIV and Leprosy prevention and control strategic plan 2007/8–2009/10.* Addis Ababa, Ethiopia: EFMOH.

Ethiopian Federal Ministry of Health. 2008. *Tuberculosis, leprosy and TB/HIV prevention and control programme manual.* 4th edition. Addis Ababa, Ethiopia: EFMOH.

Ethiopian Federal Ministry of Health. 2009. *Health and health related indicators*. Addis Ababa, Ethiopia: EFMOH.

Ethiopian Federal Ministry of Health. 2010. *Health Sector Development Program IV 2010/1 –2014/15*. Addis Ababa, Ethiopia: EFMOH.

Ethiopian Federal Ministry of Health. 2012. *Health and health related indicators*. Addis Ababa, Ethiopia: EFMOH.

Ethiopian Federal Ministry of Health. 2013. G*uidelines for clinical and programmatic management of TB, TB/HIV and Leprosy in Ethiopia.* 5th edition*.* Addis Ababa, Ethiopia: EFMOH

Ethiopian Federal Ministry of Health. 2014a. Sixteenths national annual review meeting group discussion. *Why TB? Evaluating the national TB control program: challenges and ways forward*. Addis Ababa: EFMOH.

Ethiopian Federal Ministry of Health. 2014b. *Health and health related indicators*. Addis Ababa, Ethiopia: EFMOH.

Ethiopian Federal Ministry of Health. 2015a. *Annual TBL Bulletine*. Addis Ababa, Ethiopia: EFMOH.

Ethiopian Federal Ministry of Health. 2015b. *Health sector Transformation Plan 2015/16 - 2019/20 (2008-2012 EFY)*. Addis Ababa, Ethiopia: EFMOH.

EHNRI see Ethiopian Health and Nutrition Research Institute.

Ethiopian Health and Nutrition Research Institute. 2011. *First national population based Tuberculosis prevalence survey*. Addis Ababa, Ethiopia. EHNRI.

Finlay, A, Lancaster, J, Holtz, TH, Weyer, K, Miranda, A & Van der Walt, M. 2012. Patient-and provider-level risk factors associated with default from tuberculosis treatment, South Africa, 2002: a case-control study. *Bio Med Central Public Health* 12(1):1-12.

Field A. 2009. *Discovering statistics using SPSS*. 3rd Edition. California, US: SAGE.

Fiseha, D & Demissie, M. 2015. Assessment of Directly Observed Therapy (DOT) following tuberculosis regimen change in Addis Ababa, Ethiopia: a qualitative study. *Bio Med Central Infectious Diseases* 15(1):1-9.

Gabriel, PA & Mercado, PC. 2011. Evaluation of task shifting in community-based DOTS program as an effective control strategy for Tuberculosis. *The Scientific World Journal* 11:2178-2186.

Gebreegziabher, SB, Yimer, SA & Bjune, GA. 2016. Qualitative assessment of challenges in Tuberculosis control in West Gojjam Zone, Northwest Ethiopia: Health workers' and Tuberculosis control program coordinators' perspectives. *Tuberculosis Research and Treatment*:1-9.

Gebrekidan, G, Tesfaye, G, Hambisa, MT & Deyessa, N. 2014. Quality of tuberculosis care in private health facilities of Addis Ababa, Ethiopia. *Tuberculosis Research and Treatment* 2014:1-9.

Gebrezgabiher, G, Romha, G, Ejeta, E, Asebe, G, Zemene, E & Ameni, G. 2016. Treatment outcome of Tuberculosis patients under directly observed treatment short course and factors affecting outcome in Southern Ethiopia: A five-year retrospective study. *PloS ONE* 11(2):1-10.

Geldmacher, C, Zumla, A & Hoelscher, M. 2012. Interaction between HIV and Mycobacterium tuberculosis: HIV-1-induced CD4 T-cell depletion and the development of active tuberculosis. *Current Opinion in HIV and AIDS 7*(3):268-274.

George, JB. 2010. *Nursing theories: The base for professional nursing practice*. 6th edition. New Jersey: Pearson.

Gertels, M, Edgman-Levitah, S, Daley, J, & Debanco, T. (eds.). 1993. *Through the patient's eyes, understanding and promoting patient-centered care*. San Francisco, CA: Josset-Bass.

Getahun, B, Ameni, G, Medhin, G & Biadgilign S. 2013. Treatment outcome of tuberculosis patients under directly observed treatment in Addis Ababa, Ethiopia. *Brazilian Journal of Infectious Diseases* 17(5):521-528.

Getahun, B. Wubie, M. Dejenu, G. & Manyazewal, T. 2016. Tuberculosis care strategies and their economic consequences for patients: the missing link to end tuberculosis. *Infectious Diseases of Poverty*, 5(1):93.

Grant, R. 2013. Patient-centred care: is it the key to stemming the tide?[Editorial]. *The International Journal of Tuberculosis and Lung Disease* 17(10s1):3-4.

Greene, MS, Tuzzio, L & Cherkin, D. 2012. A framework for making patient-centered care. *Front and Center. The Permanente Journal* 16(3):49-50.

Gupta, S. 2015. Evaluation of patient satisfaction level undergoing dots therapy in Meerut district of Uttar Pradesh. *Journal of Advanced Medical and Dental Sciences Research* 3(2):34-37.

Haj, HIE, Lamrini, M & Rais, N. 2013. Quality of care between Donabedian model and ISO9001V2008. *International Journal for Quality Research* 7(1):17-30.

Ham, HS, Peck, EH, Moon, HS & Yeom, HA. 2015. Predictors of patient satisfaction with tertiary hospitals in Korea. *Nursing Research and Practice* 2015:1-6.

Hambleton, RK & Zaal, JN. eds., 2013. *Advances in educational and psychological testing: Theory and applications* (Vol. 28). Springer Science & Business Media.

Hamusse, DS, Demissie, M & Lindtjørn, B. 2014a. Trends in TB case notification over fifteen years: the case notification of 25 Districts of Arsi Zone of Oromia Regional State, Central Ethiopia. *Bio Med Central Public Health* 14(304):1-10.

Hamusse, DS, Demissie, M & Lindtjorn, B. 2014b. Fifteen-year trend in treatment outcomes amongpatients with pulmonary smear-positive tuberculosis and its determinants in Arsi Zone, Central Ethiopia. *Global Health Action* 7:1-10.

Heidenreich, PA. 2013. Time for a thorough evaluation of patient-centered care. *Circulation: Cardiovascular Quality and Outcomes* 6(1):2-4.

Horsburgh (Jr), CR, Barry, CE & Lange, C. 2015. Treatment of Tuberculosis. *The New England Journal of Medicine* 373(22):2149-2160.

Horter, S, Stringer, B, Reynolds, L, Shoaib, M, Kasozi, S, Casas, E. Verputten, M & Du Cros, P. 2014. Home is where the patient is: A qualitative analysis of a patient-centred model of care for multi-drug resistant tuberculosis. *Bio Med Central Health Services Research* 14(1):1-8.

Islam, S, Hirayama, T, Islam, A, Ishikawa, N & Afsana, K., 2015. Treatment referral system for tuberculosis patients in Dhaka, Bangladesh. *Public Health Action* 5(4):236-239.

Jassal, SM & Bishai, RW. 2010. Epidemiology and challenges to the elimination of global Tuberculosis. *CID:*50 (Suppl 3):S163. Available at: http://cid.oxfordjournals.org (accessed on 25 December 2014).

Jayadevappa, R & Chhatre, S. 2011. Patient-centred care: A conceptual model and review of the state of the art. *Open Health Services and Policy Journal* 4:15-25.

Johnson, B & Christensen, L. 2012. *Educational research: Quantitative, qualitative, and mixed approaches.* 4th edition. California, US: SAGE.

Kennedy, P. 2009. How to combine multiple research methods: Practical triangulation. *Jonny Holland Magazine.*

Keshavjee, S & Farmer, EP. 2012. Tuberculosis, drug resistance, and the history of modern medicine. *The New England Journal of Medicine* 367(10):931-936.

Ketema, KH, Raya, J, Workineh, T, Klinkenberg, E & Enquselassie, F. 2014. Does decentralisation of tuberculosis care influence treatment outcomes? The case of Oromia Region, Ethiopia. *Public Health Action* 4(3):S13-S17.

Khamis, K. and Njau, B., 2014. Patients' level of satisfaction on quality of health care at Mwananyamala hospital in Dar es Salaam, Tanzania. *BioMed Central health services research*,14(1):1.

Kisambu, J, Nuwaha, F & Sekandi, NJ 2014. Adherence to treatment and supervision for tuberculosis in a DOTS programme among pastoralists in Uganda. *International Journal of Tuberculosis and Lung disease* 18(7):799-803.

Kitson, A., Marshall, A., Bassett, K & Zeitz, K. 2013. What are the core elements of patient-centred care? A narrative review and synthesis of the literature from health policy, medicine and nursing. *Journal of Advanced Nursing* 69(1):4-15.

Krishnan, L, Akande, T, Shankar, AV, McIntire, KN, Gounder, CR, Gupta, A & Yang, WT. 2014. Gender-related barriers and delays in accessing tuberculosis diagnostic and treatment services: a systematic review of qualitative studies. *Tuberculosis Research and Treatment* 2014:1-14.

Kothari, CR. 2004. *Research methodology: Methods and techniques* 2nd ed. New Delhi.

Kuntz, JL, Safford, MM, Singh, JA, Phansalkar, S, Slight, SP., Her, QL, Lapointe, NA, Mathews, R, O'Berien, E, Brinkman,WB, Hommel, K, Farmer, KC, Klingler, E, Maniam, N, Sobko, HJ,Bailey SC, Cho, I, Rumptz, MH, Vandermeer, ML & Hornbrook, MC. 2014. Patient-centered interventions to improve medication management and adherence: A qualitative review of research findings. *Patient Education and Counseling* 97(3):310-326.

Levinson, W, Lesser, SC & Epstein, MR. 2010. Developing physician communication skills for patient-centred care. *Health Affairs* 29(7):1310-1318.

Levinson, W. 2011. Patient-centred communication: a sophisticated procedure. *British Medical Journal Quality and Safety* 20(10):823-825.

Lienhardt, C, & Ogden, JA. 2004. Tuberculosis control in resource-poor countries: have we reached the limits of the universal paradigm? *Tropical Medicine and International Health* 9:833-841.

Lienhardt, C, Glaziou, P, Uplekar, M, Lonnroth, K, Getahun, H & Raviglione, M. 2012. Global tuberculosis control: lessons learnt and future prospects. *Nature Review Microbiology* 10:407-416.

Little, P, Everitt, H, Williamson, I, Warner, G, Moore, M, Gould, C, Ferrier, K & Payne, S. 2011. Observational study of effect of patient centredness and positive approach on outcomes of general practice consultations. *Britain Medical Journal* 323:908-911.

Locatelli, SM, Turcios, S & Lavela, SL. 2015. Optimizing the patient-centered environment: results of guided tours with health care providers and employees. *Health Environment and Research Design* 8(2):18-30.

Lusignani, SL, Quaglio, G, Atzori, A, Nsuka, J, Grainger, R, Palma, DM, Putoto, G & Manenti, F. 2013. Factors associated with patient and health care system delay in diagnosis for tuberculosis in the province of Luanda, Angola. *Bio Med Central Infectious Diseases* 13(168):1-11.

Luxford, K, Safran, DG & Delbanco, T. 2011. Promoting patient-centered care: A qualitative study of facilitators and barriers in health care organizations with a reputation for improving the patient experience. *International Journal for Quality in Health Care* 23(5):510-515.

Macq, J, Solis, A, Martinez, G & Martiny, P. 2008. Tackling tuberculosis patients' internalized social stigma through patient-centred care: An intervention study in rural Nicaragua. *Bio Med central Publicl Health* 8(1):1-9.

Mahendradhata, Y, Souares, A, Phalkey, R & Sauerborn, R. 2014. Optimizing patient-centeredness in the transitions of health care systems in low- and middle-income countries. *BioMed Central Health Services Research* 14(386):1-6.

Marais, BJ, Lonnroth, K, Lawn, SD, Migliori, GB, Mwaba, P, Glaziou, P & Zumla, A. 2013. Tuberculosis comorbidity with communicable and non-communicable diseases: integrating health services and control efforts. *The Lancet Infectious Diseases* 13(5):436-448.

Marais, BJ. 2013. History of tuberculosis and drug resistance. *The New England Journal Medicine* 368(1):88-90.

Marshall, C, Gretchen, B & Rossman, GB. 2011. *Designing a qualitative research*. 5th edition. Thousand Oaks. CA: SAGE.

Mirzaei, M, Aspin, C, Essue, B, Jeon, YH., Dugdale, P, Usherwood, T & Leeder, S, 2013. A patient-centred approach to health service delivery: improving health outcomes for people with chronic illness. *BioMed Centrsl health services research*, *13*(1):1-10.

Mash, B & Kabongo, D. 2010. Effectiveness of home-based directly observed treatment for tuberculosis in Kweneng West subdistrict, Botswana. *African Journal of Primary Health Care and Family Medicine*.
Available at: http://www.phcfm.org/index.php/phcfm/article/view/168/142 (accessed on 06 April 2015).

Matsushita, Y, Kuwahara, N & Morimoto, K. 2014. Relationship between comfortable feelings and distribution of seat pressure in sustaining a sitting posture for a long time. In *HCI International 2014-Posters' Extended Abstracts*:473-478. Springer International Publishing.

McKenzie, JF, Venturelli, PJ, Pinger, RR & Fleckenstein, AE. 2014. *An introduction to community and public health*. Burlington: Jones & Bartlett.

McKerns, L. 2007. *What is patient-centred care and how is it better*. SelfGrowth.com.

Mead, N & Bower, P. 2002. Patient-centred consultations and outcomes in primary care: a review of the literature. *Patient Education Counselling* 48(1):51–61.
Melnyk, B & Morrison-Beedy, D. 2012. *Intervention research: Designing, conducting, analyzing, and funding*. Springer Publishing Company.

Medical Dictionary. 2012. Available at:
http://www.medicaldictionaryweb.com/Patient+Satisfaction-definition (accessed 8 April 2015).

Mekonnen, A. 2014. Smear-positive pulmonary tuberculosis and AFB examination practices according to the standard checklist of WHO's tuberculosis laboratory assessment tool in three governmental hospitals, Eastern Ethiopia. *Bio Med Central research notes* 7(1):1-8.

Mindaye, T & Taye, B. 2012. Patient's satisfaction with laboratory services at antiretroviral therapy clinics in public hospitals, Addis Ababa, Ethiopia. *Bio Med Central Research Notes* 5(184):1-7.

Mirzoev, TN, Baral, SC, Karki, DK, Green, AT, Newell, JN. 2008. Community-based DOTS and family member DOTS for TB control in Nepal: Costs and cost effectiveness. *Cost Effective Resource Allocation* 6:(20):1-8.

Mishra, PH & Mishra, T. 2014. Study of patient satisfaction at a super specialty tertiary care hospital. *Indian Journal of Clinical Practice* 25(7):624-636.

Mkopi, A, Range, N, Amuri, M, Geubbels, E, Lwilla, F, Egwaga, S, Schulze, A & Van Leth, F. 2013. Health workers' performance in the implementation of Patient-centred Tuberculosis Treatment (PCT) strategy under programmatic conditions in Tanzania: a cross sectional study. *Bio MedCentral health services research* 13(1):101.

Mlilo, N, Sandy, C, Harries, AD, Kumar, AMV, Masuka, N, Nyathi, B, Edginton, M, Isaakidis, P, Manzi, M & Siziba, N. 2013. Does the type of treatment supporter influence tuberculosis treatment outcomes in Zimbabwe?[Short communication]. *Public Health Action 3*(2):146-148.

Mohr, E, Hughes, J, Snyman, L, Beko, B, Harmans, X, Caldwell, J, Duvivier, H, Wilkinson, L & Cox, V. 2015. Patient support interventions to improve adherence to drug-resistant tuberculosis treatment: A counselling toolkit. *SAMJ: South African Medical Journal*, *105*(8):631-634.

Moonan, KP, Quitugua, NT, Pogoda, MJ , Woo, G, Drewyer, G, Sahbazian, B, Dunbar, D, Jost Jr, CK, Wallace, C, & Weis, ES. 2011. Does directly observed therapy (DOT) reduce drug resistant tuberculosis? *Bio Med Central Public Health* 11(19):1-8.

Moosazade, M, Jamshidi, M, Amiresmaili, M & Nezammahalleh, A. 2012. A comparison of directly observed therapy and self-administered therapy strategies in treatment of pulmonary tuberculosis: A cohort study in North of Iran. *Middle-East Journal of Scientific Research* 11(7):873-880.

Mosadeghrad, AM. 2014. Factors influencing health care service quality. *International Journal of Health Policy and Management* 3(2):77-89.

Mpinga, KE & Chastonay, P. 2011. Satisfaction of patients: A right to health indicator? *Health Policy* 100:144-150.

Mugisha, K, Semo, B, Ledikwe, J, Ncube, RT, Firth, J, Achoki, T, Lere, T, Machao, G, Mwangemi, F, Makadzange, P & Mabreaden, A. 2013. Cohort analysis of treatment outcomes from facility-based and community-based tuberculosis care in Botswana: a cross-sectional survey. *The Lancet* 381:93.

Muture, BN., Keraka, MN., Kimuu, PK, Kabiru, EW, Ombeka, VO & Oguya, F. 2011. Factors associated with default from treatment among tuberculosis patients in Nairobi province, Kenya: a case control study. *BioMed Central public health*, *11*(1):1-10.

Nackers, F, Huerga, H, Espie, E, Aloo, AO, Bastard, M, Etard, JF, Sitienei, J, Varaine, F, Chakaya, J & Bonnet, M. 2012. Adherence to self-administered tuberculosis treatment in a high HIV-prevalence setting: a cross-sectional survey in Homa Bay, Kenya. *PLoS One*, *7*(3):1-8.

Narasimehan, P, Wood, J, MacIntyre, CR & Mathai, D. 2013. Risk factors for Tuberculosis. *Pulmonary Medicine*:1-9.

Nardi, MP. 2014. *Doing survey research a guide to quantitative methods.* 3rd edition. Boulder: Paradigm.

Nelson, KM, Helfrich, C, Sun, H, Hebert, PL, Liu, CF, Dolan, E, Taylor, L, Wong, E, Maynard, C, Hernandez, SE. & Sanders, W. 2014. Implementation of the patient-centered medical home in the Veterans Health Administration: associations with patient

satisfaction, quality of care, staff burnout, and hospital and emergency department use. *Journal of American Medical Association internal medicine*, *174*(8):1350-1358.

Nezenega, SZ, Gacho, HY & Tafere, ET. 2013. Patient satisfaction on tuberculosis treatment service and adherence to treatment in public health facilities of Sidama Zone, South Ethiopia. *Bio Medical Central Health Services Research* 13(110):1-8.

Nhamoyebonde, S & Leslie, A. 2014. Biological differences between the sexes and susceptibility to tuberculosis. *Journal of Infectious Diseases* 209(3):100-106.

O'Donnell, MR, Daftary, A, Frick, M, Hirsch-Moverman, Y, Amico, KR, Senthilingam, M, Wolf, A, Metcalfe, JZ, Isaakidis, P, Davis, JL & Zelnick, JR. 2016. Re-inventing adherence: toward a patient-centered model of care for drug-resistant tuberculosis and HIV. *The International Journal of Tuberculosis and Lung Disease*, *20*(4):430-434.

Oliver, P. 2010. *The students guide to research ethics*. 2nd edition. Berkshire, England: McGraw-Hill.

Olu, AA. 2013. Is the directly observed therapy short course (DOTS) an effective strategy for tuberculosis control in a developing country? *Asian Pacific Journal of Tropical Disease* 3(3):227-231.

Onyeonoro, UU, Chukwu, JN, Nwafor, CC, Meka, AO, Omotowo, BI, Madichie, NO, Ogbudebe, C, Ikebudu, JN, Oshi, DC, Ekeke, N & Paul, NI. 2015. Evaluation of patient satisfaction with Tuberculosis services in Southern Nigeria. *Health Services Insights* 8:24-33.

Oshima LE & Emanuel, EJ. 2013. Shared decision-making to improve care and reduce costs. *New England Journal of Medicine* 368(1):6-8.

Otero, C, Luna, D, Marcelo, A, Househ, M, Mandirola, H, Curioso, W, Pazos, P & Villalba, C. 2015. Why patient-centred care coordination is important in developing countries?: Contribution of the IMIA health informatics for development working group. *Yearbook of Medical Informatics* 10(1):30-33.

Otu, AA. 2013. Is DOTS an effective strategy for TB control in a developing country? *Asian Pacific Journal of Tropical Disease* 3(3):227-231.

Papanicolas, I, Cylus, J & Smith, CP. 2013. An analysis of survey data from eleven countries finds that 'satisfaction' with health system performance means many things. *Health Affairs* 32(4):734-742.

Parish, E. 2015. British Medical Journal roundtable debate: How can we get better at providing patient-centred care*? British Medical Journal* 350(h412):1-3.

Pasipanodya, GJ & Gumbo, T. 2013. A meta-analysis of self-administered vs directly observed therapy effect on microbiologic failure, relapse, and acquired drug resistance in Tuberculosis patients. *Clinical Infectious Disease* 57:21-31.

Paulson, T. 2013. Nature outlook tuberculosis. Further progress in consigning it to the past is a massive challenge. *Nature* 502:S2-3.

Pefoyo, AJK & Wodchis, WP. 2013. Organizational performance impacting patient satisfaction in Ontario hospitals: a multilevel analysis. *Bio Med Central Research Notes* 6(1):1-12.

Pefoyo, KA & Wodchis, PW. 2013. Organizational performance impacting patient satisfaction in Ontario hospitals: a multilevel analysis. *Bio Med Central Research Notes* 6(509):1-12.

Pelzang, R. 2010. Time to learn: understanding patient-centred care. *British Journal of Nursing* 19(14):912-917.

Perrin MK. 2016. *Essentials of planning and evaluation of public health*. Jons and Bartlett.

Pokhrel, AK, Bates, MN, Acharya, J, Valentiner-Branth, P, Chandyo, RK, Shrestha, PS, Raut, AK & Smith, KR. 2015. PM 2.5 in household kitchens of Bhaktapur, Nepal, using four different cooking fuels. *Atmospheric Environment* 113:159-168.

Ponte, PR, Conlin, G, Conway, JB Grant S, Medeiros C, Nies J, Shulman L, Branowicki, P & Conley, K. 2003. Making patient-centered care come alive: achieving full integration of the patient's perspective*. Journal Nursing Administration* 33(2):82-90.

Poortinga, W. 2012. Community resilience and health: The role of bonding, bridging, and linking aspects of social capital. *Health and Place* 18(2):286-295.

Portela, CM, Lima, LMS, Brito, C, Ferreira, BMV, Escosteguy, CC & Vasconcellos, LTM. 2014. Tuberculosis control program and patient satisfaction, Rio deJaneiro, Brazil. *Public Health Practice* 48(3):497-507.

Porter, EM. 2010. What Is value in health care? *The New England Journal of Medicine* 363(26):2477-2481.

Pulvirenti, M, McMillan, J & Lawn, S. 2014. Empowerment, patient-centred care and self-management. *Health Expectations* 17(3):303-310.

Punch, FK. 2014. *Introduction to social research quantitative and qualitative approaches.* 3rd edition. California: Sage.

Rahmqvist, M & Bara, AC. 2010. Patient characteristics and quality dimensions related to patient satisfaction. *International Journal for Quality in Health Care* 22(2):86-92.

Raviglione, M, Marais, B, Floyd, K, Lonnroth, K, Getahun, H, Migliori, BG, Harries, DA, Nunn, P, Lienhardt, C, Graham, S, Chakaya, J, Weyer, K, Cole, S, Kaufmann, EHS & Zumla, A. 2012. Review of Scaling up interventions to achieve global tuberculosis control: progress and new developments. *Lancet* 379:1902-1913.

Redman, RW. 2004. Patient-centered care: An unattainable ideal? *Research and Theory for Nursing Practice* 18(1):11-14.

Ross, T. 2012. *A survival guide for health research methods*. London: McGraw-Hill Education.

Royse, D, Thyer, B & Padgett, D. 2015. *Program evaluation: An Introduction to an evidence-based approach*. Boston: Cengage Learning.

Sagbakken M, Frich JC, Bjune G. 2008. Barriers and enablers in the management of tuberculosis treatment in Addis Ababa, Ethiopia: a qualitative study. *Bio Med Central Public Health* 8(1):1-8

Sagbakken, M, Frich, CJ, Bjune, G & Porter, JD. 2013. Ethical aspects of directly observed treatment for tuberculosis: a cross-cultural comparison. *Bio Med Central Ethics* 14(1):1-10.

Sarpal, SS, Goel, KN, Kumar, D & Janmeja, KA. 2015. Gender disparities in retreatment patients of tuberculosis: A north Indian study. *Journal of Natural Science, Biology and Medicine* 6(1):63-67.

Schmidt, NA & Brown, JM. 2012. *Evidence-based practice for nurses: appraisal and application of research.* 2nd edition. London: Jones & Bartlett Learning.

Schoenfelder, T. 2012. Patient satisfaction: A valid indicator for the quality of primary care? *Primary Health Care* 2(4):1-2.

Scholl, I, Zill, JM, Harter, M & Dirmaier, J. 2014. An integrative model of patient-centeredness – a systematic review and concept analysis. *PLoS ONE* 9(9):1-9.

Sevin, C, Moore, G, Shepherd, J, Jacobs, T & Hupke, C. 2009. Transforming care teams to provide the best possible patient-centered, collaborative care. *The Journal of Ambulatory Care Management* 32(1):24-31.

Schaller, D. 2007. Patient-Centered Care: What Does It Take? Picker Institute and Commonwealth Fund. Available at: http://www.commonwealthfund.org/Publications/Fund-Reports/2007/Oct/Patient-Centered-Care-What-Does-It-Take.aspx (accessed on 09 February 2015).

Shirley, ED & Sanders, JO. 2013. Patient satisfaction: Implications and predictors of success. *The Journal of Bone and Joint Surgery* 95(10):1-4.

Silow-Carroll S, Alteras T & Stepnick L. 2006. Patient-centered care for underserved populations: Definition and best practices. Washington DC: The WK Kellogg Foundation.

Slagle, T, Youssef, BM, Calonge, G & Amor, BY. 2014. Lessons from Africa: Developing a global human rights framework for tuberculosis control and prevention. *Bio Med Central International Health and Human Rights* 14(34):1-12.

Soomro, HM, Qadeer, E, Khan, AM & Morkve, O. 2012. Treatment supporters and their impact on treatment outcomes in routine Tuberculosis program conditions in Rawalpindi District, Pakistan. *Tanaffos* 11(3):15-22.

Sripad A, Castedo J, Danford N, Zaha R, & Freile C. 2013. Effects of Ecuador's national monetary incentive program on adherence to treatment for drug-resistant tuberculosis. *International Journal of Tuberculosis and Lung Disease*; 18(1):44–48.

Srivastav, S & Mahajan, H. 2014. Satisfaction levels among patients availing DOTS services in Bundelkh and Region (UP), India: Evidence from patient exit-interviews. *Annals of Tropical Medicine and Public Health* 7(2):116-119.

Steffen, R, Menzies, D, Oxlade, O, Pinto, M, de Castro AZ & Monteiro, P. 2010. Patients' costs and cost-effectiveness of tuberculosis treatment in DOTS and non-DOTS facilities in Rio de Janeiro, Brazil. *PLoS ONE* 5(11):1-7

Storla, GD, Yimer, S & Bjune, AG. 2008. A systematic review of delay in the diagnosis and treatment of tuberculosis. *Bio Med Central Public Health* 8(15):1-9.

Tadesse, T, Demissie, M, Berhane, Y, Kebede, Y & Abebe, M. 2013. Long distance travelling and financial burdens discourage tuberculosis DOTs treatment initiation and compliance in Ethiopia: a qualitative study. *Bio Med Central Public Health* 13(1):1-7.

Tanimura, T, Jaramillo, E, Weil, D, Raviglione, M & Lonnroth, K. 2014. Financial burden for tuberculosis patients in low- and middle-income countries: a systematic review. *European Respiratory Journal* 43:1763-1775.

TB care I patient-centred approach strategy. 2015. Availabe at: www.tbcare1.org/reports/reports/download.php (accessed on 14 February 2015).

TB CARE I. 2014. *International standards for Tuberculosis care*. 3rd edition. TB CARE I: Hague.

Tesfahuneygn, G, Medhin, G & Legesse, M. 2015. Adherence to anti-tuberculosis treatment and treatment outcomes among tuberculosis patients in Alamata District, northeast Ethiopia. *Bio Med Central Research Notes* 8(503):1-11.

Tiemersma, EW, Van der Werf, MJ, Borgdorff, MW, Williams, BG & Nagelkerke NJD. 2011. Natural history of Tuberculosis: Duration and fatality of untreated pulmonary Tuberculosis in HIV negative patients: A systematic review. *PLoS ONE* 6(4):1-13.

Toczek, A, Cox, H, Du Cros, P, Cooke, G & Ford, N. 2013. Strategies for reducing treatment default in drug-resistant tuberculosis: systematic review and meta-analysis [Review article]. *The International Journal of Tuberculosis and Lung Disease* 17(3):299-307.

Tolossa, D, Medhin, G & Legesse, M. 2014. Community knowledge, attitude, and practices towards tuberculosis in Shinile town, Somali regional state, eastern Ethiopia: a cross-sectional study. *Bio Med Central Public Health* 14(804):1-13.

Van der Eijk, M, Nijhuis, FA, Faber, MJ & Bloem, BR. 2013. Moving from physician-centered care towards patient-centered care for Parkinson's disease patients. *Parkinsonism and Related Disorders* 19(11):923-927.

Vassall, A, Seme, A, Compernolle, P & Meheu, F. 2010. Patient costs of accessing collaborative tuberculosis and human immunodeficiency virus interventions in Ethiopia. *International Journal of Tuberculosis and Lung Diseases* 14(5):604-610.

Walker, LO & Avant, KC. 2011. Strategies for theory construction in nursing. 5th edition.

Weiss, P, Chen, W, Cook, VJ & Johnston, JC. 2014. Treatment outcomes from community-based drug resistant tuberculosis treatment programs: a systematic review and meta-analysis. *Bio Med Central Infectious Diseases* 14(1):1-9.

Woldesemayat, EM, Datiko, DG & Lindtjorn, B. 2014. Use of biomass fuel in households is not a risk factor for pulmonary tuberculosis in South Ethiopia. *The International Journal of Tuberculosis and Lung Disease* 18(1):67-72.

WHO see World Health Organization.

World Health Organization. 2000. *Health systems: Improving performance*. The World Health Report. Geneva: WHO.

World Health Organization. 2004. *A Glossary of Terms for Community Health Care and Services for Older Persons*.Genev.WHO.

World Health Organization. 2006. *Quality of care: A process for making strategic choices in health systems*. Geneva: WHO.

World Health Organization. 2007a. *Global Tuberculosis control: Surveillance, planning, financing.* Geneva: WHO.

World Health Organization. 2007b. *People-centred health care: Policy framework*. Geneva: WHO.

World Health Organization. 2008. Toolkit *on monitoring health systems strengthening service delivery*. WHO: Geneva.

World Health Organization. 2009a. *Global tuberculosis control: epidemiology, strategy, financing report*. Geneva, Switzerland and: World Health Organization. Available at: http://www.who.int/tb/publications/global_report/2009/pdf/report_without_annexes.pdf (accessed on July 25 2015).

World Health Organization. 2009b. *Treatment of tuberculosis: guidelines* 4th edition. Geneva: WHO

World Health Organization. 2010a. *Ten facts on health financing*. Geneva: WHO

World Health Organization. 2010b. *Treatment of Tuberculosis guidelines*. 4th edition. Geneva: WHO.

World Health Organization. 2011. *TB provision, care and control: a practical directory of new advances*. Geneva: WHO

World Health Organization. 2012. *Global TuberculosisrReport*. WHO/HTM/TB/2012.6. Geneva: WHO.

World Health Organization. 2013a. *Engage-TB: Integrating community-based tuberculosis activities into the work of nongovernmental and other civil society organizations: implementation manual.* Geneva: WHO.

World Health Organization. 2013b. *Systematic screening for active tuberculosis Principles and recommendations*. Geneva: WHO.

World Health Organization. 2013c. Report by the Secretariat**:** *Global strategy and targets for tuberculosis prevention, care and control after 2015.* Executive board 134th session provisional agenda item 6.1 EB134/12 November 2013. Geneva: WHO.

World Health Organization. 2014a. *Global Tuberculosis report*. Geneva: WHO.

World Health Organization. 2014b. *Multidrug-resistant (MDR-TB) update 2014*. Available at: http://www.who.int/tb/challenges/mdr/mdr_tb_factsheet.pdf (accessed 1 on February 2014).

World Health Organization. 2015. *People-centred and integrated health services: an overview of the evidence: interim report*. Geneva: WHO.

World Health Organization. 2016. *Global Tuberculosis report*. Geneva: WHO.

Yan, Z, Wan, D & Li, L. 2011. Patient satisfaction in two Chinese provinces: rural and urban differences*. International Journal for Quality in Health Care* 23(4):384-389.

Yen, FY, Rodwell, CT, Yen, YM, Shih, CH, Hu, SB, Li, HL, Shie, HY, Chuang, P & Garfein, SR. 2012. DOT associated with reduced all-cause mortality among tuberculosis patients in Taipei, Taiwan, 2006–2008. *International Journal of Tuberculosis and Lung Diseases* 16(2):178-184.

Yen, FY, Yen, YM, Lin, YS, Lin, YP, Shih, HC, Li, LH, Chou, P & Deng, CY. 2014. Smoking increases risk of recurrence after successful anti-tuberculosis treatment: a population-based study *International Journal of Tuberculosis and Lung Disease* 18(4):492-498.

Yimer, SA, Bjune, AG & Holm-Hansen, C. 2014. Time to first consultation, diagnosis & treatment of TB among patients attending a referral hospital in Northwest, Ethiopia. *Bio Med Central Infectious Diseases* 14:1-9.

Yin, KR. 2011. *Qualitative research from start to finish*. New York: Guilford Press.

Young, DB, Perkins, MD, Duncan, K & Barry, CE. 2008. Confronting the scientific obstacles to global control of tuberculosis. *The Journal of Clinical Investigation* 118:1255-1265.

Young GJ, Meterko M, Desai KR. 2000 Patient satisfaction with hospital care: effects of demographic and institutional characteristics. *Medical care.*1:38(3):325-34.

Zumla, A, Raviglione, M, Hafner, R & Reyn, F. 2013. Current concepts Tuberculosis. *The New England Journal of Medicine* 368(8):745-755.

ANNEXURES

Annex A: Total variance explained PCC framework

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.977	21.503	21.503	13.977	21.503	21.503
2	4.895	7.531	29.034	4.895	7.531	29.034
3	3.840	5.908	34.943	3.840	5.908	34.943
4	2.600	4.001	38.943	2.600	4.001	38.943
5	2.290	3.523	42.467	2.290	3.523	42.467
6	1.895	2.916	45.382	1.895	2.916	45.382
7	1.722	2.650	48.032	1.722	2.650	48.032
8	1.679	2.584	50.616	1.679	2.584	50.616
9	1.506	2.317	52.932	1.506	2.317	52.932
10	1.382	2.126	55.058	1.382	2.126	55.058
11	1.339	2.060	57.118	1.339	2.060	57.118
12	1.215	1.869	58.987	1.215	1.869	58.987
13	1.188	1.827	60.815	1.188	1.827	60.815
14	1.120	1.724	62.538	1.120	1.724	62.538
15	1.080	1.661	64.199	1.080	1.661	64.199
16	1.045	1.607	65.806	1.045	1.607	65.806
17	.965	1.485	67.291			
18	.934	1.436	68.728			
19	.884	1.360	70.088			
20	.872	1.341	71.429			
21	.849	1.306	72.734			
22	.809	1.245	73.979			
23	.782	1.204	75.183			
24	.732	1.127	76.310			
25	.684	1.053	77.363			
26	.671	1.033	78.395			
27	.647	.996	79.391			
28	.631	.971	80.363			
29	.619	.953	81.316			
30	.581	.894	82.210			
31	.569	.876	83.086			
32	.550	.846	83.932			
33	.548	.843	84.775			
34	.504	.776	85.551			
35	.492	.757	86.308			

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
36	.465	.716	87.024			
37	.459	.706	87.730			
38	.451	.693	88.423			
39	.428	.658	89.081			
40	.406	.625	89.706			
41	.403	.619	90.326			
42	.396	.609	90.935			
43	.382	.588	91.522			
44	.366	.563	92.085			
45	.358	.551	92.636			
46	.336	.517	93.153			
47	.325	.501	93.654			
48	.314	.483	94.136			
49	.297	.457	94.593			
50	.294	.453	95.046			
51	.282	.434	95.481			
52	.271	.417	95.898			
53	.266	.409	96.307			
54	.255	.393	96.699			
55	.250	.385	97.084			
56	.238	.367	97.451			
57	.222	.342	97.793			
58	.217	.333	98.126			
59	.211	.325	98.450			
60	.197	.304	98.754			
61	.190	.293	99.047			
62	.177	.272	99.318			
63	.155	.238	99.556			
64	.154	.238	99.794			
65	.134	.206	100.000			

Extraction Method: Principal Component Analysis.

Annex B: Ethical clearance certificate

UNISA university of south africa

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

REC-012714-039

HSHDC/340/2014

Date: 8 October 2014 Student No: 5577-102-5

Project Title: Evaluation of directly observed tuberculosis treatment strategy in Ethiopia: patient centeredness and satisfaction.

Researcher: Belete Getahun Woldeyes

Degree: D Litt et Phil Code: DPCHS04

Supervisor: Prof ZZ Nkosi
Qualification: PhD
Joint Supervisor: -

DECISION OF COMMITTEE

Approved [√] **Conditionally Approved** [ ]

Prof L Roets
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Prof MM Moleki
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

Annex C: Permission letter

Reference A/A/H/6/3352/227
Date 25/12/2014

To GULELE SUBCITY HEALTH OFFICE
ADDIS KETEMA SUBCITY HEALTH OFFICE
BOLE SUBCITY HEALTH OFFICE
LIDETA SUBCITY HEALTH OFFICE
KOLFE SUBCITY HEALTH OFFICE
YEKA SUBCITY HEALTH OFFICE
ARADA SUBCITY HEALTH OFFICE
KERKOS SUBCITY HEALTH OFFICE
NIFAS SILK SUBCITY HEALTH OFFICE
AKAKI KALITY SUBCITY HEALTH OFFICE
Addis Ababa

Subject: Request to access Health Facilities to conduct approved research

This letter is to support **Belete Getahun** to conduct research, which is entitled as "EVALUATION OF DIRECTILY OBSERBED TUBERCULOSIS TREATMENT STRATEGY IN ADDIS ABABA, ETHIOPIA PATIENT CENTERDNESS AND SATISFACTION". The study proposal was duly reviewed and approved by Addis Ababa Health Bureau IRB, and the principal investigator is informed with a copy of this letter to report any changes in the study procedures and submit an activity progress report to the Ethical Committee as required.

Therefore we request the mentioned HEALTH FACILITY and staffs to provide support to the Principal investigator.

With Regards
Eyobed Kaleb
Ethical Clearance committee

Cc: - **Belete Getahun**
Addis Ababa
To Ethical Clearance Committee
Addis Ababa

Annex D: English version of TB patients questionnaire

Evaluation of directly observed tuberculosis treatment strategy in Ethiopia: patient centeredness and satisfaction' questionnaire

Part I. Instruction

1. Before collecting any information, the letter of ethical clearance and cooperation letter should be presented to the head/representative of the facility and get permission.

2. Before conducting interview the below study information sheet must be read to sure the respondents acquire the required knowledge whether to participate in interview or not. In addition, get the participant consent.

3. For all responses, it should be recorded what the respondent exactly wanted to say.

4. All the close-ended questions should be chosen and circled from the given choices unless and otherwise the response is different from listed choices.

5. If the response is different from the listed choices in close-ended questions, the response should be put in other and must be specified.

6. For open-ended questions, the response should be written in the form that have provided in the bracket at the end of each questions.

7. If the respondent has general comment it should be written at the end of questions on provided space.

Part II. Study information sheet

Greetings, my name is _____and I have been assigned to collect data for the study, which is conducted by Mr Belete Getahun on Evaluation of DOTS strategy, Its TB patient centeredness and satisfaction in Addis Ababa. Today I would like to talk with you and gather information by prepared questionnaire about your experiences on DOTS program in Addis Ababa as one of the components of this study. We are evaluating DOTS strategy with respect to TB patient centeredness and satisfaction in order to capture lessons that can be used in future interventions. This study ethically has been approved by UNISAethical review board and has permission from Addis Ababa city Administration Health Bureau. It takes approximately 20 minutes. Though it seems long time, the study helps to improve the programme by generating the model which helps to improve patient satisfaction and centeredness. Your name will not be asked and unique identification is not required. Your response will be kept confidential, only be shared for research team. You do not have to discuss issues that you do not want. If you want to withdraw from the study any time during the discussion process, you will not be obliged to continue or give reasons for doing so. If you refuse or not, will not have any consequences on you and the services provided to you.

Do you have any question which is not clear?

Also if you have any question or anything that is not clear you can directly contact principal investigator of this study, Belete Getahun, by phone no 0911602272 or e-mail: bgetahun150@gmail.com

I would like to appreciate your help in responding to this interview.

If you are clear with the information provided and agree to participate please sign on the consent form.

Part III

Study Participant Consent Form

I, the undersigned individual am oriented about the objective of the study. I have been informed that all of my information will be kept confidential and used solely for this study. In addition, I have been well informed that my name will not be asked and unique identification is not required. I have the right not to discuss issues that I do not want. If I want to withdraw from the discussion I will not be obliged to continue or give reasons for doing so. Nonetheless, my agreement to participate in this study is with the assumption that, the information that I provide during the discussion will help greatly to evaluate DOTS strategy and improve its centeredness' and satisfaction of TB patients.

Date _____ signature_____

Part IV. Questions

Se. no	Measurement Items	Response
A.	**General characteristics**	
1.	Gender of the respondent	1. Male 2. Female
2.	Age	1. 18 - 24 2. 25 -34 3. 35 – 44 4. 45 – 54 5. 55- 64 6. 65 and above
3	Marital status	1. Married 2. Single (Never married) 3. Separated 4. Divorced 5. Widowed 6. Cohabiting
4	Family size?	_____ (including the respondent)
5	Residence	1. Urban 2. Urban slum 3. Rural 4. Homeless 5. Other (specify)
6	Highest educational level	1. Diploma and above 2. Preparatory 3. Secondary school 4. Primary school 5. No formal education
7	Occupation	1. Permanent employee 2. Self employee 3. Temporary employee 4. Unemployed 5. Pensioner
8	Average household/family monthly income	1 _____ 2. No response
9	Religion	1. Orthodox 2. Protestant 3. Catholic 4. Muslim 5. No religion 6. Other
10	Ethnic group	1. Oromo 2. Amhara 3. Tigre 4. Gurage 5. Other (specify)
11	Did you receive health care service in this facility before this illness?	1. Yes 2. No
12	If yes, how many days did you visit the health institution before you diagnosed as you have TB?	_____
13	Type of TB	1. Pulmonary positive TB 2. Pulmonary Negative TB 3. Extra Pulmonary TB 4. MDR-TB
14	Treatment category/registration group (please see treatment follow up card)	1. New 2. Relapse 3. Treatment after Failure 4. Return after Defaulted 5. Transfer in 6. Other(specify)
15	When did you start TB treatment?	(DD/MM/YYYY)
16	Do you have TB symptoms now?	1. Yes 2. No
17	Total planed treatment duration?	1. Six months 2. Eight months 3. Other (specify)_____
18	Currently how you are collecting your TB drugs	1. Daily 2. Weekly 3. Monthly 4. Other
19	How much you pay for transport per day in ETB? (if there are care giver include all costs)	_____

20	Did you expect to come and collect the drugs every day, week or months for this much time?	1. Yes 2. No
21	Do you think that you and HCPs have good communication?	1. Yes 2. No
22	Who is your treatment supporter?	1. HCP 2. Family member 3. Health extension worker 4. Friend 5. Volunteer 6. Other (specify)

B. Centeredness of TB care provided

1= Strongly disagree 2. Disagree 3. Indecisive 4. Agree 5. Strongly agree

Patient, family and community						
1	**Patient empowerment and involvement**					
1.1	**Information provision**					
	The HCPs gave you enough information about:					
1.1.1	route of TB transmission, prevention and treatment	**1**	**2**	**3**	**4**	**5**
1.1.2	importance of treatment supporter	**1**	**2**	**3**	**4**	**5**
1.1.3	prognosis of your health condition	**1**	**2**	**3**	**4**	**5**
1.1.4	what is wrong practice with TB patients with regard to treatment	**1**	**2**	**3**	**4**	**5**
1.2	**Keeping of preference**					
	HCPs accept your:					
1.2.1	place of choices where to take the treatment such as at home, work place or health facility.	**1**	**2**	**3**	**4**	**5**
1.2.2	TB drug collection time	**1**	**2**	**3**	**4**	**5**
1.2.3	gave you a chance to your own treatment supporter	**1**	**2**	**3**	**4**	**5**
1.3	**Recognition**					
1.3.1	Took part in treatment plan	**1**	**2**	**3**	**4**	**5**
1.3.2	Your consent was taken and considered during decisions	**1**	**2**	**3**	**4**	**5**
1.3.3	Your role in the care process were duly acknowledged	**1**	**2**	**3**	**4**	**5**
2	**Improving capacity for self-management and self-care**					
	HCPs provide you:					
2.1	self care TB management with health education	**1**	**2**	**3**	**4**	**5**
2.2	counselling about how to care yourself with TB care and its treatment	**1**	**2**	**3**	**4**	**5**
2.3	Written, pictorial, audiovisual material about TB care and its treatment	**1**	**2**	**3**	**4**	**5**
3	**Treatment supporter**					
	Your Treatment supporter:					
3.1	know the transmission route, prevention and treatment of TB	**1**	**2**	**3**	**4**	**5**
3.2	always observe while you take drugs	**1**	**2**	**3**	**4**	**5**
3.3	communicate regularly with the HCPs about your treatment (if not HCP)	**1**	**2**	**3**	**4**	**5**
3.4	communicate and discuses with you regularly about TB treatment	**1**	**2**	**3**	**4**	**5**
4	**Family and friends involvement**					
4.1	Families were encouraged and allowed to participate in your TB care activities	**1**	**2**	**3**	**4**	**5**
4.2	Friends were encouraged and allowed to participate in your TB care activities	**1**	**2**	**3**	**4**	**5**
4.3	Pros and cons of TB transmission, treatment and care were discussed with friends	**1**	**2**	**3**	**4**	**5**
4.4	Pros and cons of TB transmission, treatment and care were discussed with families	**1**	**2**	**3**	**4**	**5**
Health care provider						
1	**Characteristics of HCPs**					
	HCPs are:					
1.1	honest, respectful, compassionate and tolerant	**1**	**2**	**3**	**4**	**5**
1.2	self-reflective	**1**	**2**	**3**	**4**	**5**
1.3	accountable for TB patients	**1**	**2**	**3**	**4**	**5**
1.4	committed to provide TB care	**1**	**2**	**3**	**4**	**5**
1.5	are aware of each other's involvement	**1**	**2**	**3**	**4**	**5**
1.6	provide value, share information and responsibilities(each others)	**1**	**2**	**3**	**4**	**5**

2.	**Patient as a unique Person**	
	Mostly, HCPs:	
2.1	respect your idea, culture and religion	**1 2 3 4 5**
2.2	recognize and provides values	**1 2 3 4 5**
2.3	understand your feelings	**1 2 3 4 5**
3	**HCPs and- patient communication**	
	HCPs and your communications are:	
3.1	on prioritising your problem	**1 2 3 4 5**
3.2	free discussions	**1 2 3 4 5**
3.3	based on are careful listening and understanding	**1 2 3 4 5**
3.4	meant to build mutual relationship	**1 2 3 4 5**
3.5	get clear and summarised information about your illness/medical condition	**1 2 3 4 5**
3.6	deal about your medical condition regularly and appropriately	**1 2 3 4 5**
4	**Physical support**	
	HCPs support:	
4.1	to keep your physical comfort	**1 2 3 4 5**
4.2	provide assistance while you feel tired	**1 2 3 4 5**
5	**Emotional support**	
	The HCPs emotionally support:	
5.1	to cope with the TB	**1 2 3 4 5**
5.2	to cope with relationship and mood changes	**1 2 3 4 5**
5.3	to cope with problems related to employment	**1 2 3 4 5**
6	**Biopsychosocial perspective**	
	HCPs are concerned:	
6.1	to discuss about your life history and development	**1 2 3 4 5**
6.2	to discuses about your family and social interactions	**1 2 3 4 5**
6.3	to discuss regarding employment status and financial issues	**1 2 3 4 5**
6.4	to discuss and assess psychological status	**1 2 3 4 5**
Health care organization		
1	Ensuring access, effective and efficient coordination of care	
1.1	You travelled longer distance to access this health facility	**1 2 3 4 5**
1.2	There are reminder notices for specific interventions in the HCO (how to cover mouth while coughing, hand and mouth care)	**1 2 3 4 5**
1.3	HCO is designed for comfort and safe to get TB treatment	**1 2 3 4 5**
1.4	The waiting rooms and other spaces within the premises are comfortable to follow health education	**1 2 3 4 5**
2	Establishing and strengthening multidisciplinary care teams	
	Availability of patient support service:	
2.1	availing transport	**1 2 3 4 5**
2.2	food support	**1 2 3 4 5**
2.3	traditional medicine	**1 2 3 4 5**
2.4	spiritual	**1 2 3 4 5**
2.5	Social	**1 2 3 4 5**
	TB care delivery health system	
1	**Monitoring and addressing patient and community concerns about health care quality**	
	TB care service system:	
1.1	You are well transitioned from diagnosis to treatment	**1 2 3 4 5**
1.2	There is good arrangement of appointments for follow up	**1 2 3 4 5**
1.3	The TB care service is well integrated with HIV/ART services	**1 2 3 4 5**
1.4	HCPs made mutual agreements about the care given to you	**1 2 3 4 5**
1.5	There is a notice with the name and contact details of the person in charge of TB care	**1 2 3 4 5**
1.6	Your clinical information have been kept confidentially	**1 2 3 4 5**

2	**Teamwork and teambuilding**	
	The TB care service providers are:	
2.1	There is good inter-facility referral system	1 2 3 4 5
2.2	There is good intra-facility referral system	1 2 3 4 5
2.3	There is good collaboration among registration, laboratory, treatment and discharge services	1 2 3 4 5
3	Assisting people who have experienced adverse events in the health System	
3.1	You were highly assisted while you faced difficult situations in the TB care provision	**1 2 3 4 5**
3.2	There was good compensation system for faced difficult situation, where appropriate	**1 2 3 4 5**
3.3	fixed contact persons is assigned for questions, problems and complaints	**1 2 3 4 5**
3.4	There is good reassurance while you faced inconvenience with TB care delivery system	**1 2 3 4 5**
C	**Satisfaction with TB care received** **5. Very satisfied 4. Satisfied 3. Neutral 2. Dissatisfied 1. Very dissatisfied**	
1	**Structure**	
	Are you satisfied with:	
1.1	availability of necessary equipment, drugs, laboratory reagents to treat TB disease	**1 2 3 4 5**
1.2	easy access of the HCPs as you need	**1 2 3 4 5**
1.3	easy access of HCPs to re fill your medication	**1 2 3 4 5**
1.4	wheelchair friendliness of the environment	**1 2 3 4 5**
1.5	the waiting area, registration and treatment room comfortableness and availability of seats	**1 2 3 4 5**
1.6	the safeness of the facility for the patients	**1 2 3 4 5**
1.7	availability of signage/ directions guidance where to go in the health facility	**1 2 3 4 5**
1.8	cleanness, goodness and working order of the latrine	**1 2 3 4 5**
1.9	treatment room keeping your privacy	**1 2 3 4 5**
1.10	availability of safe water to take a medication	**1 2 3 4 5**
2	**Process**	
	Are you satisfied with:	
2.1	explanation and response of HCPs about your questions	**1 2 3 4 5**
2.2	HCPs ability of the diagnosis, treatment and care of TB	**1 2 3 4 5**
2.3	the cost you paid for TB diagnosis and treatment	**1 2 3 4 5**
2.4	obligation of costs beyond my ability to pay for transport	**1 2 3 4 5**
2.5	Carefulness and allotted time of HCPs to check my clinical condition	**1 2 3 4 5**
2.6	HCP welcoming, respect, friendly treatment and courteous	**1 2 3 4 5**
2.7	HCPs considerer you are unwise	**1 2 3 4 5**
2.8	appointment system for follow up	**1 2 3 4 5**
2.9	so long waiting time with registration process to get TB care	**1 2 3 4 5**
2.10	HCP uses medical terms/jurgon without explaining what they mean	**1 2 3 4 5**
3	**Out come**	
	Are you satisfied with:	
3.1	Your TB symptoms reduction rate	**1 2 3 4 5**
3.2	Physical wellbeing ness you gained due to TB treatment	**1 2 3 4 5**
3.1	Psychological wellbeing ness you gained due to TB treatment	**1 2 3 4 5**
4.	**General satisfaction**	
	How much you are satisfied by the care you received (the least is 0 and the highest is 10)	**0_____10**

Thank you for your time and cooperation! Is there anything you would like to ask or say?

Data collector name and sign _____ Date _____

Annex E: Defaulted TB patient's telephone interview guide

Evaluation of directly observed tuberculosis treatment strategy in Ethiopia: patient centeredness and satisfaction study Defaulted TB patients telephone interview guide.

Hello.

Greetings, my name is Belete Getahun Woldeyes, have been working research on Evaluation of DOTS strategy patient centeredness and satisfaction in Addis Ababa, Ethiopia. The aim of the study is to evaluate TB- DOTS strategy with respect to TB patient centeredness and satisfaction in order to capture lessons that can be used in future interventions. In addition, the study will help to improve the programme by generating model, which helps to improve patient centeredness and satisfaction

Today I would like to talk to you and gather information through telephone about your experiences on DOTS programme in Addis Ababa as one of the components of this study. It takes 20 -25 minutes, though it seems long time your response will help the study greatly since you started and defaulted TBtreatment at _____facility.

This study, ethically, has been approved by UNISAethical review board and get permission from Addis Ababa City Administration Health Bureau.

Your name will not be quoted and the responses will be kept confidential, only be shared for research team. You do not have to discuss issues that you do not want. If you want to withdraw from the study any time along the discussion process, you will not be obliged to continue or give reasons for doing so.

Do you have any question or which is not clear?

Do you participate in the study?

I would like to appreciate your help in responding to this interview. If you are comfortable let we start the discussion with:

1. What information the HCPs gave you about TB while you were on treatment?
2. How do you explain the HCPs kept your preference or choice while you were taking your TB treatment?
3. At what extent you took part in your TBtreatment plan?
4. At what extents HCPs support you to improving your capacity for self-management and self-care with regard to TB?
5. What was the role of treatment supporter in TB treatment of you?
    a. Was she/ he your choice?

6. How do you explain the discussions about transmission, treatment and TB care among your treatment supporter, friends and families, and HCPs?
7. How do you explain the HCPs support, communication, provision of value and respect to TB patients to cope with TB treatment?
8. What extent the HCPs discussed with you about bio psychosocial (development, social, financial, psychological) perspectives?
9. How do you explain the overall structure, comfortableness of the health care facility where you diagnosed as you have TB and started treatment?
10. How was the relationship/link among one department with others in health care service organization: registration room, laboratory with treatment room?
11. What was/ were the service/s you used linked with TB treatment?
12. How you were assisted while you faced difficult situations in the TB care provision, if any?
13. How do you explain the TB care you received at health institution?
14. What was/were the reasons forced you to default from the TBtreatment?
15. In general, how do you explain DOTS service patient centeredness?
16. What do you suggest to reinforce to patient centeredness of DOTS?
17. At what extent you satisfied with the service provided to you while you were on following up your treatment; what are the factors?
18. What do you suggest to improve TB patients' satisfactions with service?
19. Is there anything more you would like to add?

Annex F: FGD Confidentiality binding form

Evaluation of directly observed tuberculosis treatment strategy in Ethiopia: patient centeredness and satisfaction study Focused group Discussion Confidentiality Binding Form.

I want to thank you for taking the time to meet with me today. My name is Belete Getahun Woldeyes, PhD student at UNISA on health study. Today I would like to talk to you about your experiences with DOTS programme in Addis Ababa as one of the components of my PhD work, we are evaluating DOTS strategy with respect to TB patient centeredness and satisfaction in order to capture lessons that can be used in future interventions. This study ethically has been approved by Addis Ababa city Administration health bureau and UNISA research ethical review boards. The interview will take less than an hour. I will take some notes during the session. And also I will be recording the session in order to capture the whole discussion. All responses will be kept confidential. This means that your interview responses will only be shared with research team members and we will ensure that any information we include in our report does not identify you as the respondent. Remember, you don't have to talk about anything you don't want to and you may end the interview at any time.

Are there any questions about what I have just explained?

Are you willing to participate in this interview?

☐ Yes ☐ No

Participant signature _____ Date_____

Annex G: FGD interview guide

Evaluation of directly observed tuberculosis treatment strategy in Ethiopia: patient centeredness and satisfaction study focused group discussion interview guide

Guiding questions

1) How TB treatment is being provided in Addis Ababa for TB patients?
2) What are the challenges to DOTS strategy?
3) How TB patients select their treatment supporter?
4) How TB patients' preferences are being kept during the treatment?
5) How patient centeredness of DOTS strategy is being explained?
6) What are the measures that can indicate patient centeredness of the DOTS strategy?
7) What are the factors contribute to patient centeredness?
8) What are the possible causes, which make TB patients to default from their treatment?
9) How does/did you know either TB patients are being satisfied or not?
10) What are the factors that may contribute or limit TB patient satisfactions in intensive and continuation phase of the treatment?
11) What does/did you suggest to improve TB patients' satisfactions?
12) Is there anything more you would like to add?

I will be analySing the information you and others gave me and submitting a draft report to the Addis Ababa City Administration Health Bureau as we compiled it. I will be happy to send you a copy to review at that time, if you are interested.

Thank you for your time.

Annex H: Amharic version of the questionnaire for TB patients'

በኢትዮጵያ በቀጥታ የሚታይ የቲቢ ህክምና ስትራቴጂ ግምገማ፡ በሽተኛን ማእከል እና የእርካታ ጥናት የቲቢ በሽተኞች መጠይቅ

ክፍል ነ. *መመሪያ*

ነ. *መረጃውን ማሰባሰብ ከመጀመሩ በፊት፣ ፈቃድ ለማግኘት የኤቲካል ክሊራንስ እንዲሁም የትብብር ደብዳቤ ለተቋም ሃላፊ ወይም ለተወካዩ መቅረብ ይኖርበታል።*

2. *መጠየቁ ከመጀመሩ በፊት የመረጃው ወረቀት መነበብ ይኖርበታል፣ በተጨማሪም ተጠያቂው መጠየቁን ለመሳተፍ እንዲወስን በቂ እውቀት ማግኘቱን መራጋገጥ ይኖርበታል።*

3. *የሁሉም ተጠያቂዎች መልስ ምን ማለት እንደሚፈልጉ ግልፅ በሆነ መልኩ መቀረፅ አለበት።*

4. *ምርጫ ለተሰጣቸው ጥያቄዎች መልስዎን በማክበብ የጠቁሙ፣ መልስዎ ካልተጠቀሰ በስተቀር ለምርጫ ጥያቄዎች መልስዎ ከተጠቀሱት የተለየ ከሆነ የተለየ በሚለው እና መጠቀስ ይገባዋል*

5. *በፅሁፍ ለሚገለፁ ጥያቄዎች፣ መልስዎን በቅንፍ በተሰጡት የመልስ መስጫ ቦታዎች መልስዎን ይስጡ።*

6. *አጠቃላይ አስተያየት ካለዎ የጥቄው መጨረሻ ላይ በተሰጠው ክፍት ቦታ ይፃፉ።*

ክፍል ሁለት. በኢትዮጵያ በቀጥታ የሚታይ የቲቢ ህክምና ስትራቴጂ ግምገማ፡ በሽተኛን ማእከል እና የእርካታ ጥናት የቲቢ በሽተኞች መጠይቅ የጥናቱ መረጃ

ሰላምታ፣ ስሜ_____ ይባላል እንዲሁም ከአቶ በለጠ ጌታሁን ጋር በቀጥታ የሚታይ የቲቢ ህክምና ስትራቴጂ ግምገማ፡ በሽተኛን ማእከል እና የእርካታ ጥናት ላይ መረጃ በመሰብሰብ ላይ እገኛለሁ፡

የጥናቱም አላማ: የቲቢ ህክምና አገልግሎት የአገልግሎቱ ተጠቃሚዎችን ማእከል ስለማድረጉ፣ የታካሚዎችን የርካታ መጠንና፣ መድሃኒት በታዘዘዉ መሰረት መዉሰዳቸዉ በመዳሰስ ወደፊት ለሚደረጉት መላዎች ትምህርት እንዲሆን እና አዲስ መላ ለመቀየስ ነው፡፡ ይህ ጥናት አዲስ አበባ ጤና ቢሮ እና በሳውዝ አፍሪካ ኤቲካል ሪቪው ቦርድ የተፈቀደ ሲሆን. 20 ደቂቃ ይወስዳል፡፡ በዛሬው ቀን ስለጥናቱ አካል ስለሆነውን በአዲስ አበባ ስለሚሰጠው የቲቢ ህክምና ፕሮግራም ፣ ያለዎን የእርስዎን ተሞክሮ በተዘጋጀው መጠይቅ መሰረት ላናግርዎ እንዲሁም ከእርሶ መረጃ ለመውሰድ እፈልጋለሁ፡፡ይህንን መረጃ የምወስደው የተቢ መድሃኒት በባለሙያ ለበሽተኛ በቀጥታ እየተሰጠ እነዲወስድ ለማደረገው ስትራቴጂ ለመገምገም እንዲሁም የቲቢ በሽተኞች እርካታን ለመጨመር ያግዛል በሚል እሳቤ ነው፡፡ እርስዎ የሚሰጡት መረጃ ለዚህ ጥናት ብቻ እንደሚያገለግል እና በተጨማሪም ስምዎ እንዲሁም የተለየ መታወቂያ አይጠየቀም፡፡እንዲሁም መወያየት በማይፈልጓቸው ጉዳዮችን ላይ ላለመነጋገር መብት አለዎት፡፡ ውይይቱን ማቋረጥ ከፈለግኩ ምንም ምክንያት መስጠት ሳያስፍልግዎ ወይም የመቀጠል ግዴታ ሳይኖርብዎ ውይይቱን ማቋረጥ ይችላሉ፡፡ባለመሳተፍዎ በርስዎም ሆነ በሚሰጥዎት አገልግሎት ላይ ምንም አይነት ተጽእኖ አይደርስም፡፡

መጠየቅ የሚፈልጉት ነገር አለ ?

ተጨመማሪ ከፈለጉ በቀጥታ የጥናቱን ዋና ተመራማሪ አቶ በለጠ ጌታሁንን በ 0911-602272 የመጠየቅ መብት አለዎት፡፡ በጥናቱ ቢሳተፉ ? አመሰግናለሁ ። ፈቃደኛ ከሆኑ የመተማመኛ ቅፅ ላይ ይፈርሙ።

የመተማመኛ ቅፅ

እኔ ከታች የፈረምኩት ግለሰብ ስለ ጥናቱ የተገነዘብኩ ሲሆን የማቀርበው መረጃ በሚስጥር እንደሚያዝልኝተገልፆልኛል፡፡ የምሰጠው መረጃም ለዚህ ጥናት ብቻ እንደሚያገለግል ተብራርቶልኛል፡፡ በተጨማሪምስሜን እንዲሁም የተለየ መታወቂያ እንደማልጠየቅ ተገልፆልኛል፡፡ እንዲሁም መወያየት በማልፈልጋቸው ጉዳዮችን ላይ ላለመነጋገር መብት ይኖረኛል፡፡ ውይይቱን ማቋረጥ ከፈለግኩ ምንም ምክንያት መስጠት ሳያስፍልገኝ ወይም የመቀጠል ግዴታ ሳይኖርብኝ ውይይቱን ማቋረጥ እችላለሁ፡፡ ይህንን ጥናት ለመካፈል ስለማማ በውይይቱ የምሰጠው መረጃ የተቢ መድሃኒት ባለሙያ ለበሽተኛ በቀጥታ እየተሰጠ እነዲወስድ ለማድረግ የወጣውን ስትራቴጂ ለመገምገም እንዲሁም የቲቢ በሽተኞች እርካታን ለመጨመር ያግዛል በሚል እሳቤ ነው፡፡

ቀን_____

ፊርማ_____

መጠይቅ

ሀ. አጠቃላይ			
ቁ.	ጥያቄ		መልስ
1	ፆታ		1. ወንድ 2. ሴት
2	እድሜ በአመት	1. 18-24 2. 25-34 3. 35- 44 4. 45- 54 5. 55-64 6. 65 ና በላይ	
3	የትዳር ሁኔታ		1. ያገባ 2. ያላገባ 3. የተለያየ 4. የፈታ 5. የሞተበት 6. አብሮ የሚኖሩ
4	የቤተሰብ ብዛትበቁጥር		
5	መኖሪያ		1.ከተማ 2. ገጠር 3. ቤት የሌለው
6	የትምህርት ደረጃ	1. ዲፕሎማ ና ከዚህ በላይ 2.ሁለተኛ ደረጃ (9-12) 3.የመጀመርያ (5-8) 4. የመጀመርያ(1-4) 5.መደበኛ ትምህርት ያልተማረ 6. የተለየ(ግለፅ)_____	
7	ስራ		1. ቋሚ ሰራተኛ 2. የግል ስራ 3. ጊዜያዊ ቅጥር 4. የቤት እመቤት 5. ስራ አጥ 6. የተለየ(ግለፅ)_____
8	አማካኝ የቤተሰብ የወር ገቢ? (በብር)		
9	ሃይማኖት	1. ኦርቶዶክስ 2. ፕሮቴስታንት 3. ካቶሊክ 4. ሙስሊም 5. ሃይማኖት የሌለው 6. ሌላ(ግለፅ)____	
10	ብሄር		1. ኦሮሞ 2. አማራ 3. ትግሬ 4.ጉራጌ 5. የተለየ(ግለፅ)_____
11	ከዚህ በፊት እዚህ ታክመው ያውቃሉ?		1.አዎ 2. አይ
12	አዎ ከሆነ ለምን ያህል ቀን?		
13	የአለብዎ የቲቢ አይነት		1. በአክታ የተረጋገጠ የሳንባ ቲቢ 2. በአክታ ያልተረጋገጠ የሳንባ ቲቢ 3.ከሳንባ ዉጭ የሆነ ቲቢ 4. መደሃኒት የተላመደ ቲቢ
14	የበሽተኛው የህመም ክፍል የትኛው ነዉ?	1. አዲስ የቲቢ በሽተኛ 2. ቲቢ ያገረሸበት በሽተኛ 3. የቲቢ መድሃኒት ህክምና ያልሰራለት 4. የቲቢ ህክምና የቋረጠ 5. በሪፈራል የመጣ 6. ሌላ(ግለፅ)_____	
15	ህክምናመቼ ጀመሩ		(ቀን/ወር/ አመት)
16	አሁን የህመም ምልክት አለዎት?		1.አዎ 2. አይ
17	የታቀደው የህክምና ክትትል ጊዜ		1. ስድስት ወር 2. ስምንት ወር 3. የተለየ (ግለፅ)_____.
18	አሁን ከጤና ድርጅት መድሃኒት የሚወስዱት?	1. በቀን በቀን 2. በሳምንት 3. በወር 4. የተለየ(ግለፅ)_____	
19	ለዚህን ያህል ጊዜ በየቀኑ/በየሳምንቱ እመላለሳልሁ ብለው ገምተዉ ነበረ?		1.አዎ 2. አይ
20	በርሶና በህክምና ክትትል ሰጪዎ መካከል ጥሩ መግባባት አለ?		1.አዎ 2. አይ
21	የ ቲቢ ህክምና ረዳትዎ	1.የጤና ባለሙያ 2. የቤተሰብ አባል 3. የጤና እክስቴንሽን ሰራተኛ 4.ጓደኛ 5. በጎ ፈቃደኛ 6.የተለየ(ግለፅ)_____	

ለ. የቲቢ ህክምና አገልግሎት ማዕከላዊነት በተመለከተ

1= በጥብቅ አልስማማም 2=አልስማማም 3=አልወሰንኩም 4=እስማማለሁ 5 =አጥብቄ እስማማለሁ

ታካሚ፣ ቤተሰብ እና ማሕበረሰብ

1	**ለታካሚ ኃይል መስጠትና ተሳታፊነት**					
1.1	**የመረጃ አሠጣጥ**					
	ከሚከተሉት ውስጥ በጤና ክትትል ሰጪዎች በቂ መረጃየተሰጠዎት ስለ፡					
1.1.1	የቲቢ መተላለፊያ፣ መከላከያ እና ሕክምና	1	2	3	4	5
1.1.2	የሕክምና ደጋፊ ጠቀሜታ	1	2	3	4	5
1.1.3	የጤና ሁኔታዎ ትንበያ	1	2	3	4	5
1.1.4	የቲቢ ሕክምናን በተመለከተ ታካሚዎች ምን ችግር እንዳለባቸው	1	2	3	4	5
1.2	**ምርጫዎትን ስለመጠበቅ**					
	የቲቢ ህክምና ክትትል ሰጪዎች የሚቀበሏቸው የእርስዎን፡					

1.2.1	የቲቢ መድሃኒት የሚወስዱበት ቦታ መምረጥ ለምሳሌ በቤት ውስጥ፣ ሥራ ቦታ፣ የጤና ተቋም	1	2	3	4	5
1.2.2	ፀረ ቲቢመድኃኒት የመውሰጃ ጊዜ	1	2	3	4	5
1.2.3	የራስዎን የቲቢ የሕክምና ድጋፍ ሰጪ ለመምረጥ ዕድል ተሰጥቶዎት ከሆነ	1	2	3	4	5
1.3	**ዕውቅና**					
1.3.1	በቲቢ ህክምና አሰጣጥ ዕቅድ ተሳትፈዋል	1	2	3	4	5
1.3.2	ውሳኔ በሚሰጥበት ወቅት የእርስዎ ስምምነት ተወስዶ ከግምት ውስጥ ገብቷል	1	2	3	4	5
1.3.3	በሕክምናው ሂደት ያበረከቱት አስተዋጽዖ በተገቢ መንገድ ዕውቅና ተሰጥቶታል	1	2	3	4	5
2	**ራስን ለመቆጣጠርና ራስን ለመንከባከብ አቅምን ማሻሻል**					
	የቲቢ ህክምናና እንክብካቤ ሰጪዎች ለእርስዎ የሰጡት፡					
2.1	ራስን መከታተልን መሠረት ያደረገ የቲቢ የጤና ትምህርት	1	2	3	4	5
2.2	የምክር አገልግሎት በቲቢ ክትትልና ሕክምና ላይ ራስዎን ስለ መከታተል	1	2	3	4	5
2.3	የቲቢ እንክብካቤና ሕክምናን አስመልክቶ የጽሑፍ፣ ስዕላዊ፣ የምስልና ድምጽ መልዕክቶች	1	2	3	4	5
3	**የእርስዎ የሕክምና ደጋፊ፡**					
3.1	ቲቢ ስለሚተላፍባቸው መንገዶች መከላከያና ህክምና በደንብ ያውቃሉ	1	2	3	4	5
3.2	ሁል ጊዜ መድሃኒቶችን ሲወስዱ ይመልከቱዎታል	1	2	3	4	5
3.3	ሕክምናዎትን አስመልክተው ከጤና ክትትል ሰጪ (ሰጪዎች) ጋር በቋሚነት ይወያዩሉ	1	2	3	4	5
3.4	ከእርስዎ ጋ በቋሚነት በመገናኘት ይወያያሉ	1	2	3	4	5
4	**የቤተሰብና የጓደኞች ተሳታፊነት**					
4.1	በእርስዎ የቲቢ ክትትል እንቅስቃሴዎች ቤተሰብ ተሳታፊ እንዲሆን ይበረታታ ነበር	1	2	3	4	5
4.2	በእርስዎ የቲቢ ክትትል እቅስቃሴዎች ጓደኞችዎ ተሳታፊ እንዲሆኑ ይበረታቱ ነበር	1	2	3	4	5
4.3	የቲቢ መተላለፊያ፣ ሕክምና እና ክትትል ጥቅሞችና ጉዳቶችን ከጓደኞችዎ ጋር ተወያይተዋል	1	2	3	4	5
4.4	የቲቢ መተላለፊያ፣ ሕክምና እና ክትትል ጥቅሞችና ጉዳቶችን ከቤተሰብ ጋር ተወያይተዋል	1	2	3	4	5
የቲቢ ህክምናና ክትትል ሰጪ ባለሙያዎች የተመለከተ						
1	**የቲቢ ህክምናና ክትትል ሰጪ ባለሙያዎች ባሕሪያት**					
	የቲቢ ህክምናና ክትትል ክትትል ሰጪ ባለሙያዎች ማለት፡					
1.1	ታማኝ፣ ሰው አክባሪ፣ ሰው ወዳድ እና ታጋሾች ናቸው	1	2	3	4	5
1.2	ስለ ራሳቸው ቆም ብለው የሚያስቡ	1	2	3	4	5
1.3	ተጠሪነታቸው ለቲቢ ታካሚዎች የሆነ	1	2	3	4	5
1.4	የቲቢ ክትትል ለመስጠት ቁርጠኞች የሆኑ ናቸው፡፡	1	2	3	4	5
1.5	የጤና ክትትል ሰጪዎች ስላላቸው ተሳትፎ እርስ በእርስ ይግባባሉ፡፡	1	2	3	4	5
1.6	የጤና ክትትል ሰጪዎች እሴት ይሰጣሉ፣ መረጃና ሀላፊነቶችን ይጋራሉ (እርስ በእርስ)	1	2	3	4	5
2.	**ታካሚውን እንደ ልዩ ሰው**					
	በአብዛኛው የጤና ክትትል ሰጪዎች፡					
2.1	የእርስዎን ሀሳብ፣ ባሕልና ኃይማኖት ያከብራሉ	1	2	3	4	5
2.2	ለእሴቶች ዎ ዕውቅናና ዋጋ ይሰጣሉ፣	1	2	3	4	5
2.3	ስሜቶችዎን ይረዳሉ	1	2	3	4	5
3	**የቲቢ ህክምናና ክትትል ሰጪ ባለሙያዎችና - የታካሚ ግንኙነት**					
	የቲቢ ህክምናና ክትትል ሰጪ ባለሙያዎች ና የእርስዎ ግንኙነቶች					
3.1	ለእርስዎ ችግር ቅድሚያ በመስጠት ላይ የተመሰረተ ነው	1	2	3	4	5
3.2	ነፃ ውይይት የተሞላበት	1	2	3	4	5
3.3	በጥንቃቄ ማዳመጥና መረዳት የሚካሄድ ነው	1	2	3	4	5
3.4	ከቲቢ ክትል ሰጪዎች ጋር የእስ በእርስ ግንኙነት በመፍጠር የሚካሄድ ነው	1	2	3	4	5
3.5	ስለ ሕመምዎ/ የጤና ሁኔታዎት ግልፅና የተጠቃለለ መረጃ የሚቀያየሩበት ነው	1	2	3	4	5

3.6	የጤና ሁኔታዎን አስመልክቶ በቋሚነትና በተገቢው መንገድ ውይይት የተሞላበት ነው	1	2	3	4	5
4	**አካላዊ ድጋፍ**					
4.1	አካላዊ ምቾትዎን ለመጠበቅ የቲቢ ህክምናና ክትትል ሰጪ ባለሙያዎች ይደ ግፎታል	1	2	3	4	5
4.2	ድካም ሲሰማዎት የቲቢ ህክምናና ክትትል ሰጪ ባለሙያዎች ይደግፎታል	1	2	3	4	5
5	**የመንፈስ ድጋፍ**					
	የቲቢ ህክምናና ክትትል ሰጪ ባለሙያዎች የመንፈስ ድጋፍ፡					
5.1	ቲቢውን ህመም እንዲቋቋሙ የመንፈስ ድጋፍ ይሰጡዎታል	1	2	3	4	5
5.2	የሰው ለሰው ግንኙነቶችና የስሜት መለዋወጦች ሲኖሩ እንዲቋቋሙ የመንፈስ ድጋፍ ይሰጡዎታል	1	2	3	4	5
5.3	ከቅጥር/ገቢ ጋር ተያያዥ የሆኑ ጉዳዮችን እንዲቋቋሙ የመንፈስ ድጋፍ ይሰጡዎታል	1	2	3	4	5
6	**ባዮፊዚካል ዕይታዎች**					
	የጤና ክትትል ሰጪዎች የሚያሳስባቸው					
6.1	ስለ ሕይወት ታሪክዎና ስለ ዕድገትዎ መወያየት	1	2	3	4	5
6.2	ስለ ቤተሰብና ስለ ማሕበራዊ መስተጋብሮችዎ መወያየት	1	2	3	4	5
6.3	የቅጥር የስራ ሁኔታና የገንዘብ ጉዳዮችን አስመልክቶ መወያየት	1	2	3	4	5
6.4	የስነ ልቦናዊ ሁኔታዎችን መወያየትና ግልጽ እዲሆኑላቸው መፍቀድ	1	2	3	4	5
የጤና ክትትል አገልግሎት ሰጪ ድርጅት የተመለከተ						
1	**የውጤታማና ብቁ የክትትል ዘዴዎች ጥምረትን ማረጋገጥ**					
1.1	ይሄን የጤና አገልግሎት ለማግኘት ረዘም ያለ መንገድ ተጉዘዋል	1	2	3	4	5
1.2	አንዳንድ ዝርዝር ጥንቃቄዎችን ለማስታወስ ማስታወቂያዎች አሉ (ለምሳሌ ሲያስሉ እንዴት አፍን መሸፈን እንዳለብዎት …)	1	2	3	4	5
1.3	የጤና ድርጅቱ የቲቢ ህክምና ለማግኘት ምቹ ነው	1	2	3	4	5
1.4	የጤና ድርጅቱ የጤና ትምህርት ለማግኘት ምቹ ነው	1	2	3	4	5
2	**ባለ ብዙ ዘርፍ የጤና ቡድኖችን ማቋቋምና ማጠናከር**					
	የታካሚ ድጋፍ አገልግሎቶች መገኘት፡					
2.1	መጓጓዣ	1	2	3	4	5
2.2	የምግብ ድጋፍ	1	2	3	4	5
2.3	ባሕላዊ ህክምና	1	2	3	4	5
2.4	መንፈሳዊ ድጋፍ	1	2	3	4	5
2.5	ማሕበራዊ ድጋፍ	1	2	3	4	5
	የቲቢ ህክምና ክትትል አገልግሎት ስርዓት					
1	በሕብረተሰቡና በታማሚዎች ዘንድ የሚስተዋሉ ቅሬታዎችን መከታተልና መፍትሄ መስጠት					
	የቲቢ ህክምናና ክትትል ስርዓት					
1.1	የቲቢ ህክምናና ክትትል ከቀን ተቀን ክትትል ወደ ወርሃዊ ክትትል በሚገባ ተሸጋግረዋል	1	2	3	4	5
1.2	ለመከታተል ቀላል የሆነ መልካም የቀጠሮ አሰራር አለ	1	2	3	4	5
1.3	የቲቢ ክትትል አገልግሎቱ ከኤች አይ ቪ ምርመራ አገልግሎቶች ጋር በመጣመር ይሰጣል	1	2	3	4	5
1.4	የጤና አገልግሎት ሰጪዎች ክትትሉን በተመለከተ የጋራ ስምምነት የደርጋሉ	1	2	3	4	5
1.5	የቲቢ ክትትል አገልግሎት የሚሰጠውን ሰው ስምና አድራሻ የያዘ ማስታወቂያ አለ	1	2	3	4	5
1.6	የሕክምና መረጃዎች በሚስጥር ይጠበቃሉ	1	2	3	4	5
2	**በጋራ /በቡድን የመስራትና ቡድን መመስረት**					
	የቲቢ ህክምና አገልግሎት ሰጪዎች					
2.1	በጤና ተቋማት መካከል መልካም የቅብብሎሽ ስርዓት አለ	1	2	3	4	5
2.2	በጤና ተቋማትና በሌሎች አካላት መካከል መልካም የቅብብሎሽ ስርዓት አለ	1	2	3	4	5
2.3	በካርድ ክፍል፣ ላቦራቶሪ፣ ምርመራ ክፍልና ….. መካከል መልካም ቅንጅት አለ	1	2	3	4	5
3	**በጤናው ረገድ የከፋ ችግር የገጠማቸውን ሰዎች ስለመርዳት**					

3.1	በቲቢ ክትትል ጊዜ አስቸጋሪ ሁኔታ ሲያጋጥምህ ከፍተኛ እርዳታና ድጋፍ አግኝተዋል	1	2	3	4	5
3.2	ለገጠምዎ አስቸጋሪ ሁኔታዎች ተገቢ በሆነ ጊዜ ማካካሻ ነበር	1	2	3	4	5
3.3	ጥያቄዎች፣ ችግሮችና ቅሬታዎችን ለማስተናገድ የተመደበ ቋሚ ባለሙያ ስለመኖሩ	1	2	3	4	5
3.4	የቲቢ ክትትል አገልግሎት ስርዓት በመስጠት ሂደት ውስጥ ለሚያጋጥም ችግር በጥሩ መስተናገድ አለ	1	2	3	4	5
ሐ. የቲቢ ታካሚዎች እርካታ በቲቢ ህክምና አገልግሎት አሰጣጥ **5= በጣም ረክቻለሁ 4= ረክቻለሁ 3= ገለልተኛ 2= አልረካሁም 1= በጣም አልረካሁም**						
1.	**አወቃቀር:** በሚከተሉት እርካታ ይሰማዎታል?					
1.1	የቲቢ በሽታን ለማከም የሚያገለግሉ አስፈላጊ ቁሳቁስ፣ መድኃኒቶች፣ የላብራቶሪ ኬሚካሎች መገኘት	1	2	3	4	5
1.2	የክትትል ሰጪዎች በሚፈለጉበት ጊዜ መገኘት	1	2	3	4	5
1.3	መድሃኒትዎን መልሶ ለመሙላት የክትትል ሰጪዎች በቀላል መገኘት	1	2	3	4	5
1.4	አካባቢው ለዊልቸር ተስማሚ መሆን	1	2	3	4	5
1.5	የመጠበቂያ፣ የመመዝገቢያ እና የመታከሚያ ክፍሎች ምቹነትና የወንበሮች መገኘት	1	2	3	4	5
1.6	የሕክምና ቦታው ለታካሚዎች ያለው ደህንነት	1	2	3	4	5
1.7	የሕክምና ቦታው ውስጥ የት መሄድ እንዳለብዎት አቅጣጫ የሚያሳዩ መጠቁሞች መገኘት	1	2	3	4	5
1.8	የመጸዳጃቤቱ ንጽሕና፣ ጥሩነት	1	2	3	4	5
1.9	የሕክምና ክፍል ንፅህነት	1	2	3	4	5
1.10	ለመድሃኒት መዋጫ የሚሆን ደህንነቱ የተጠበቀ ውሀ መገኘት	1	2	3	4	5
2	**አሠራር:** በሚከተሉት እርካታ ይሰማዎታል?					
2.1	የእርስዎን ጥያቄዎች አስመልክቶ የጤና ክትትል ሰጪዎች የሚሰጡት ማብራሪያና ምላሽ	1	2	3	4	5
2.2	የጤና ክትትል ሰጪዎች የቲቢ ምርመራ፣ ሕክምና እና ክትትል ችሎታ	1	2	3	4	5
2.3	ለቲቢ ምርመራ እና ሕክምና የከፈሉት ገንዘብ ተመጣጣኝነት	1	2	3	4	5
2.4	ለመጓጓዣ ልከፍለው ከምችለው በላይ የመጡብኝ የክፍያ ግዴታዎች	1	2	3	4	5
2.5	የጤና ሁኔታዬ ደህንነት ለማረጋገጥ የጤና ክትትል ሰጪዎች የሚያደርጉት ጥንቃቄ እና የሚመድቡት ጊዜ	1	2	3	4	5
2.6	የጤና ክትትል ሰጪዎች አቀባል፣ አክብሮትና ተስማሚ እንክብካቤ	1	2	3	4	5
2.7	የጤና ክትትል ሰጪ ባለሙያዎች አንዳንደ እንደማያውቁ ይቆጥርዎታል	1	2	3	4	5
2.8	ለክትትልቀጠሮ ለመያዝ ያለው ስርዓት	1	2	3	4	5
2.9	የቲቢ ክትትል ለማግኘት ለመመዝገብ ረጅም ጊዜ መጠበቅ	1	2	3	4	5
2.10	የጤና ክትትል ሰጪው የሕክምና ቃላትን ሲጠቀም አያብራራም	1	2	3	4	5
3	**ዉጤት:** በሚከተሉት እርካታ ተሰምቶታል?					
3.1	በቲቢ ህክምና ባገኙ ት የህመም ስሜትዎ አቀናነስ	1	2	3	4	5
3.2	በቲቢ ህክምና ባገኙ ት አካላዊ ደህንነት	1	2	3	4	5
3.3	በቲቢህክምና ባገኙ ት የመንፈስ ደህንነት	1	2	3	4	5
4.	**አጠቃላይ እርካታ:** በተሰጠዎት ክትትል ምን ያክል ረኩ (ትንሹ 0 ትልቁ ደግሞ 10 ነው)	**0**_____**10**				

ግዜዎን ስለሰጡኝ አመሰግናለሁ ። ማለት የሚፈልጉት ካለ_____

የመረጃ ሰብሳቢው ስምና ፊርማ_____ ቀን_____

<u>በኢትዮጵያ በቀጥታ የሚታይ የቲቢ ህክምና ስትራቴጂ ግምገማ፡ የበሽተኞን ማእከልነት እና የእርካታ ጥናት</u>

<u>የግሩፕ ውይይት ፈቃደኝነት መጠየቂያ ቅፅ</u>

በቅድሚያ እዚህ ስለተገኛችሁ የከበረ ሰላምታዬን አቀርባለሁ። ስሜ በለጠ ጌታሁን ወልደየስ ይባላል የደቡብ አፍሪካ ዩኒቨርስቲ የፒኤችዲ ዲግሪ ተማሪ ነኝ። በአዲስ አበባ የቲቢ ህክምና አሰጣጥ ላይ ጥናት እየሰራሁ እገኛለሁ። ይህም ጥናት በአዲስ አበባ ጤና ቢሮ የስነምግባርና ጥናት ኮሚቴ እና በደቡብ አፍሪካ ዩኒቨርስቲ የጥናትና ምርምር ኮሚቴ የፀደቀ ነው።

ዛሬ ከእናንተ ጋር ስለ አዲስ አበባ የቲቢ ህክምና አሰጣጥ ማዕከላዊነትና የታካሚዎች የዕርካታ መጠን ላይ ለመወያየት እፈልጋለሁ። የውይይቱም አስፈላጊነት የርስዎን ልምድና ተሞክሮ ወስዶ ለወደፊት ለሚደረገው የቲቢ ህክምና አሰጣጥ ለማሻሻል ስለሚጠቅም ነው።

ከናንተ ጋር የምናደርገው ውይይት ከአንድ ሰዓት ያልበለጠ ነው የሚሆነው ውይይታችንም በመቅረፀ ድምፁ ይቀረፃል። ነገር ግን ይህ የተቀረፀው በጥናቱ አባል ብቻ ተወስኖ ይቀራል። እንዲሁም ለሌላ አላማ አይውልም።

በተጨማሪ መወያየት በማትፈልጉበት ነገር ላይ ያለመሳተፍ መብት አላችሁ።

የምትጠይቁት ጥያቄ ካለ_____

ለመሳተፍ ፈቃደኛ ናችሁ ☐ አዎ ☐ አይ

የተሳታፊ ፊርማ_____ቀን_____

በኢትዮጵያ በቀጥታ የሚታይ የቲቢ ህክምና ስትራቴጂ ግምገማ፡ የበሽተኞን ማእከልነት እና የእርካታ ጥናት

የግሩፕ ውይይት መንደርደሪያ

1) በአዲስ አበባ እየተሰጠ ያለው የቲቢ ህክምና ሂደት ምን ይመስላል?

2) በቀጥታ እየታየ የሚሰጠው የቲቢ ህክምና ተግዳሮቶቹ ምንድን ናቸው?

3) እንዴት ነው ታካሚው የህክምና ረዳቱን የሚመርጠው?

4) እንዴትነ ነው የታካሚዎቹ ምርጫ በቲቢ ህክምና አስጣጥ ሂደት ውስጥ የሚጠበቀው?

5) የክምና አሰጣጡ ህመምተኛውን ማዕከል ማድረጉን የሚያመለክቱ መለኪያዎች?

6) ማዕከላዊነቱን ለማረጋገጥ የሚያወኩ ወይንም የሚያበረታቱ ነገሮች ምንድን ናቸው?

7) የህክምና አሰጣጡ ታካሚውን ማዕከል እንዲያደርግ ምን ቢደረግ ይሻላል?

8) እንዴት ነው የቲቢ ተካሚዎች በቲቢ ህክምና አስጣጥ ይርኩ ወይ አይርኩ የሚታወቀው?

9) ምንድን ናቸው የተካሚዎን እርካታ የሚቀንሱ/እንዲጨምር የሚያደርጉት? ?

10) የታካሚውን እርካታ ለመጨመር ምን ቢደረግ ይሻላል?

11) ዋናው የቲቢ ተካሚዎችን ህክምና እንዲያቋርጡ የሚያደርጋቸው ነገር?

12) መጨመር ወይም ማለት የምትፈልጉት ካለ?

ግዜያችሁን ሰጥታችሁ ስለ ተሳተፋችህ አመሰግናለው። እናንተና ሌሎች የስጡኝን አጠናቅሬ ለጤና ቢሮ አቀርባለው።

አመሰግናለሁ።

በኢትዮጵያ በቀጥታ የሚታይ የቲቢ ህክምና ስትራቴጂ ግምገማ፡ በሽተኞን ማእከል እና የእርካታ ጥናት

የቲቢ ቲቢ ህክምና ቋረጡ ውይይት ሚስጥራዊነቱን መጠበቂያ ቅፅ (ቃላዊ)

ጤና ይስጥልኝ። ስሜ በለጠ ጌታሁን ወልደየስ ይባላል የደቡብ አፍሪካ ዩኒቨርስቲ የፒኤችዲ ዲግሪ ተማሪ ነኝ። በአዲስ አበባ የቲቢ ህክምና አሰጣጥ ላይ ጥናት እየሰራሁ እገኛለሁ። ይህም ጥናት በአዲስ አበባ ጤና ቢሮ የስነምግባርና ጥናት ኮሚቴ እና በደቡብ አፍሪካ ዩኒቨርስቲ የጥናትና ምርምር ኮሚቴ የፀደቀ ነው።

ዛሬ ከእናንተ ጋር ስለ አዲስ አበባ የቲቢ ህክምና አሰጣጥ ማዕከላዊነትና የታካሚዎች የዕርካታ መጠን ላይ ለመወያየት እፈልጋለሁ። የውይይቱም አስፈላጊነት የርስዎን ልምድና ተሞክሮ ወስዶ ለወደፊት ለሚደረገው የቲቢ ህክምና አሰጣጥ ለማሻሻል ስለሚጠቅም ነው።

ከናንተ ጋር የምናደርገው ውይይት ከሃያ ደቂቃ ያልበለጠ ነው፡ ውይይታችንም በመቅረፀ ድምፅ ይቀረፃል። ነገር ግን ይህ የተቀረፀው በጥናቱ አባል ብቻ ተወስኖ ይቀራል። እንዲሁም ለሌላ አላማ አይውልም።

በተጨማሪ መወያየት በማትፈልጉበት ነገር ላይ ያለመምለስተፍ መብት አለዎት።

የምትጠይቁት ጥያቄ ካለ?

ለመሳተፍ ፈቃደኛ ነዎት? አዎ ☐ አይ ☐

በኢትዮጵያ በቀጥታ የሚታይ የቲቢ ህክምና ስትራቴጂ ግምገማ፡ በሽተኛን ማእከል እና የእርካታ ጥናት

የቲቢ ቲቢ ህክምና ቋረጡ ተሳታፊዎች ውይይት መንደርደሪያ ጥያቄዎች

1. የቲቢ ህክምናውን ለምን አቋረጡ?
2. ምን ያህል ህክምናው ከወሰዱ በኁላ አቁረጡ?
3. በህክና ላይ እያሉ የጤና ባለሙያዎቹ ስለ ቲቢ ህክምና የሰጡዎት መረጃ ምንድን ነው?
4. የጤና ባለሙያዎቹ ምን ያህል የእርስዎን ምርጫ ይጠብቁ ነበር?
5. ምን ያህል የህክምና አሰጣጡ ተሳታፊ ነበሩ?
6. የርሶ የህክምና ረዳትዎ የርሶ ምርጫ ነው? ምንድን ነበር የሚረዳዎት?
7. ስለ ቲቢ መተላለፊያ መንገድ ህክምናና አገልግሎቱ ከጤና ባለሙያዎች ጋር የነበረዎትን ውይይት እንዴት ይገልፁታል?
8. የጤና ባለሙያዎቹ በምን ያህል ጥልቀት ስለ እርስዎ የማህበራዊ፣ የገንዘብና የስነልቦና ሁኔታ ይወያያሉ?
9. በጠቅላላ ያለው የቲቢ ህክምና አገልግሎት እንዴት ይገልፁታል?
10. ከቲቢ ህክምናው ጋር ተያይዞ ያገኙት አገልግሎት ነበር?
11. አስቸጋሪ ሁኔታ ሲገጥምዎት በአግባቡ ይረዱ ነበር? ከነበረ እንዴት ይገልፁታል?
12. በአጠቃላይ የቲቢ ህክምና ማዕከላዊነቱን እንዴት ይገልፁታል?
13. ማዕካላዊነቱን ለማሻሻል ምን ቢደረግ ይላሉ?
14. ባገኙት የቲቢ ህክምና እርካታዎ ምን ይመስላል?
15. የታካሚዎችን እርካታ ለመጨመር ምን ቢደረግ ይላሉ?
16. መመጨመር ወይም ማለት የምትፈልጉት ካለ?

ግዜዎን ሰጥተው ስለተሳተፉ አመሰግናለው::