SCHOOL OF PUBLIC HEALTH

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PSYCHOSOCIAL FACTORS THAT INFLUENCE ADHERENCE TO DIRECT OBSERVATION TREATMENT AMONG TB PATIENTS IN ACCRA METROPOLIS

BY

GYIMAH FAUSTINA TWUMWAA

(10387663)

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DECLARATION

I, Faustina Gyimah Twumwaa declare that apart from references to other works that I have duly acknowledged, this report is a product of my own original work conducted under the supervision of Dr. Phyllis Dako-Gyeke. I further declare that no part or whole of this dissertation has ever been submitted for the award of any academic credit at this University or any University elsewhere.

……. ……..

Faustina Gyimah Twumwaa Date

(Student)

……. ……

Dr. Phyllis Dako-Gyeke Date

(Supervisor)

DEDICATION

I dedicate this research report to my beloved family; Pastor and Mrs. Adjei-Boadi as well as to my Mother, Miss Charlotte Addobea Amponsah for their encouragement and support.

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ABSTRACT

Background: TB disease is curable, however, despite the initiation of DOTS recommended by WHO to control the epidemic; the disease remains a major public health problem globally and in Ghana. This issue can be associated with Non-adherence to DOTS among TB patients, which has resulted in an increase in TB mortality and severe forms of TB, difficult to cure. Therefore, there is the need to investigate the psychosocial factors that influence adherence to DOTS among TB patients in Accra Metropolitan.

Method: A qualitative approach using phenomenology was employed to explore participants' experiences regarding adherence to DOTS. Thirty (30) IDIs and three (3) KIIs were conducted in three purposively sampled health facilities (Greater Accra Regional Hospital, Kaneshie Polyclinic, and Achimota Hospital). The data collected was transcribed, coded and analyzed for the generation of themes with the aid of qualitative data analysis software "Nvivo version 11.0".

Results: The participants had good knowledge of TB as well as DOTS practices. According to the participants, perceptions, and outcomes of DOTS positively influenced on DOTS. On the other hand, unwillingness to visit facilities for treatment and desire for smaller drug sizes were some of the unfavorable perceptions. Again, adverse emotional experiences such as fear of the unknown and the motivation for treatment positively influenced adherence to DOTS. Socially, support from health workers and other significant others were factors which influenced adherence to DOTS positively and adversely. Patient challenges as well as health system challenge were some barriers hindering the implementation of DOTS.

Conclusion: Therefore, the NPT should intensify public education as well as provide the tangible support required to overcome these barriers.

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LIST OF ABBREVIATION

AFB	Acid Fast Bacilli
AIDS	Acquired Immune Deficiency Syndrome
CPHS	Community-based Health Planning Services
DOTS	Direct Observed Treatment Short course
GARH	Greater Accra Regional Hospital
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immunodeficiency Virus
IDI	In-depth Interview
KII	Key Informant Interview
LTBI	Latent Tuberculosis Infection
MDR-TB	Multi-Drug-Resistant Tuberculosis
MOH	Ministry of Health
MTB	Mycobacterium Tuberculosis
NTP	National Tuberculosis Control Program
OPD	Out Patient Department
PI	Principal Investigator
RCT	Randomized Control Trials
RIF	Rifampin
SDGs	Sustainable Development Goals
TB	Tuberculosis
TST	Tuberculin Skin Test
US	United States
UN	United Nations
WHO	World Health Organization

DEFINITION OF TERMS

Direct Observed Treatment is a method of TB treatment whereby a trained health care provider monitors the client to swallow his or her anti-TB drugs.

Non-adherent patient refers to a patient whose treatment was interrupted for two or more months consecutively.

Missed treatment means not following the recommended course of treatment by missing at least one day of drug intake.

Psychological factors are the individuals' internal perceptions, attitudes, and motivations towards DOTS.

Perception refers to an individual's views and opinion about DOTS practices.

Social factors are the inter-relational factors that enhance or hinder adherence to DOTS.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

This chapter gives the background of the study which covers global, regional and national outlook of Tuberculosis. Adherence to TB treatment is also explained. The chapter further presents the research problem that was investigated, the general and specific objectives and the research questions addressed. The justification for the study and the conceptual framework on psychosocial factors influencing adherence to DOTS are as well presented in this chapter.

1.1.1 Tuberculosis

Infection with *Mycobacterium tuberculosis* is a sufficient cause of Tuberculosis in humans (Okeke et al., 2014; Aliyu et al., 2013). TB disease is curable and preventable, however, despite the numerous control programs initiated by World Health Organization (WHO) in these few decades, the disease has remained a key public health problem worldwide (Diefenbach-elstob et al., 2017;Iribarren et al., 2013;Cobelens, Kampen, Ochodo, Atun, & Lienhardt, 2012; World Health Organization, 2010). Patients affected with TB mostly experience signs and symptoms such as protracted coughing with sputum and blood at a certain point in time, fever, tiredness, weight loss, loss of appetite, night sweat among others. The mode for the transmission of TB includes sneezing, coughing, indiscriminate spiting among others, through the inhalation of TB bacilli (Cobelens et al, 2012).

On a spectrum, TB can begin from a latent infection and later develop, crucially spreading into different organs, when early detection and prompt diagnosis by health care professionals are not

done (Nimit Patel, 2012). It is estimated that 80% of TB infection is found in the lungs (pulmonary TB), whereas other parts such as the intestine, meninges (extra-pulmonary TB) are also affected in some cases (Connor-Smith & Flachsbart, 2007).

TB is counted as one of the top ten killer diseases in the world (WHO, 2016; Connor-Smith & Flachsbart, 2007). Globally, about one-third of humanity is infected with the TB bacterium although a greater proportion of the population shows no signs and symptoms (WHO, 2016). About 10.4 million TB incidence was recorded in 2016, slightly declining to 10 million in 2017. These threats culminate from a high prevalence of HIV, persisting global poverty, and the escalation of Multidrug-resistant TB (Lawn & Zumla, 2011).

Asia is the leading continent with the highest incidence of TB worldwide (WHO, 2016). Africa is the second highest TB endemic continent in the world, after Asia. In Africa, TB continues to pose a greater threat to the lives of many people. Africa forms about 11% of the population of the world, however, it hosts about one-third of the global burden of TB incidence and 34% of related deaths (Engla, 2010). Countries such as South Africa and Nigeria are among the seven countries in the world that accounted for 64% of TB incidences in 2015 (WHO, 2016). Three million people with TB remain undiagnosed and untreated in the continent (Ntoumi et al., 2016).

In Ghana, following a successful implementation of three National TB Strategic Plans: 1997-2001, 2002-2007, 2009-2013, according to the National TB Control Program there are still key performance gaps that affect the overall impact of these programs (MOH, 2015). The burden of TB in Ghana estimated in 2015 revealed mortality rate of 37 per 100,000 patients (excludes HIV+TB), 19 out of 100,000 patients (HIV+TB only) and an incidence rate of 160 per 100,000 (includes HIV+TB), 36 per 100,000 (HIV+TB only) and 5.5 out 100,000 population (MDR/RR-TB) (WHO, 2016).

In 2015, the UN adopted the SDGs, attainable by 2030 with one major objective as to “Ensure healthy lives and promote well-being for all at all ages” (United Nations, 2015). Specifically, the third aim of this particular goal is to "End the epidemics of tuberculosis, AIDS, malaria, neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases". Thus, the End TB Strategy has been adopted by WHO which seeks to obtain 90% decrease in Tuberculosis demises and an 80% decrease in the TB new cases by 2030 (WHO, 2016). This crucial target calls for immediate global and local attention. An accelerated and active TB case detection, improvement in treatment and treatment adherence by patients worldwide are crucial factors to consider.

1.1.2 Treatment Adherence

Adherence to DOTS has been a significant issue in the fight against TB (Naidoo et. al., 2009). Adherence to treatment can be classified as “primary” relating to refilling and initiation of the medication or “secondary” pertaining to following the prescription as it is given. Non-adherent patients are likely to default in any of these two types of adherence or both. WHO has revealed that poor medication adherence normally emanates from, five categories including, socio-economic drivers, treatment-related causes, patient-related factors, condition-related factors, and health system related drivers (Sabate, 2003). Poor treatment adherence among TB patients can affect health outcome leading to life-threatening conditions such as disease relapse, multiple drug resistance which extends treatment period, increase the cost of treatment and could possibly lead to loss of life (Lam & Fresco, 2015).

Many TB patients who were adherent, experienced phases of non-adherence at certain points of their treatment due to personal and social factors (Naidoo, Dick, & Cooper, 2009). It is, therefore, necessary to probe into the reasons why patients do not adhere to TB treatment.

1.2 Statement of Problem

TB patients are required to access treatment at their respective assigned DOTS facilities and receive supervision over the course of their treatment. This mode of treatment can be frustrating and serves as a major stressor to patients, considering the fact that they have to visit DOTS centers for an extended duration mostly not less than six months (Jaiswal et al., 2003). TB patients face challenges that are threatening to their cognition, emotions, as well as their social well-being (Chang & Cataldo, 2014).

Adherence to Direct Observed Treatment (DOTS) among TB patients is critical to the enhancement of TB control (Mishra, Gioia, Childress, Barnet, & Webster, 2011; Bam et al., 2006)

Furthermore, Gebremariam, Bjune and Frich (2010) noted that factors that influenced adherence to TB treatment were a normative belief in the curability of TB, support from families, and health professionals. However, barriers to treatment adherence included an unwillingness to disclose TB status, inadequate communication with health professionals, among others (Jurcev-Savicević, 2011).

In Ghana, poor adherence to TB treatment has also been found to lead to MDR-TB, a severe form of the disease (Norgbe, 2011). According to Thiam et al. (2007), the increase in TB mortality is associated with poor treatment adherence. This situation has remained a major challenge in the total eradication of TB in Ghana.

In recent times, the NTP has revealed a high TB incidence in Greater Accra Region with a notification rate 66 per 100,000 population. As TB incidence increases, there is the need to focus on possible drivers associated with non-adherence to treatment (Tabong, 2017; Blesson et al., 2015).

Few studies have focused on the influence of psychosocial forces on DOTS adherence among TB patients (Pachi, Bratis, Moussas, & Tselebis, 2013; Bam et al., 2006). In Ghana, previous researches conducted in relation to the issue did not focus on psychological factors and how it associates with the social factors to influence on adherence to DOTS (Azagba, 2013; Noora, 2015; Burton et al., 2011). Furthermore, it was necessary to employ a qualitative research approach to explore the issue to provide a detailed information on the population of interest (Creswell, 2009). This approach enhanced the exploration of patients' perceptions, challenges, and coping strategies available for TB patients referring to cases specifically in Accra Metropolitan where TB incidence is prevalent.

1.3 Justification

This study was relevant due to the current increase in TB notification in Ghana. This signals a likely increase in non-adherence to DOTS if the underlying psychological and social factors affecting treatment of the disease are not identified and addressed accordingly. Investigating adherence to TB treatment (DOTS) was also very crucial since it is a major contributing factor to attaining both national and global goals of improved control and possible eradication of TB epidemic. The findings of the study are beneficial through the following:

1. By informing health workers and treatment supporters in Accra Metropolis on how to properly manage and care for TB clients in the face of their diverse demographic

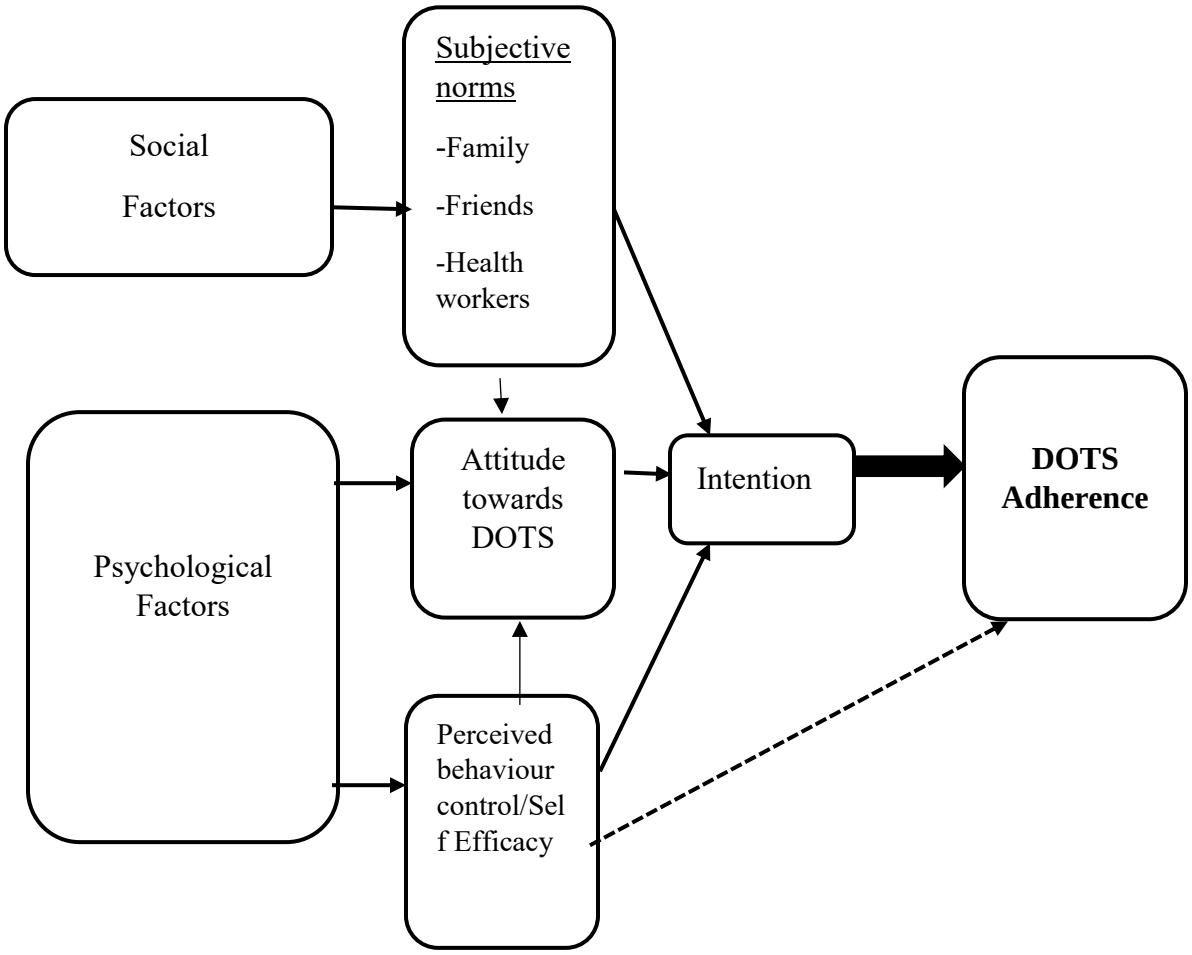
background, perceived and experienced challenges. This may enhance the adoption of appropriate strategies to strengthen DOTS adherence throughout the treatment course.

2. The findings of the study serve as an additional knowledge of psychosocial factors affecting DOTS, as an efficacious tool for TB control. This, in addition, serves as an evaluation of DOTS as an intervention for TB control as well as strengthen its efficacy.
3. The National Tuberculosis control Program (NTP) may also utilize the findings of the study. The findings may inform NTP to initiate programs and training to enhance cognitive restructuring through Cognitive Behavioral Therapy that boosts TB patients' self-efficacy for treatment adherence.

1.4 Conceptual Framework

1.4.1 Narration

Adherence to TB treatment is of much essence to the control of the disease (Karumbi & Garner, 2015). The Theory of Planned Behaviour is a psychological model that explains and predicts behaviours in diverse contexts (Barnard-Brak, Burley, & Crooks, 2010). The theory links one's beliefs to his/her behaviour . It has been adapted to explore the relationship between psychosocial factors and adherence to DOTS among TB patients. The model explains that behaviour is a function of intention, which is determined by three major factors including, attitude towards behavior, subjective beliefs and perceived control (Ajzen, 1991). DOTS adherence is the outcome behavior of interest. The Theory of Planned Behaviour is depicted in Figure 1 below:



Source: Ajzen, 1991

Figure 1. 1: Theory of Planned Behaviour Model for DOTS Adherence

1.4.2 Psychological Factors

In this study, attitude towards DOTS, perceived behavioural controls/self-efficacy, as well as intentions towards DOTS, form the psychological variables of interest. Attitudes explain an individual's thought and feeling towards something or someone. According to Ajzen (1991), attitudes are key determinant of intention and behaviour. A patient who evaluates treatment as favorable is much likely to have higher or positive intention towards the behavior. However,

some patients may see treatment as useless, boring and unfavorable. These attitudes will negatively affect the intention and possibly lead to a less likelihood of the occurrence of the behaviour. Thus, a direct relationship is found between attititudes and intention(Ajzen & Fishbein, 2005).

Furthermore, Perceived behavioral control is a multidimensional concept that shows perceived control over behaviour, perceived ease or difficulty in performing in behaviour, and perceived self-efficacy to perform the behavior. Perceived behavioral control determines how an individual evaluates his/her capability to undertake the treatment behavior. Perceived behavioral control by an individuals is directly linked with attitudes and intention towards treatment. It can positively or negatively influence attitudes and intention directly (Ajzen, 1991). In addition, perceived behavioural control can indirectly influence the desired behaviour outcome through intentions serving as a direct precursor of the behavior (Ajzen, 1991). More so, intention to undertake a given behaviour entails the motivational factors that influence the individual as well as how much effort he/she is ready to invest in the behaviour. Thus, it explains the intensity and direction of the behaviour to be performed. The stronger TB patients' intention to adhere to DOTS, the greater the chance for the performance of the behavior(Cooke & Sheeran, 2004)

1.4.3 Social Factors

The decision of patients to comply with treatment can be influenced by what society view to be acceptable and non-acceptable or what is supported or not in the community regarding the treatment. Subjective norms from significant others such as family members, friends, and health workers constitute the social factors that were assessed. Subjective norms can directly influence the attitude and clients' intention towards DOTS. (Sheeran & Rivis, 2017). Thus, it indirectly

influences adherence to DOTS. Patients who receive positive regards and encouragement from significant others such as treatment supporters are likely to comply with treatment requirements and vice versa (Deshmukh et al., 2018). For instance, stigma from community members against TB patients is a societal norm in most low and middle-income countries. Subjective norms held around TB has the tendency to negatively influence intentions and adherence to DOTS (Naidoo et al., 2009).

1.5 Objectives of the Study

1.5.1 General Objective

To investigate the psychosocial factors that influence DOTS adherence among TB patients.

1.5.2 Specific Objectives

- To assess TB patients' knowledge and perceptions on DOTS.
- To identify the psychological factors that influence adherence to DOTS among TB patients.
- To ascertain the social factors that influence TB patients' DOTS adherence behaviours.
- To assess the challenges experienced by TB patients on DOTS and the coping strategies adopted.

1.5.3 Research Questions

- What are TB patients' knowledge and perception on DOTS?
- What are the psychological factors that influence adherence to DOTS among TB patients?
- How do social factors influence TB patients' adherence to DOTS?

- What are the challenges experienced by TB patients on DOTS and the coping strategies adopted?

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

This chapter presents much insight into previous studies expounded on the burden of TB, diagnosis, treatment, psychological and social factors associated with TB treatment as well as the barriers to the successful implementation of DOTS.

2.2 Aetiology and Prevalence of Tuberculosis

Tuberculosis has been in existence since ancient times. This spans from the European world (8000 BC), ancient Egypt (1000 BC), as well as pre-Columbian New World. These periods showed some signs of Skeletal TB. From the time of Hippocrates (400BC), evidence of TB, as an infectious disease existed (Gabriel & Mercado, 2011).

Tuberculosis is a transmissible infection caused by a bacterium. The bacterium consists of a complex of different types of organisms which include *M. Tuberculosis, M. Bovis, M. Africanum, M. Microti*, as well as *M. Canetti* (Varaine, Rich, & Grouzard, 2014).

Across the world, the urban areas and highly dense populations have been recording high TB prevalence (Lai et al., 2013). There are two main categories of TB. These are Latent TB and the Active TB diseases. The signs and symptoms of Active TB are dependent on the type of its manifestation. However, such symptoms are often absent in Latent TB. In Active TB, the activity of the TB bacteria, *Mycobacterium Tuberculosis* is rapid and other organs of the body, aside the lungs may be affected. Other types of TB includes skeletal TB, tuberculous meningitis, gastrointestinal TB, genitourinary (Burrill et al., 2007; Sharma & Mohan, 2004).

TB is also prevalent among HIV/AIDS patients. In 2015, TB claimed the lives of about 35% of HIV-positive patients (WHO, 2016). Over the years, globally more men have been infected with the disease than women. Out the 10.4 million people with active TB worldwide, 5.9 million were men, 3.5 million were women. In addition, 1.0 million of those infected were children (WHO, 2016). This statistics implies fewer children are at risk of TB. However, out of the 1 million children who became infected with TB in 2015 excluding those with HIV, 170 000 lost their lives (WHO, 2016). In assessing the relationship between specific age distribution and prevalence rates of latent tuberculosis infection (LTBI) in South Africa, Wood et al. (2010) indicated that there is a very high rate of TB infections among adolescents. This age specific group recorded the higher prevalence of LTBI since they were in their reproductive age and much at risk of being infected with HIV.

In Ghana, it has been found that the majority (97.6%) of TB cases are caused by M. tuberculosis, whereas 2.4% are- caused by *M. Africanum* (Addo et al., 2007). The second national TB survey conducted in Ghana in 2013 revealed a national prevalence of 290 given a 100,000 population. This figure is about three times higher than the estimated 92 per 100,000 by the WHO (MOH, 2015). Just like other countries, the burden of TB in Ghana is unevenly distributed. The disease is relatively prevalent among males than females within the country. Furthermore, the disease is found to be more prevalent at ages 35years and above as compared to the younger age groups below 35years. This is depicted in Table 2.1 below:

Table 2. 1: The Burden of TB Epidemic in Ghana

	S+	B+(All Study Cases)
Total	105 (97-181)	264 (229-343)
Male	206 (139-272)	334 (244-426)
Female	91 (49-135)	251 (187-316)
	Age Group (year)	
15-24	54 (16-92)	137 (73-201)
25-34	53 (1-105)	199 (117-281)
35-44	131 (59-203)	264 (140-388)
45-54	265 (163-367)	392 (256-526)
55-64	291 (101-481)	521 (305-738)
65+	290 (106-475)	657 (410-904)

* B+ is bacteriologically diagnosed incidence (microscopy and/or culture/Xpert MTB Rif test)

Source: MOH, National TB Health Sector Strategic Plan for Ghana 2015–2020

2.3 Diagnosis and Treatment of TB

2.3.1 Diagnosis of TB

Tuberculosis diagnosis phases have undergone numerous changes over the past years. Early detection and diagnosis of TB are essential to the control of the disease (Andersen et al., 2000). Owing to resource constraints, diagnosis and treatment are not prompt in most Low and Middle-income Countries including Ghana (Nimit Patel, 2012). There is documented evidence of delay in time from the first visit of the patient to the health facility as well as the time of diagnosis in Ghana (Tabong, 2017).

These delays are mostly attributed to the mode of TB diagnosis. Clinical examination and taking of the medical history of patients have been a major means for traditional detection of TB cases

(Lange & Mori, 2010). The NTP of Ghana has developed a TB case detection algorithm which is administered to patients passing through the OPD (MOH, 2015). Patients who present with symptoms of a cough for at least two weeks, coupled with other respiratory symptoms and/or weight loss, loss of appetite, fever, fatigue among others are termed as suspected cases (World Health Organization, 2010). Suspected individuals produce sputum for culture growth. However, culture growth of the bacteria may take two or more weeks on average and it becomes a challenge when AFB are not found by sputum smear microscopy in the face of the symptoms for the disease (Lange & Mori, 2010). Thus, the need for relying on different clinical tests such as TST, chest radiography, amplification TB nucleic acids among others (Lange & Mori, 2010).

Over the past few years, Xpert MTB/RIF assay was introduced and used in most countries for quicker diagnosis of TB and MDR-TB concurrently in less than 2 hours (Boehme et al., 2011). The tool requires less skill for operation and results are rapidly available as compares to the other diagnostic tools mentioned earlier. There is evidence of the utilization of Xpert MTB/RIF assay in few facilities within Ghana. Most of these facilities are located in the southern part of the country, with intention of the NTP to scale up the tool to the other parts of the country (MOH, 2015). The results from the Xpert MTB/RIF assay assist in selecting treatment regimens and detecting infections. However, this tool works best as a compliment to the other diagnostic tools but does not completely replace them (Center for Disease Control, 2013).

Globally, a deficit of 4.3 million population has been estimated between TB case notification and an estimated number of incidence (WHO, 2016). This culminates from the under-reporting and under-diagnosis of the disease, which hampers the control of the disease.

Worldwide, there have been diverse strategies and policies to enhance TB control. For TB patients to be cured of the infection, they are required to consistently take anti-tuberculosis drugs

for at least six months (Muture et al., 2011). However, patients with MDR-TB and other TB coinfection, among others, may prolong their treatment. This protracted treatment coupled with some side effects of medication as well as the stress of coping with MDR-TB, HIV-TB may negatively influence patients attitude and behaviours on treatment adherence (Lawn & Zumla, 2011). TB relapse has been found to be significantly associated with patients who are non-adherent to treatment. In certain cases, MDR-TB culminates from such non-compliance (De Steenwinkel et al., 2013).

2.3.2 Direct Observed Treatment Short course

In 1991, DOTS was recommended by the WHO as one of the strategies for TB control globally (World Health Organization, 2010). This efficacious tool has been implemented by the NTP of Ghana with the aim of facilitating TB control in a more effective manner. This strategy is geared towards the enhancement of TB case detection and ensuring treatment completion through the provision of drugs, supervision of drug intake as well as monitoring the treatment process. The aim of DOTS is to reduce morbidity and mortality from TB, in an attempt to control the disease (Karumbi & Garner, 2015).

This strategy involves six major components. These include, the pursuing of high-quality DOT expansion and enhancement; address challenging cases due to TB-HIV, MDR-TB; catering for the needs of less privilege populations; strengthen health-system-based on primary health care; engage all health providers; empower individuals with the disease to exercise control over their treatment and community mobilization and partnership (Nimit Patel, 2012).

The World Health Organization has stipulated guidelines for TB treatment in 2010 which was updated in 2017 (WHO, 2017; WHO, 2010). According to this guidelines, DOTS regimens

involve the intake of fixed-dose combination tablets. The treatment is divided into two folds including Intensive phase and the Continuous phase. Patients who have been newly diagnosed with TB undergo the intensive phase of the treatment for two months. They are required to take the Category I regimen which constitutes, Rifampin, Isoniazid, Pyrazinamide and Ethambutol, all in a single dose daily. DOT strategy is highly employed during the intensive phase of the therapy. At this stage, the client is directly supervised by a health worker in the facility to swallow the anti-TB drug. This is followed by at least four months of Rifampin and Isoniazid in the continuous phase, which is dependent on the outcome of the sputum test done after the completion of the intensive phase. The patients are seen weekly to monthly in the facility to take their medications and progress made in relation to treatment is assessed during the continuous phase.

Treatment supporters assist in providing modified DOTS therapy to the clients. For patients with relapse, the regimen (Category II) given to them consists of Streptomycin, Rifampin, Isoniazid, Pyrazinamide, and Ethambutol for a period of two months, followed by the same drugs except for Streptomycin for a month, then five months of Rifampin, Isoniazid, and Ethambutol. Clients enrolled on retreatment are expected to have DOT by nurses at the clinic on daily basis. All medications are provided without direct financial cost (Burton et al., 2011).

Due to the above strategies, DOTS have contributed to the successful treatment of TB (Nimit Patel, 2012). However, a systematic review of eleven randomized control trials (RCT) and a quasi RCT conducted by Karumbi and Garner (2015) among TB patients in low and middle-income countries did not show substantial improvement in cure with patients enrolled on DOTS. This gives a moderate evidence in support of the use of DOTS. In addition, self-administration of anti-bacterial drugs was associated with low cure (range of 41% to 67%) with findings cutting

across all the eleven trails. The frequency of Self-administered medication patients was found to positively correlate with the level of cure. In three of the trials, a comparison based on stratified location was conducted. This revealed a slight effect in cure in relation to DOT at home where patients are likely to receive support from close significant others in the family as compared to DOT in the clinics.

2.4 The Theory of Planned Behaviour and TB Treatment

The Theory of Planned Behaviour served as the theoretical underpinning for this study. This theory evolved in reaction to the grave criticisms that were tailored against the Theory of Reasoned Action (Greve, 2001). The Theory of Planned Behavior was formulated as an extension to the Theory of Reasoned action (Singh, 2011). This theory explains behaviour in specific conditions. It explains 'behaviour' as a function of 'intention', which is determined by three major factors including, 'attitude towards behaviour', 'subjective norms' and 'perceived control'. The Theory of Planned Behavior has been applied in explaining and predicting behaviours in diverse contexts such as healthcare, technology, among others (O'Connor & Armitage, 2017). The various behaviour determinant factors of the theory are explained as follows:

To begin with, the intention to undertake a given behaviour involves the intrinsic factors and the effort invested that influence performance of behaviour. The idea that achievement of a behaviour depends on the association of intention (motivation) and perceived control (ability) existed for a long time (Bandura, 1977). Perceived behaviour control is another significant variable which explaining intention. Perceived behavioural control is the effortlessness or difficulty of undertaking a behaviour as perceived by the individual. Certain anticipated

challenges and past occurrences may inform the individual on such perceptions. Perceived control varies across situations and actions.

Self-efficacy is the innate potential needed to initiate, adapt, and adjust to a given behaviour(Schwarzer, 2014). It explains the confidence in the ability to perform a given behaviour in a specific setting or context. Maddux (1995), proffer self-efficacy theory as "the initiation of and persistence at behaviours and courses of action are determined primarily by judgments and expectations concerning behavioural skills and capabilities and the likelihood of being able to successfully cope with environmental demands and challenges," (pp. 4). Self-efficacy is very useful in facing the diverse emotional and behavioural struggles that individuals go through from time to time (Schwarzer, 2014).

Attitude is another determinant of intention for a behaviour(Fishbein & Ajzen, 2011). Over the past decades, there have been diverse studies on attitudes as a key determinant of intention/ behaviour. In 1925, the attitude was considered as the central focus during the inception of social psychology as a field of study and as well, accounted for the September 11th terrorist attack in the United States in the year 2001 (Singh, 2011). Attitudes have been found to positively affect TB treatment where positive perceptions about TB and the treatment are evident (Ahmed, Chaudhry, & Farooq, 2014). On the other hand, where patients are influenced by negative opinions from community members on TB, negative attitudes such as non-disclosure of the disease and non-adherence to the treatment are evident (Jurcev-Savicevic, 2011; Tachfouti, Slama, Berraho & Nejjari, 2012).

2.5 Knowledge and Perception on TB Treatment

Knowledge about TB has been found to significantly influence attitude to treatment. This knowledge, however, did not necessarily ensure positive perceptions among patients.

In a study to investigate the reasons, why patients were non-adherent to TB treatment, poor knowledge was found to be a key factor (Blesson et al., 2015). These participants comprising mainly illiterates and a few with up to the primary level of education had little information about the mode of TB treatment. In addition, there was a lack of counselling services prior to the commencement of the treatment. There was inadequate information on drug administration and how to manage adverse side effect which was a major reason for non-adherence to TB treatment (Blesson et al., 2015). Similarly, Tachfouti et al. (2012) reported that TB patients who had no knowledge of the mode of transmission of TB were also ignorant of the consequence of the incompletion of treatment. They quitted treatment when they felt relieved of the symptoms and pains having the perception that they were cured.

A study conducted by Kulkarni et. al. (2016) also observed adequate knowledge about infectiousness of TB, its spread, curability, and duration of treatment among new sputum-positive TB patients enrolled on DOTS in Mumbai district. It concluded that adequate knowledge about TB was significantly associated with compliance among the patients interviewed.

However, adequate knowledge of TB and TB treatment does not automatically establish positive perception towards TB and TB treatment. According to Zafar (2013), patients could have adequate knowledge on the cause of the disease, availability of cure for TB, however, their perceptions towards treatment could be shaped by the high level of stigma held by community

members towards the disease. TB patients are depicted as irresponsible and also lacked respect from community members.

2.6 Psychological Factors and TB Treatment

High prevalence of psychological experiences has been observed among outpatients attending treatment in urban hospitals (Peltzer, Pengpid, & Skaal, 2012). These psychological defects have been found to have an adverse impact on treatment response among TB clients (Theron, et al., 2015). They also can influence the functioning of the immune system (O'Donovan & Neylan, 2017).

Emotional experiences, intention and motivation for treatment by TB patients have been well researched. Major psychological defects such as anger and helplessness have been found to be associated with TB clients in South Africa (Naidoo, 2009). This is characterized by depressive symptoms such as isolation from people, anorexia, and moodiness among others. Other severe psychological distress such as anxiety has also been found to characterize the lifestyle of clients infected with TB (Peltzer et al., 2012).

Experiences of clients who completed TB treatment in southeast Brazil have been researched. According to Dias, Oliveira, Turato and Figueiredo (2013), TB patients often experience fear of transmitting the disease to family members, friends and colleagues in their workplaces. Such patients often isolate themselves from others with the fear of being embarrassed by society. More so, participants reported the fear of death during the treatment period. The fear of death was attributed to the inadequate knowledge about how curable TB was. Similarly, De Souza, Da Silva, and Schlindwein Meirelles (2010) also indicated fear of death and transmission of TB as some mental challenges encountered by TB clients.

A direct relationship has been found between psychological distress and non-adherence to anti-TB medication (Theron, et al., 2015; Ugarte-Gil et al., 2013; Glaser, et al., 1999). In a study in South Africa to assess the relationship between psychological distress and non-adherence to TB treatment, 22% of the participants were seen to have experienced psychological challenges due to the illness. Majority of participants who were psychologically distressed were women. It was also documented that individuals with high psychological distress and who also had low levels of health literacy on TB were more non-adherent to TB treatment (Theron, et al., 2015).

Intention to complete TB treatment is another psychological factor that hinders or enhances adherence to DOTS. In a study to investigate the life experience of patients on TB therapy, it was found out that all participants had the intention to complete their treatment in order to be restored unto good health. In spite of this intention, about one-third of the clients interviewed were victims of treatment non-adherence (Akeju, Wright, & Maja, 2017). These clients also had their treatment interrupted. This subsequently connotes that, the intention to carry out a behaviour does not necessarily imply performance.

The motivation to comply with DOTS has a significant implication on treatment adherence by clients. According to Blesson et al. (2015), clients who lost motivation to continue with treatment were due to the postponement of treatment schedules and appointments. This adversely influences their adherence and cure rates. Again, in a study to ascertain the effect of psychosocial factors and patients' views of non-adherence to TB treatment in Ethiopia, it was noted that perceived barriers to comply with DOTS and perceived self-efficacy significantly affected compliance to treatment among the clients (Akeju et al., 2017).

2.7 Social Factors and TB Treatment

In an attempt to improve health, it is crucial to explore the social drivers that underline the behaviours of TB patients.

2.7.1 Social Support in TB Treatment

The key function of social support in TB treatment cannot be underestimated. Findings from previous studies have revealed social interactions between TB patients and significant others (Davtyan et al., 2015). Studies have outlined the positive impact of social support on treatment adherence. However, social support could also be misleading.

In a study by Kaliakbarova et al. (2013), the effectiveness of patient's support among MDR-TB patients was analyzed. The study assessed patient-oriented support implemented, juxtaposing it with adherence rate among the clients. It was observed that as the patients received direct observation and support there was an improvement in drug intake from 48% to 97%. There was also a drastic decrease in interruption of anti-TB drugs for at least one day, from 18% to 4% among all TB patients. Again, treatment default was minimal, with only one patient missing some doses of the medication. This implies that the availability of treatment support greatly reduced non-adherence to TB treatment. Social support, according to Khanal et al. (2017) mediates between TB treatments and mental health. The absence of social support to TB clients negatively affected their psychological wellbeing, hence, the need for psychosocial packages was recommended. Similarly, in a case-control study to examine the duration tuberculosis clients stay in treatment before defaulting as well as the factors that lead to default in Nairobi, default clients were selected as cases and completely treated patients were sampled as controls. Social support was found to lessen the rate of default among patients (Muture et al., 2011).

Furthermore, a qualitative study, conducted by (Akeju et al., 2017), revealed that a majority of participants who were TB clients experienced social support from family, friends and community members. These supports were in the form of encouragement to continue taking medication, food, and money. This served as a source of motivation and facilitated the adherence of clients to treatment. However, about one-fifth of the participants expressed the negative influence of some friends who advised them to take the anti-TB drugs irregularly as well as to join them to consume alcohol.

2.8 Challenges and Coping Strategies by TB Patients on DOTS

2.8.1 Barriers to the Implementation of DOTS

Different people face diverse challenges when undertaking DOTS. Major challenges to DOTS evident in literature are accessibility and availability of DOTS services. Consistent findings on poor access to health facilities, low staff strength, poor health education, unavailability of anti-TB drugs, among others, have been documented.

Access to major health facilities in Ghana remains a problem. It is often a challenge for patients to access health facilities about 5 to a 15-kilometer radius from their place of residence (Gyapong, Aikins, Awini, Mauch, & Bonsu, 2012). This finding is similar to Diefenbach-Elstob et al. (2017) on the social drivers of TB treatment adherence. The study revealed that restricted vehicular transport in communities far from health facilities rendered accessibility to DOTS was very costly and unfavorable. Furthermore, ineffective routine treatments were observed in these health facilities where there were untrained health workers. According to Diefenbach-Elstob et al. (2017), the unavailability of trained health worker led to the supervision of clients by

unqualified health staff and inappropriate drug dosing in aid posts prior to clients' diagnoses of TB.

Review of studies has given much evidence on the unaffordability of treatment. This serves as a major burden confronting TB patients. Although drugs for treating TB are given freely without charge, studies have shown that clients experience a lack of physical social support in the form of inadequate financial support, to comply with treatment. Hutchison, Khan, Yoong, Lin, and Coker (2017) in their interviews with health workers and some TB clients supported the assertion that affordability of treatment services as a major challenge to treatment access. This burden was prominent among people with low socioeconomic statuses such as rural dwellers, farmers and people from the marginalized ethnic group. Similar results have been documented by Diefenbach-elstob et al. (2017). They observed that the affordability of nutritional intake such as food was reported to be a challenge. Patients who were subsistent farmers had limited access to money and food during the treatment period. This challenge was most challenging among patients who need to travel and lodge close to the health facilities to access treatment. Such patients due to this economic burden traveled back to their villages to feed on the farm produce they cultivate which subsequently defer their treatment to a later time.

Furthermore, Raviglione and Sulis (2016) observed that financial assistance required to fight to TB is essential to bridge the resource gap. About 8 billion US dollars were required each year to cover the costs of case detection and treatment throughout the world. However, the available funds of about 6.4 billion US dollars were woefully inadequate in meeting such needs.

According to Boru, Shimels and Bilal (2017), other factors associated with non-adherence to DOTS includes, poor interaction between healthcare workers and patients. The trust in the

traditional healing process, unavailability of the service in facilities close to clients, large drug size, side-effects, among others were also identified as non-adherence drivers.

2.8.1.1 Stigma in relation to TB Treatment

According to Baral, Karki and Newell (2007), stigma exists, "*when a person is identified by a label that sets the person apart and links the person to undesirable stereotypes that result in unfair treatment and discrimination*". Many research findings have found positive direct associations between stigma and treatment adherence. Naidoo et al. (2009) explored possible forces that accounted for tuberculosis clients' adherence and non-adherence to the DOTS at a primary health care unit in a disadvantaged community in South Africa. Stigma was reported to be directly linked with non-adherence to treatment. They discovered; 'Self -Imposed Stigma', 'Enacted Stigma' and 'Self-Fear' as the types of stigma as experienced by the patients. Clients with 'Self-Imposed Stigma' felt ashamed and isolated themselves from families and friends when they found out about their TB infection status. Evidence of 'Enacted Stigma was also reported by other patients who experienced discrimination and some levels of prejudice from significant others. Cases of 'Self-Fear' where clients perceived the fear of being discriminated against should they disclose their TB infection status.

2.8.2 Coping Strategies

The coping strategies adopted by a client may depend on the individual preference and the problem at hand. In a study, Connor-Smith and Flachsbart (2007) divulged an association between personality and coping in broad terms. Individuals respond to challenges in ways which were suitable for their thoughts patterns and behaviours. Some of the participants engaged in more problem-solving and cognitive restructuring. Whereas others projected support-seeking behaviours. Yet the other category of patients engaged in problematic strategies such as focusing

on their emotions and isolation. In the same direction, clients who are faced with the challenge of affording DOTS could sell their assets or rely on some family members for financial support. In some cases, they could receive financial support from healthcare workers.

In another study, Ayé et al. (2011) uncovered similar financial coping strategies. They found out that TB clients were required to raise on average US$ 23 through loans with interest and US$ 57 through loans without interest whiles others raised US$ 102 by selling their properties. These coping strategies were detrimental to the patients. For instance, productive assets such as cattle, goats and sheep, were sold to raise money for treatment. Parting off with one's means of livelihood has psychological implications such as feelings of insecurity and vulnerability, which can affect health decisions and attitudes towards adherence to treatment (Patel & Kleinman, 2003).

In addition, health education also plays a key role in adhering to DOTS. Patients who were enlightened about DOTS before the commencement of the treatment were found to be more adherent despite the prevailing side effects of the anti-TB drugs or even when they felt better at a point (Akeju et al., 2017). A similar finding was disclosed by Tola et al. (2016) on the effectiveness of counselling and health education on the enhancement of adherence to DOTS.

2.9 Conclusion of Literature Review

It can be observed that knowledge and perception of TB have been well researched. In addition, the personal and interactional experiences of TB patients have also received much research recognition internationally. However, much is not known about how psychological factors such as negative emotional experience could impact positively on the attitudes and behaviours of patients. In addition, there is the need to explore the patient and health system factors that serve

as barriers to the success of the implementation of DOTS, within Accra Metropolis in the Greater Accra Region of Ghana.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Introduction

This section gives an overview of the study design employed, the study area, the study population, inclusion and exclusion criteria, sample size, sampling method, and details of the processes that were undertaken. These include tools for data collection, quality control strategies, data processing, management and analysis, ethical consideration, and dissemination of results.

3.2 Study Design

A research design is the backbone of a study. It provides the clue of the structure of the research and shows how all of the major parts of the research project work together to meet the research objectives (Trochim & Donnelly, 2005). An exploratory, cross-sectional study using a qualitative research approach was used in this study, specifically, phenomenology (Creswell, 2009). Phenomenology is "a philosophical method of inquiry, introduced in 1901 by Edmund Husserl that concentrates on the detailed description of conscious experience while suspending or bracketing all the preconceptions, interpretations, and explanations" (p. 533). Individuals or group of individuals experiences the same phenomenon differently (Brédart, et al., 2014). Assessing the thoughts and attitudes of individuals towards certain experiences is useful in explaining their behaviour (Naidoo et al., 2009). Therefore, phenomenology enhanced the exploration and description of the subjective views concerning the psychological and social factors that influenced TB patients' adherence of DOTS, from the patients' own perspective and other significant factors relevant to the study.

3.3 Study Area

The study took place in Accra Metropolis. Accra Metropolis is bounded to the north by the Ga West Municipal District, to the west by the Ga South Municipal District, to the east by La Dadekotopon Municipal District, and to the south by the Gulf of Guinea. The Accra Metropolis is the largest metro within Greater Accra Region of Ghana. It is divided into ten sub-metros including, Ablekuma North, Ablekuma Central, Ablekuma South, Okaikoi North, Okaikoi South, Ayawaso East, Ayawaso West, Ayawaso Central, Ashiedu Keteke and Osu-Klotey. The metropolis is highly dense with a population of 1,665,086 with females consisting of about 51.9% while males formed 48.1% (Ghana Statistical Service, 2014). This scenario supports the discussion by Tang, Wang, Wang, and Chin (2016), that high population density puts urban communities at high risk of TB than rural communities. Accra metropolis is characterized by diverse administrative, social and economic activities. The metropolis host the Greater Accra Regional Hospital as well as other health facilities with DOTS centres recording high TB cases which include, Kaneshie Polyclinic, and Achimota Hospital.

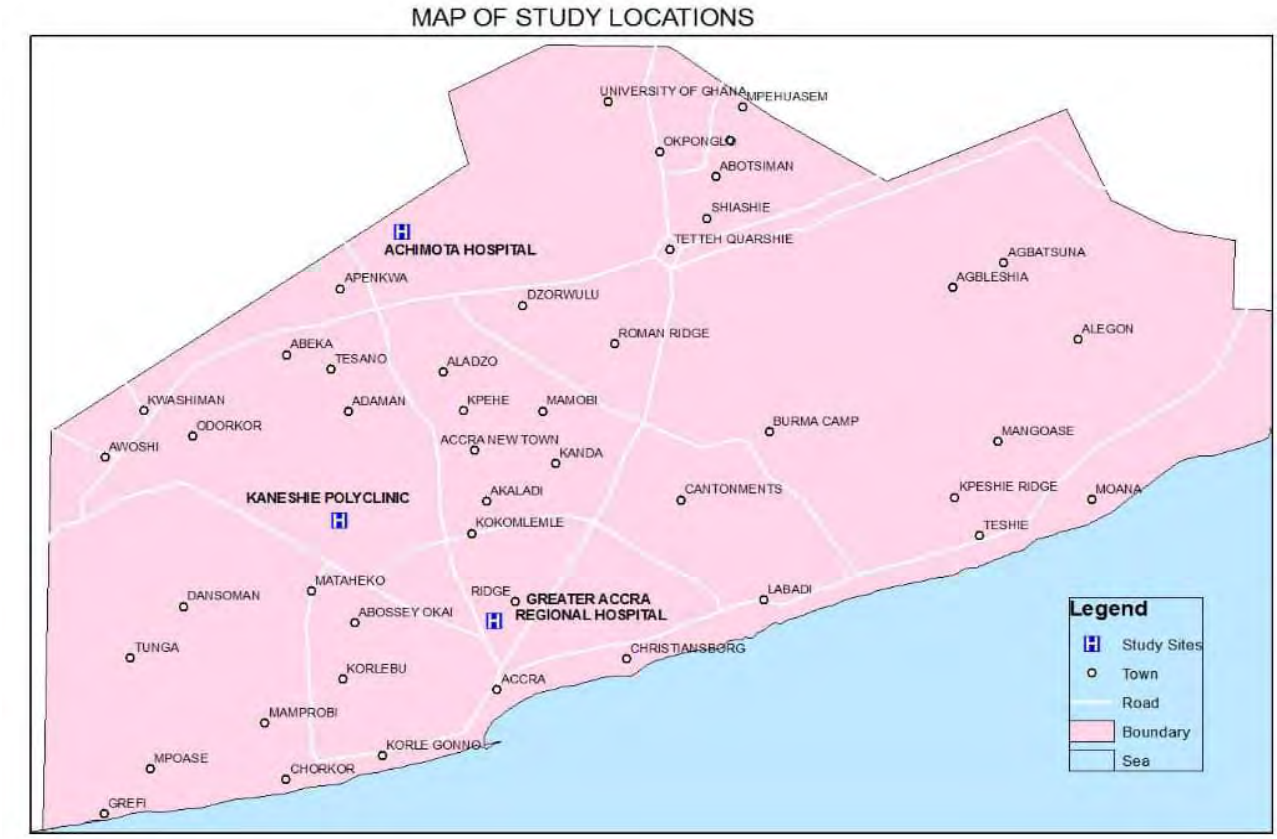


Figure 3. 1: Map of Accra Metropolis Showing Location of Selected Facilities

3.4 Study Population

A study population can be explained as a complete group of people with common specialized characteristics (Trochim & Donnelly, 2005). The study population consisted of TB coordinators and all TB patients attending treatment within Accra Metropolis. The study population included both male and female adult.

DOTS practices in these health facilities are similar. TB patients in these facilities undergo two months of the intensive phase of treatment followed by at least four months of the continuous phase of treatment. Patients are expected to visit health facilities daily for close monitoring and

intake of medication during the intensive phase of treatment. Medications are given to patients based on their weight mainly and age in instances where a patient is aged above 60 years. The medications given to the patients in these health facilities are based on the WHO recommended anti-TB drugs with fixed-dose combinations (WHO, 2010). Health care providers in these facilities are expected to follow up regularly on TB patients to supervise their treatment process.

3.4.1 Inclusion Criteria

Medically diagnosed TB Patients receiving treatment from DOTS centres in Kaneshie Polyclinic, Achimota Hospital and the Greater Accra Regional Hospital were eligible. TB patients registered on the DOTS in the year 2017 and 2018 were eligible for recruitment into the study. Only patients aged 18 years and above, who had been on DOTS for at least two weeks, were selected. This is the age limit for obtaining informed consent under the 1992 Constitution of Ghana (Ghana, 1992). TB coordinators with at least two years of work experience in DOTS services qualified and were as well included in the study.

3.4.2 Exclusion Criteria

TB patients who were critically ill, mentally unstable and those unwilling to participate in the study were excluded. Again, HIV-TB comorbidity cases were also excluded due to the associated stigma attached to both diseases (Bond & Nyblade, 2006). This removed any difficulty in distinguishing responses given from such respondents as associated with TB or HIV/AIDS conditions. TB patients aged below 18years, as well as those with known MDR-TB, were not eligible. Again, patients who were less than two weeks on the treatment were also excluded due to their high tendency of infecting the research assistants (Lönnroth, Jaramillo, Williams, Dye, & Raviglione, 2009).

3.5 Sample Size

A sample can be explained as any part of a complete population (Banerjee, Cole, Duflo, & Linden, 2007). In a phenomenological study, a sample size of 20 participants is enough to reach saturation. Saturation allows the researcher to continue sampling participants until no new information is generated (Green & Thorogood, 2014). In this study, 30 TB patients and 3 key informants were selected.

3.6 Sampling Method

Eligible TB participants in Kaneshie Polyclinic, Achimota Hospital and the Greater Accra Regional Hospital were purposively sampled for the study. In this study, maximum variation sampling, a type of purposive sampling was employed in selecting participants that exhibits a wide range of behaviours and experiences which were significant in gaining greater insights into the phenomenon of interest (Green & Thorogood, 2014). Hospital records of the patients were reviewed for the selection of participants. Specifically, information on the age, sex, marital status, education, phase of treatment and DOTS adherence records of patients were used to inform the selection of participants into the study. Eligible participants were contacted by senior healthcare officers in the facilities either by person or through a telephone call. These clients were informed of the study and given the chance to make a decision to participate.

3.7 Data Collection Techniques and Method

A qualitative data collection approach was utilized. This allowed for the selection of few and best cases for in-depth studies (Green & Thorogood, 2014). Contacts were made with the facilities from time to time. Approved letters were submitted to the administrators of the facilities. Frequent follow-ups were made until permission was granted to carry out the study

within the facilities. Contacts were then made with the senior nursing officers in the DOTS centres for the recruitment of participants into the study. The primary qualitative method for data collection in phenomenology is in-depth interviews (Yin et. al, 2015). Thus, in-depth interviews were conducted after the patients had visited the facility for their treatment at convenient times for the participants. All the interviews were conducted within the health facilities. For patients on the continuous phase of treatment, they were contacted to report to the facility through the assistance of health workers. Informed consent was sought from the selected health care provider in-charge at the DOTS centres and the patients before the interviews were conducted. In addition, confidentiality was assured. Key informant interviews were also conducted with senior healthcare providers. These were conducted by the principal investigator. The interview lasted for an average time of 25 to 30 minutes for each participant.

3.8 Data Collection Tool

IDIs and KIIs were conducted with the use of a semi-structured interview guide. Two different guides were developed. The first was the patients' interview guide. This guide was preceded with questions for the socio-demographic information, phase of treatment as well as information on adherence to treatment. Also, the general life history of the patients involving their daily activities prior to the onset of the disease, the discovery of TB as well as their reaction when informed of their TB status, were explored. In addition, the in-depth interview guide also explored thematic areas such as patients' knowledge on TB and DOTS practices, perceptions on DOTS, psychological and social factors influencing treatment compliance as well as the challenges encountered when undergoing treatment and coping strategies. The second guide focused on key informant's knowledge on case detection and diagnosis, perceptions on DOTS,

and TB treatment regimen. More so, the barriers to the implementation of DOTS were also explored from the key Informants perspective.

3.9 Data Processing and Data Management

Permission was sought from participants for the interviews to be audio-recorded. Codes were given to the interview guides and each interview began by first mentioning the number on the interview guide to ensure data collected and analyzed belonged to the right participant. All KIIs were conducted in English whereas IDIs were conducted in English, Ga, and Twi.

Field notes were made promptly after each interview. The field note covered the initial interviewee's reactions to the interview, and any relevant observations such as the demeanour of the respondent, body language and emotions, that were not captured by the digital recording. Data gathered were stored on the personal computer of the principal investigator with limited access to the research team. The data would be stored for a period of two years after which it would be discarded.

3.10 Data Analysis

The recorded interviews were listened to for about three times. The taped interviews were then transcribed verbatim. The transcripts were read all over again before they were imported into NVivo 11 software for analysis. A thematic content analysis was used employing both deductive and inductive analysis (Creswell, 2009). A codebook was created based on the objectives of the study and the subject areas explored during the interviews. Each transcript was opened in the NVivo software and line-by-line reading and coding into nodes of all the statements were done. The coding was reviewed, where some nodes were rearranged and others merged to develop themes. As coding continued, codebook developed initially was revised. Afterwards major and

sub-themes emerged and the table of themes was exported into word for further interpretation of the data. Also, each node was exported back into word for easy reading and selection of the best quotes which were presented in the results section of the work.

3.11 Quality Control

3.11.1 Training

To assist an effective data collection, research assistants were selected and given the training to appreciate the aims and objectives of the study. They were as well trained on how to conduct interviews in English and Twi and Ga. This facilitated the process of data collection in situations where participants were unable to speak the English language.

3.11.2 Pre-Testing of Interview Guide

Pre-test of the data collection instrument was carried out at the Pentecost Hospital located in Madina. The pre-test serves as an opportunity for practice before the conduction of the main study (Yin, 2011). Pre-testing the tool was helpful in refining different aspects of the study including, fieldwork procedures and data collection tool. Additional probe questions were added to the patients' IDI guide after the conduction of the pre-test. This enhanced the quality of the responses obtained, which helped in answering the research questions. Furthermore, all ethical procedures were followed during pre-testing.

3.11.3 Supervision

During the data collection, the PI was also present on the field to supervise the work of the research assistants. Thus, the data collection was carried out efficiently and ethically. The PI was also present on the field to explain certain issues not understand well by data collectors. The

recorded interviews were replayed after each session on the field which ensured that the interviews are conducted appropriately.

3.11.4 Estimating Qualitative Study Trustworthiness

The measures for ensuring qualitative trustworthiness according to Lincoln and Guba (1985) were applied in this study. The approach employed ensured credibility, applicability, consistency and neutrality. A prolonged interaction between the researcher and the researched was done. The data collection period spanned from April to June 2018. In addition, member checking was used to ensure credibility. The key informants were later contacted to verify certain responses given earlier during the interviews. More so, data triangulation was utilized by transcribing interviews verbatim, taking field notes into consideration. Furthermore, an audit trail was taken into consideration where a detailed description of the methods and procedures for data collection and analysis were provided ensuring transferability. In addition, there was no prior relationship between the researched and the research team, thus there was neutrality.

3.13 Ethical Consideration

3.13.1 Introduction

Approval for the study was sought from the Ethical Review Committee of GHS, Research and Development Division in Accra with approval number GHS-ERC:022/12/17. Formal permission was granted from the Greater Accra Regional Health Directorate as well as the administrators of the selected health facilities.

3.13.2 Inform Consent

Written and verbal informed consent was granted from participants before the commencement of the interviews. The informed consent form was read to participants in either English or translated into a Twi or Ga for easy understanding. Participation was voluntary and respondents were reminded of their liberty of refusal to answer any question when they felt uncomfortable as well to even withdraw from the study at any time if they insisted.

3.13.3 Confidentiality

Confidentiality was also assured before the commencement of all interviews. The names of participants were not requested. Each participant was be given an identification code for easy identification during data entry. Data collected was stored on the personal computer of the PI with restricted access. Participants were informed that their information given would be used solely for academic purpose.

3.13.4 Privacy

Interviews with patients were conducted outside their homes. A suitable place for them within the facility was used. Interviews with key informants were conducted in their offices within health facilities.

3.13.5 Potential Benefits and Risk

There were no direct benefits for participants who participated in the study.

3.14 Dissemination of Results

The findings of this study were presented in a report and made available to the School of Public Health in the University of Ghana, Greater Accra Regional Health directorates, NTP, WHO and the three selected health facilities. Presentations were also held to present the findings of the study. The researcher also intends to use the findings to write manuscripts for publications in academic journals.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

Details of the findings of this study related to the research questions are presented in this chapter. The findings are presented under the ensuing headings; Socio-demographic characteristics of participants, Knowledge on TB and Perceptions of DOTS, Psychological and Social factors that influence adherence to DOTS, and Challenges as well as Coping Strategies adopted by TB clients.

4.2 Socio-demographic Characteristics of Participants

A total of 33 participants sampled from Achimota Hospital, Kaneshie Polyclinic, and Greater Accra Regional Hospital were involved in this study as shown in Table 4.1. An equal number of the participants were selected from each of the three health facilities. The participants for the study included 3 health workers who served as Key Informants and 30 TB clients. The age range of the TB clients engaged in the IDIs was between 19 and 68 years, whereas that of the key informants ranged between 35 and 59 years. The Key Informants were three females who serve as TB coordinators for their respective health facilities with years of work experience ranging from 8 to about 35years. Whereas two of the key informants were married and one was single, one of them was a Muslim while the other two were Christians.

Furthermore, the majority of TB clients were Christians and had some level of education. Most of these clients were employed in diverse jobs before the onset of the disease. While married, divorced, widowed and single individuals in terms of marital status were all included in the study, the married constituted the majority of the participants. More so, patients who were in the

intensive and continuous phases of treatment were included. This provides a blend of experiences at different periods during the treatment.

Table 4. 1 Socio-demographic Characteristic of Participants

Characteristics of Participants	Number of Participants	
	Patients for IDIs	Key Informant
Facility Visited by Patient		
Achimota Hospital	10	1
Kaneshie Policlinic	10	1
Greater Accra Regional Hospital	10	1
Sex		
Male	22	
Female	8	3
Age (years)		
<20	1	
20-29	4	
30-39	6	2
40+	19	1
Educational Level		
No Formal Education	1	
Primary	2	
JSS/Secondary	23	
Tertiary	4	3
Religion		
Christianity	27	2
Islam	3	1
Occupation		
Trader	7	
Craftsmanship	6	
Researcher	1	
Transport Industry	5	
Farmer/Fisherman	2	
Unemployed/Student	3	
Administrator	6	
Nurse		3
Marital Status		
Single	5	1
Married	20	2
Divorced	3	
Widowed	2	
Phase of Treatment		
Intensive	11	
Continuous	19	

4.3 Knowledge on TB

The study participants demonstrated a good knowledge of TB, particularly regarding predominant risk factors, symptoms, transmission, and prevention of the disease. The key informants and one TB client gave a detailed explanation of the disease. The explanations given by the key informants are illustrated below:

> *"Normally, the cause of TB is Micro bacterium Tuberculosis. That is the global causative organism. Predominantly in Africa, we have the Micro-bacterium of Africana. We also have the Micro-bacterium Bovis, which affects animals. Then we have Micro-bacterium Avis which affects birds"* ***(KII, 59y/o, Female, Facility 3).***
>
> *"... Some types of TB are more infectious than the other. We have two main types, which are pulmonary and extrapulmonary. The pulmonary affects the lungs and is more infectious whereas the extrapulmonary is not infectious"* ***(KII, 35y/o, Female, Facility 1).***

In addition, several patients explained the disease based on their experienced symptoms of the disease. For instance, a client stated that *"From my own experience, I will say TB is a kind of disease that makes you cough continuously. You will also feel in your general health that there is something wrong with you. I felt a bit light and it even persisted when I started with h treatment until I became ok sometimes"* ***(68y/o, Male, Facility 2****).*

Again, it was found out that the predominant risk factors that exposed these clients to the disease were poor personal and environmental hygiene, risky social behaviours and a suppressed immune system. These findings permeated across all three health facilities as evident by the quotes from respondents. A key informant, from her experience, mentioned some predominant risk factors that generally exposed clients to the disease. She stated that, *"... Most of the cases we find here are from the slum communities... and you know for the slum, they have poor ventilation and most of them too are hawkers from different communities coming together so they become overcrowded. Then poor nutrition too is another factor because most of them are*

hawkers and they find it difficult to make ends meet for them... so these are the main things that predispose them.... poor living conditions" ***(KII, 37y/o, Female, Facility 2)***. Her observation was confirmed by patients. *One client confirmed by saying that, "I was a heavy drunkard and a cigarette smoker. I have been drinking for almost 15-20 years. I used to get sick frequently. I used to go to work during the daytime and then drink in the evenings after work"* ***(61y/o, Male, Facility 3).***

Furthermore, several of the participants had knowledge of TB as caused by micro-organism spread through the air. All the participants had basic knowledge of coughing etiquette as a means of prevention of the transmission of TB, however, only a few of such respondents engaged in other prevention methods such as proper ventilation of rooms. A participant who observed her tendency to forget to observe the appropriate coughing etiquette narrated what she often does. She stated that *"What I did was to open my windows so that there will be ventilation in the room... because sometimes, I may forget to cover my mouth, but since the air is blowing, it will blow a cough away"* ***(26 y/o, Female, Facility 1).***

Despite the knowledge demonstrated by respondents, there were still some misconceptions among the patients. It was revealed that some of the participants attributed the cause of TB to spiritual and cultural forces. Whereas respondents' knowledge of micro-organisms cause of TB emerged spontaneously from the interviews, the attributed spiritual cause was solicited through prompting by the interviewer.

It was revealed that participants attributed the cause of TB to spiritual and cultural forces. They believed that TB had mystical sources. One client attributed the cause of her illness to the works of an enemy in attacking her family as demonstrated. She mentioned that,*"... my mum was affected [with TB] and my brother and me. I can say that ours is spiritual, it is not the normal TB*

because ours was only within our family…We were just being attacked…" ***(26 y/o, Female, Facility 1).*** Similarly, another client stated that *"…in my village, it is believed that, if your wife coughs during the time that you are making love to her, it can cause the man to get TB. In my village too, I was told that if you inhale the cough of a goat, you can get TB…"* ***(42y/o, Male, Facility 3)***. It was observed that the knowledge held by these clients on the disease was inadequate to demystify the prevailing beliefs held by patients and their contacts.

Furthermore, key informants explained the health seeking behavior of community members in the face of misconceptions on TB treatment, and its consequences on the prognosis of the disease. Late reporting to the facility for treatment was one of such consequence. To a high extent, late reporting culminated in death in some cases. A key informant stated that *"Some [patients] believe they might die when they take the drugs. As a result, they show up for medical care for TB late, the drug might not work on them at that time and they die. Others think it is a spiritual sickness and they see no reason why they should take medicine for something that is spiritual"* ***(KII, 35y/o, Female, Facility 1).***

4.4 Perceptions of DOTS

This section has been categorized into three themes including diagnosis and feature of DOTS, positive perceptions of DOTS and negative perceptions of DOTS.

4.4.1 Diagnosis of TB and Features of DOTS

The findings of the study show that all individuals who present symptoms of a cough for two or more weeks at the OPD within the facilities of study are screened of TB. The screening and diagnoses of TB are done through a series of tests stipulated by the National TB Control Program (NTP). All key informants were abreast with this nationally recommended directive. One of

them stated that *"Everybody needs to be screened for TB. We have developed a screening tool and that one is from National TB Control. That is applied to every patient that passes through our OPD. It is just a matter of asking a simple question that, "are you coughing?", if the person says yes, then you administer the tool"* ***(KII, 59y/o, Female, Facility 3)***. Another key informant narrated the various TB diagnostic tests carried out on suspected TB cases within the facility. These test complimented each other in enhancing the detection of cases. She mentioned that *"we do the sputum test, GeneXpect, and the chest x-ray. Formally, we were doing the sputum and the Genexpect for starters. As you start the treatment, we do AFB but we realized that sometimes the AFBs will be negative but the GeneXpect will be positive. So now we have decided to do GeneXpect for all our clients because we have realized that, that is more effective than the others"* ***(KII, 35y/o, Female, Facility 1).***

In addition, key informant explained the mode of treatment carried out within the facility. It was noted that TB clients undergo two phases of treatment. Patients are closely monitored during the intensive phase of treatment through a daily visit to the facilities. Again, TB treatment entails the daily intake of a combination of drugs and the dosage is dependent on the weight of the individual. All key informant gave a detailed description of the anti-TB drugs showing their level of insight pertaining to the administration of drugs. One key informant stated that, *"With the intensive phase, it comes with a combination of four drugs. We have Rifampicin, Isoniazid, Ethambutol, and Pyrazinamide. Rifampicin is 150mg, Isoniazid is 75mg, Pyrazinamide is 400mg and Ethambutol Hydrochloride is 275mg. When a client gets to the continuous phase, he/she is only given a combination of Rifampicin and Isoniazid… All are in a tablet but the number of tablets you take depends on your weight. We give 4 tablets as the maximum dose one can take."* ***(KII, 35y/o, Female, Facility 1).***

Table 4. 2: Patient weight and dosage of an anti-TB drug

Weight of Patient (kg)	Drug Dosage per Day (Tablets)
30-39	2
40-54	3
>54	4

Furthermore, treatment for DOTS is free for all clients who visit the facility. The drugs are supplied to the health facilities to be distributed to the clients. Participants also reported the free diagnosis and monitoring tests. Therefore, DOTS services in relation to anti-TB drugs and test are affordable for patients despite their socio-economic background. This is illustrated in the quotes below:

> *"... I do not pay any money when I come here"* ***(42y/o, Female, Facility 3)****.*
>
> *"No, I do not pay any money. It is free. Even the lab tests and others are also free"****(39y/o, Male, Facility 2).***

4.4.2 Positive Perceptions of DOTS

Many of the participants expressed a favorable opinion on the purpose of DOTS. They saw this mode of treatment as significant for enhancing adherence, monitoring progress and a form of support for clients. For example, a client stated that, *"... At the initial stage, we were educated not to smoke, drink alcohol, and the need to eat well. Some people still do what they have asked us not to do [smoking and drinking]. Coming here often allows them to monitor how far you are progressing when you do the tests. They are able to know if you are complying or not"* ***(38y/o, Male, Facility 3).*** Relatedly, another patient mentioned that *"As for the DOTS, what I have*

realized is that there are some people that when you give them the medicine, they will not take it. Sometimes too, the nurses want to observe you so that they can give you the necessary support that is needed" ***(40y/o, Male, Facility 3).***

With regards to perception of drug dosage and frequency of intake, the participants gave favorable responses. They perceived the dosage as very friendly as shown below. A patient, for example, stated that, *"Taking 4 tablets a day for me is not a border. Even if it is ten tablets, I will take so long as I have been assured that I will be healed…"* ***(29y/o, Male, Facility 1).***

The participant's perception of the duration of TB treatment was also explored. Almost all the clients were disturbed initially when they were informed of the duration of their treatment. However, with time some of them developed positive attitudes towards the treatment. The change in views is expressed by the participants below:

> *"I was shocked when I was told I would be taking the drugs for that long [six months] but now I am ok. Once I will get healed, I do not care if the duration is even one or two years"* ***(29y/o, Male, Facility 1).***
>
> *"To me, six months is not long to come. I was not even sure that I will get to one month so soon but now I have even crossed the one month. Even if it is one year, it will surely come"* ***(50y/o, Female, Facility 1).***

Furthermore, the overall impact of DOTS was explored. All of the patients expressed experiences of the positive impacts of the treatment such as reduced symptoms and recovery of strength. One patient mentioned that, *"I was told at Korle-bu that I will take the drug for 9 months, so when I took the drug for about 2-3 months, I realized that the blood in my cough has stopped"* ***(52y/o, Female, Facility 2).*** Similarly, another client expressed positive perceptions on the impact of DOTS. He stated that *"When I came here earlier, I was very lean, but within a short period of time, it was even the doctors and nurses who were testifying that I have become*

very fine" ***(40y/o, Male, Facility 3).***

4.3.3 Negative Perceptions of DOTS

The perception on the duration of treatment explored also revealed that some of the clients felt once they had adequate knowledge of TB and they are diligent to comply, they should be exempted from the daily visit of the facility to take medications. These are illustrated below:

> *"Aww... initially, I would not mind coming here every day but knowing what TB is, I don't think I need anyone to tell me to come for my drugs. I think the DOTS is good but it should be made in such a way that, if the person is well informed...he or she should be exempted. However, it has been helpful to me. Initially, my job... the way it is I cannot be in Ghana every day to take it"* ***(42y/o, Male, Facility 1).***
>
> *"... I think if one would respect himself and will be diligent to take the drugs, that person should not be made to go through the stress of coming here every day because I do not like coming here every day..."****(42y/o, Male, Facility 3).***

In addition, with regards to perception of drug dose, participants perceived the dosage as very unfriendly and desired for a much smaller drug size as shown below. For example, one patient lamented on the adverse effects experienced due to drug dose. He indicated that *"During the first stage, I realized that the drug was very strong. I saw that I was eating most of the time.... In fact, I was eating every hour because if I do not eat, I feel very weak... I think it was because I was taking four tablets a day. This really made me weak..."* ***(42y/o, Male, Facility 3)***. This dissatisfaction was supported by the negative perception a key informant held concerning the drug size. She stated that *I personally think the size is too big, especially the intensive phase. We had a case where a patient who was an Ivorian run out of the drugs when he went to Ivory Coast. So he visited a clinic there and he was given the same combination of medicine but in smaller sizes for the intensive face so I think NTP should resize the drug****" (KII, 37y/o, Female, Facility 2).***

Furthermore, in exploring the perceptions on the duration of treatment, it was observed that almost all the clients were disturbed initially when they were informed of the duration of their treatment. It was expected that after the health care providers through counselling gave them adequate information on the cure of the disease, they would have developed a positive attitude towards DOTS. However, some of the respondents maintained their opinion about the duration of the treatment as very long. This can be observed in the narratives below:

> *"For the treatment, I feel six months is too long. If there was a stronger drug that could cure it in two months, I would have been very happy"* ***(42y/o, Male, Facility 3).***
>
> *"I have been told it [duration of treatment] will last for nine months. The first time I was told I was going to be in treatment for nine months, I was shocked... To me, this duration should be shortened and a stronger drug is given to us"* ***(34y/o, Male, Facility 1).***

4.5 Adherence to DOTS

4.4.1 Patients' Adherence to Treatment

The findings of the study indicated that none of the clients included in the study could be classified as a non-adherent patient based on the WHO protocol for defining treatment non-adherence. Missing treatment for two months was unusual within the facilities. The illustration below from a key informant supports this assertion:

> *"In our facility here, we do not have defaulters. We do not wait for patients to stay away from drugs for two months"* ***(KII, 59y/o, Female, Facility 3).***

In addition, patients ensured that they frequently followed scheduled appointments with the health care providers whereas others ensure that they refill drugs before they run out of stock. These actions were found to ensure the availability of drugs to clients always.

> *"...I always come for the drug. I have never missed an appointment"* ***(47y/o, Male, Facility 2).***

> *"Since I started the treatment in November 2017, I have not missed before"* ***(38y/o, Male, Facility 3).***
>
> *"...I have never missed ever since I started. It has been about two months now since I started the treatment. When it is getting finished, I make sure I come and refill"* ***(61y/o, Male, Facility 3).***

4.4.2 Patients' Missed Treatment

The findings indicated that each of the three facilities recorded cases of missed treatment. These included patients' inability to take drugs for some days, weeks and a maximum of a month. Secondary data from the folders of clients confirmed this information obtained from the patients through the interviews conducted. Furthermore, both males and females, ages and young experienced issues of missed treatment. It was further revealed that clients in the continuous phase of treatment often missed treatment more than those in the intensive phase of treatment. When drug intake conflicted with the personal interest of patients, they turn to interrupt treatment. Some of the patients were not willing to quit their addicted behaviors such as alcohol intake, which induced discomfort when they take the anti-TB drugs. In addition, some of the patients attributed the intake of the anti-TB medication to the threatening symptoms experienced such as coughing of blood. They therefore resorted to herbal medicine, which they believed to be efficacious to cure the disease. The quotes below indicates missed treatments among the respondents:

> *"I took it [anti TB drugs] for two months...I went for herbal treatment [for one month] which did not help me and I came back to restart the process"* ***(40y/o, Male, Facility 2).***
>
> *"Some of them too…you know when you start taking the drugs, you are advised against alcohol but some will not do it. Since they react when they take the alcohol while taking the drugs, some will not take the drug"* ***(KII, 35y/o, Female, Facility 1).***

Some patients missed treatment due to inability to access medication during periods of travel as shown below:

"I have missed my schedules here before. I missed some two days because I was away in the Volta Region settling family issues and could not refill my drugs" ***(42y/o, Male, Facility 3).***

"... I have missed before...I had gone to a funeral then, and the drug got finished 2 days before I came back to Accra" ***(68y/o, Male, facility 2)***.

Table 4. 3 Patients Data on Missed Treatment

Client	Age(years)	A period for Missed Treatment	Duration for Missed Treatment
Achimota			
Female	50	Intensive phase	One week
Female	21	Continuous phase	One week
Kaneshie			
Male	68	Intensive phase	Two days
Male	48	Continuous phase	one day
Male	40	Intensive phase	One month
GARH			
Male	42	Continuous phase	Two days
Male	40	Continuous phase	Two days
Male	30	Continuous phase	Three days

4.6 Psychological Factors that Influence Treatment Adherence

Two main themes emerged from psychological factors that influence treatment adherence among TB patients. These include emotional experiences and motivation for treatment.

4.6.1 Emotional Experiences

With regards to emotional experiences, several of the patients experienced the fear of the unknown concerning the disease. It was revealed that the outward physical manifestation of TB has psychological implication among patients. The patients feared that they might die due to the threatening physical symptoms experienced. For example, one patient stated that *"What I fear most about this sickness is that I am not able to breathe properly and I feel it might kill me… I*

was really worried because when the sickness started, I did not know if someone had cursed me or what was actually happening" ***(42y/o, Male, Facility 3).*** Similarly, another client narrated his negative emotional experience. He said that *"I used to think about it and I even used to have bad dreams about being with dead people"* ***(58y/o, Male, Facility 2).*** In addition, others feared to transmit the disease to their relatives who were vulnerable due to their closes to them. A participant, for instance, mentioned that *"My worry was my kids being infected because it took so long to confirm it* ***(42y/o, Male, Facility 1).*** Relatedly, another client stated his fear of infecting colleagues in the workplace with the disease. This client mentioned that *"I didn't even want to be getting close to co-workers because I didn't want to transfer it to anyone* ***(30y/o, Male, Facility 3).***

Other clients experienced depression, sorrow, and hopelessness as a result of inadequate knowledge of the cause of their illness at the initial state. These experiences are expressed in the narratives below:

> *"Initially I was sad, depressed. I went through all these emotions because I did not know what caused me to get this disease"* ***(40y/o, Male, Facility 2).***
>
> ***"****Yes, I used to feel sad, depressed and hopeless"* ***(38y/o, Male, Facility 3).***

In addition, the fear of the unknown among some of the clients was identified to be associated with the issue of late reporting to a health facility for diagnoses. The fear of the unknown as experienced by some patients was in some cases associated with late reporting to a health facility for treatment.

> *"… some too, they believe they might die when they take the drugs. As a result, they show up for medical care for the TB late, and the drug might not work on them so they die…They do not attribute the cause of their death to reporting late to the hospital but to the drugs"* ***(KII, 35y/o, Female, Facility 1).***

4.6.2 Motivation for Treatment

Different psychological factors, including the positive impact of emotions, self-efficacy, desire to complete treatment, psychological influence of reduced symptoms was revealed as the motivation for treatment. The experiences of fear and depression were drivers for medication adherence. For example, a patient stated that ***"****These feelings and emotions [fear of death and hopelessness] motivated me to take the drug so that I will get cured faster"* ***(48y/o, Male, Facility 2).*** Similarly, another client said that *"Yes, I used to feel sad and depressed because I thought I would die especially at the initial stages of the treatment. This really motivated me to take the drugs..."* ***(61y/o, Male, Facility 3).***

The study revealed that respondents who had self-efficacy and felt capable of going through the treatment course displayed control over their illness. Such individuals had positive intentions towards treatment and subsequently were motivated to adhere to DOTS. These views are shown in the narratives below:

> *"... I had also made up my mind to take it because it was helping. Ooooh... I motivate myself... because if I take the medicine, it will help me myself. As for me, I like taking medicine. I take them because I am sick and want to be well. The government spends money to buy the drugs for us. So our task is to drink it…"* ***(30y/o, Male, Facility 3).***
>
> ***"…*** *what I did was to have personal items like cups, spoons, plates, and others for myself alone. I did not want to share it with others. I take good care of myself. I drink the drugs wait until one hour before I eat. I drink a lot of water and take fruits"* ***(41y/o, Male, Facility 3).***

Another key contributing factor that motivated clients to comply with treatment is their desire to complete the treatment in order to return to their normal life. For instance, a client stated that *"My motivation is me finishing the treatment and then getting back to normal life. When I wake up in the morning the first thing that comes to my mind is to take the medicine"* ***(34y/o, Male, Facility 1).*** Yet to others, the reduction in the symptoms experienced was a motivation for their

compliance with treatment as shown below. For example, a client who was anxious about the symptoms he experienced, was motivated to adhere to treatment when he experienced the disappearance of such symptoms. He stated that *"What motivated me to continue with the treatment is the pains and the coughing that I was going through… I realized the drugs are good and I was getting better. Since my voice became clearer as compared to when I was taking the herbal medicine initially, I always take the instructions of the nurses seriously. I follow everything they ask me to do"* ***(42y/o, Male, Facility 3).*** Similarly, another client in the same facility mentioned that *"I am motivated to take the drugs because I want to be healthy and fully cured. I am also motivated because when I started taking it, I have seen great improvement"* ***(40y/o, Male, Facility 3).***

4.7 Social Factors that Influence Adherence to DOTS

The study explored the social support available for clients. Three main themes emerged from the data. These are sources of social support, forms of social support and the impact of social support.

4.7.1 Sources of Social Support

The data show that the patients obtained social assistance from family members, friends, associations and health services. They pointed out their close relatives, such as spouse, parents, and siblings as significant others they counted for treatment support since the onset of their illness.

> *"I do not miss [treatment] because if I should miss, my husband will quarrel with me"* ***(26y/o, Female, Facility 1).***

On the other hand, some of the patients did not have a social support system from relations. Some of them were left on their own to perform their house chores even during the onset of the disease when they were weak

> *"I had an issue with my wife and she packed out of our home with our children as a result of my condition." (**42y/o, Male, Facility 3).***

Furthermore, all the respondents reported receiving adequate support from the health sector. The doctors and nurses at the health facilities played vital roles from the beginning of the treatment to the end. A key informant narrated the usual activities they undertake when a case was confirmed. She stated that *"Usually, when the client is diagnosed, we [health care providers] do home verification and this is to check where the person stays so that in case the client does not show up, we can trace him or her to the house. Once the patient is on treatment, we [health care providers] do home visits where the staff here visit the client once a week at home to find out if they are taking the drug, especially during the continuation phase of treatment**" (KII, 37y/o, Female, Facility 2*).** These health workers perspectives on staff support visits were confirmed by a patient who stated that *"... for visiting, they have visited me before" **(26y/o, Female, facility 1).*** Similarly, another client reported the material support received from healthcare providers. He stated that *"Some of the nurses are good. Some can buy me food and sometimes I ask them for money too" **(40y/o, Male, Facility 3)**.*

Such support from health care providers is very significant owing to the long duration for treatment whereby some clients were reported to fall off treatment especially during the continuous phase of treatment.

4.7.2 Forms of Social Support

The second theme explored under social factors is the forms of social support received. Three main sub-themes emerged. These include physical/tangible support, informational support, and emotional/esteem support. With regards to tangible support, most of the patients reported receiving money, house chores support, visits and food.

In addition, the findings of the study show that the information given to clients by the health workers or treatment supporters clarified the misconceptions patients held on the disease. The informational support obtained was seen as very relevant for the stabilization of the emotions of patients and enhancement of treatment continuation as expressed below:

> *"I do not think about anything because they [health care providers] have lectured me about the illness, the duration of the drugs as well as the nature of the illness. If there is something that will make me think, I believe it will be after the 6 months... if I still experience the symptoms"* ***(58y/o, Male, Facility 2).***
>
> *"... once we put the client on medication, we start with the counselling. We counsel the client together with the treatment supporter on adherence, diet, infection prevention, and environmental and personal hygiene" (**KII, 37y/o, Female, Facility 2**).*

Emotional and esteem support was obtained by clients at one point in time of their treatment. These were in the form of words of encouragement received from significant others in times when the patient experienced unpleasant emotions such as hopelessness and worry. One patient, for instance, stated that *"I was very sad and confused. I felt very hopeless. This was showing on my demeanour when I even came to the facility the next day. When the nurse saw me, she quickly came close to me to find out what was wrong. That day she really encouraged me. She told me to even look at Nelson Mandela. Since he was cured, then I would also be cured…* ***(42y/o, Male, Facility 3).*** Similarly, another client reported the encouragement she received from her mother and other patients cured of the disease. She stated that *"I was encouraged by my mother and*

others who have gotten the disease and are fine now. They told me that, I need not be worried because the disease has its medicine for a cure and when I take the medication, I will be cured" ***(42y/o, Female, facility 3).***

4.7.3 Influence of Social Support

The positive influence of social support was discovered to be the relief it brought to the patient as well as the benefits it had in the continuation of the treatment. The following quotes express the views on this assertion: The provision of information to clients on the types of TB, brought relieved to them. For example, a participant stated that ***"****When the doctor said that, with mine [abdominal TB], I cannot spread it... I was a little relieved...even though not completely relieved, I was a little relieved****" (34y/o, Male, Facility 1).*** Similarly, availability of counseling services especially to patients without treatment supporters at home was very essential in enhancing the continuation of treatment. This can be noted in the quote below:

> *"...as a result of the counselling I was able to muster the courage to continue with the treatment with hope"****(42y/o, Male, Facility 3).***

On the contrary, social support also had a negative influence on the health of TB patients. For instance, patients reported an unfriendly encounter with a health worker, who acted as social supports to clients within the facilities. She stated that, *"... the way she [nurse] shouted at me, when I involuntarily coughed without covering my mouth., made me quarrel with her…So I told my friend that, today is my first day of visit to the facility, the nurse showed a bad attitude...but she [friend] told me that, that was how the nurse behaves"****(26y/o, Female, Facility 1).*** Such negative attitudes have the tendency of straining the relationship between treatment providers and clients. Similarly, another client lamented on the discomfort experienced from his treatment supporter while at home. He stated that*"... when I am eating and I mistakenly go and pick*

someone's spoon, my mother [treatment supporter] shout at me and this makes me very sad. ***(29y/o, Male, Facility 1).***

In addition, due to the request for a treatment supporter for patients, there were instances where a patient brought in someone they were unrelated to in any way to pose as treatment supporters. Such supposed treatment supporters were unavailable to provide the support needed. This is shown in the quote below:

> *"I was asked to bring one family member but none followed me except one outsider who also came with me once"* ***(61y/o, Male, Facility 3)***.

4.8 Challenges and Coping Strategies Adopted by TB Patients

The study identified some challenges experienced by patients undergoing DOTS as well as some challenges peculiar to the facilities. Furthermore, the coping strategies adopted by the clients included personal strategies and external factors.

4.8.1 Challenges Faced by Patients

It was realized that despite the favorable influence of DOTS experienced by the clients, certain challenges were encountered by most of the patients during the period of the treatment, especially during the intensive phase. Respondents revealed that challenges such as the inability to work, food burden, transportation burden, and self-stigma were inevitable which had an influence on their intention to comply with treatment. Also, adherence to DOTS affected patients' source of income and most of them had to stop work. A client, for example, stated that *"The challenge I am facing is that I am home and not working as a result of this illness"* ***(47y/o, Male, Facility 2).*** Similarly, another patient stated that, *"... the illness has really affected my*

work…although I am no more a driver, I am in the office. I am unable to go because I have colleagues at work and if I cough, they might get infected" ***(62y/o, Male, Facility 2).***

The lack of a source of income had a consequential impact on the client's ability to pay transportation fare when they visit the facility for treatment as shown below:

> *"… I really feel stressed because since December last year I have not been working. I face financial challenges in terms of transportation and other…"* ***(40y/o, Male, Facility 2).***
>
> *"Coming to the hospital is really a challenge for me. Today, for instance, I walked to this place because I wasn't having money [for transportation]"* ***(48y/o, Male, Facility 3).***

Other patients face the challenge of meeting up the nutritional requirements on them due to the intensified hunger experienced as a result of the drug intake.

> *"… We have been told to eat well, but it is difficult to eat three times because of the money issue. This can even make it difficult for one to even comply with the treatment since once you take the drug you have to eat well"* ***(38y/o, Male, Facility 3)***.
>
> *"… well, after taking the medicine, what to eat becomes a problem. Yesternight, for instance, I had only two balls of banku [local food], so I mashed one and drank it raw"* ***(61y/o, Male, Facility 3).***

Another key challenge revealed in the study is self-stigma among the patients. Some of the respondent's sought to non-disclosure of their illness, others withdrew from people with despair. Non-disclosure was used as an agency to the benefit of patients against stigma. Patients feared that people will withdraw from them when they are informed of the disease. For example, one client stated the reason for his non-disclosure. He stated that *"I have not informed them [colleague workers] because, the way the nature of the sickness is, if I inform them and later I recover, they will still withdraw from me because they do not know that I have been cured. If you tell them, they will change their attitude towards you and it will never depart from their minds"*

(47y/o, Male, Facility 2). On the other hand, a client could withdraw from others due to self-stigma as shown in the quote below:

> *"… It got to a time that I become angry with myself and withdrawn…. I did not even want to speak to people"* ***(48y/o, Male, Facility 2).***

4.8.2 Health System Challenges

A key challenge that emerged is late case detection. Most of the patients had to visit hospitals severally before they were finally diagnosed with the disease. This challenge can be attributed to the passive case detection employed by most health facilities. In addition, the clients revealed that there was poor TB diagnosis knowledge among practitioners in private facilities and pharmacy shops. The patients were prescribed different types of drugs without any recommendation for TB test at the initial stages, though they presented symptoms of a cough for more than two months to private facilities.

> *"He [the doctor] made me do other tests too and told me everything was normal but deep within me, I knew all was not well with me so he admitted me for three days and gave me a drug to take for 90 days. In the course of that 90 day, I realized I was coughing small by small, so I resorted to over-the-counter cough mixtures. I was there one night and then I vomited blood after coughing. I then came to see my doctor [in a private facility] the next morning and then he wrote medicines for me and made me do some tests but none was TB test and all of them proved normal. However, I still used to vomit blood. One day, the blood I vomited was too much so I went to the hospital again but still they did not find anything wrong with me. I went to one woman close to our house who works at a TB centre and she made me do a sputum test. I went for the test from the woman the next day and took a copy of the test to my doctor and he confirmed I have TB"* ***(40y/o, Male, Facility 3).***
>
> *"For mine for about six months I did not have treatment so I really suffered"* ***(38y/o, Male, Facility 3).***

Late case detection of TB cases is associated with grave consequence to public health. So long as patients remain undiagnosed and treatment not commenced, the individual can infect others with the disease.

> *"If the person remains in the community and coughs, he will infect. So long as the person has not been diagnosed and put on treatment, it remains a public threat. It is established that one pulmonary active case is capable of infecting about 10-15 people within a year. Just imagine that…"* ***(KII, 59y/o, Female, Facility 3).***

It was also observed that the health facilities lacked protective gears for infection transmission prevention as they provided treatment for the patients. Health care providers are required to daily monitor the swallowing of anti-TB drugs by clients. The health workers usually get closer to the clients for them to feel accepted and catered for. However, without the necessary protective wares, caring for the patients becomes threatening to the safety of the staffs who attend to the patients, especially those in the intensive phase of treatment. This is due to the fact that, the disease is much infectious during the early phase of treatment. A key informant, for instance, expressed her experiences of fear in the performance of her duties. She stated that *"Sometimes, you feel you are at risk because we do not have the protective materials to use and the fact is that we need to get close to them for them to feel accepted that they are also human beings... but as much as we do that, we also feel scared"****(KII, 35y/o, Female, Facility 1****).*

In addition, the facilities lack adequate staff in the DOTS centres. This indicates an increase in the workload of staff. The staffs who are overburdened with high workload also face the challenge of lack of physical motivation. More so, health care providers reported the challenge of inadequate funds available to allow for the frequent home visits of TB patients.

> *"At times, we want to do home visit but we do not have a lot of staff so that is a major challenge. Another challenge to is that there is a lack of motivation for the staff here…*

those who have accepted to work here at the TB unit are not being motivated" ***(KII, Female, 37, y/o, Facility 2****).*

4.8.3 Coping Strategies Adopted by TB Patients

Some of these patients were able to adopt certain strategies to overcome these encounters.

These strategies can be categorized into personal strategies and external strategies. Some of the personal strategies include an alternative source of financial support, modified and personal behaviour, as illustrated below:

> *"The coping strategy I use… I do take care of myself financially because I have a cocoa farm... I do not depend on anyone for financial support…"* ***(40y/o, Male, Facility 2).***

> *"So because of the stigma, I have been able to psyche myself about how people relate to me. Now I understand everybody. As a result, I am fine now"* ***(42y/o, Male, Facility 3).***

Others resorted to prayers as a personal means of overcoming the challenges they encounter as shown below:

> ***"****I pray to God to have mercy on me and as I have stopped smoking, through this I should also let go of all other bad habits. Now that I have also stopped working, He [God] should provide my daily bread"* ***(48y/o, Male, Facility 3****).*

> ***"****I can say that, whatever you ask God, that is what he will give to you.... because I always ask him to strengthen me. It is not easy, as you know. I combine house chores with pregnancy and TB... Prayer helped me"* ***(26y/o, Female, Facility 1****).*

For the external strategies adopted, some of the health care providers gave the drugs to patients on a weekly bases to ease the cost of daily transportation. Patients were advised to come with treatment supporters who will be educated on the drug regimen so that the drug will be given to them weekly with supervision from treatment supporters.

Another coping strategy adopted by clients was the reduction of workload whereas other clients were excused from work. A patient, for example, stated that, *"... my foreman has spoken to my other colleagues at work that I am not feeling well. So I am not given too much pressure at the*

workplace" ***(40y/o, Male, Facility 2).*** Similarly, another client said that ***"****I am not worried about stopping my work because I have informed them about my health so they work on my behalf****" (58y/o, Male, Facility 2).***

Furthermore, the findings revealed that the minimized level of stigma from some family and friends helped the clients to maintain normal relations that foster compliance. A key informant narrated her observation pertaining to the issue of stigma. She stated that *"Currently, the stigma is better because some of the Clients are able to come in with their friends or family members to pick their medication for them. They can even sit home and a family member would even come and pick the medication for them. The level has gone down. It is not like before. Some time ago, it was not like that"* ***(KII, 37y/o, Female, Facility 2).***

4.9 Conclusion of Results

The study indicated that a majority of the participants were males, aged above 40years. The participants had differing perceptions of DOTS. Nevertheless, they all reported experiences of the favorable impact of DOTS practices despite some inevitable challenges, which accompanied the treatment. Personal and external measures were utilized to overcome the challenges faced.

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This study was designed to explore the psychosocial factors that influence adherence to Direct Observed Treatment Short course among TB patients. Key findings of this study are discussed according to the specific objectives of the study.

5.2 Knowledge and Perceptions of DOTS

Knowledge and perceptions of TB treatment influenced patients' adherence to DOTS. The findings of this study revealed the patients who participated in the study were familiar with TB treatment. All through the discussion, the clients showed that they were knowledgeable about the practices of DOTS. They were able to provide some explanation of DOTS, state the duration for treatment, drug dosage, and frequency. This level of knowledge of the patients can be attributed to the education and counselling services they had received from the health care providers and significant others. The information obtained to some extent shaped the patients' attitudes and perceptions toward DOTS practices, consequently enhancing treatment adherence. This result is consistent with the finding of Tola et al., (2016) which revealed that educational interventions led to significant differences with regard to the level of non-adherence among individuals exposed and those who were not exposed to education.

The results of the study also show that the clients had positive attitudes towards the mode of treatment, including the duration of treatment, dosage, and frequency of drug intake. Therefore, the outcome of the study implies that good knowledge of TB treatment is crucial for the

development of favourable covert behaviour towards TB treatment. These findings are similar to previous research findings that highlighted the need for of knowledge on TB treatment at the initial stages of treatment as well as during the course of case management to ensure treatment adherence (Tola et al., 2016; Kulkarni, Kulkarni, Akarte, & Rajhans, 2016; Tachfouti et al., 2012; Muture et al., 2011).

On the other hand, it was also observed that good knowledge on TB treatment practices could also have no influence on perceptions on DOTS. Similar views were presented by (Zafar, 2013) where no direct relationship was observed between the level of education or knowledge a patient had and the attitude towards treatment. In the former study, perceptions about TB treatment were shaped by a third factor known as a stigma. In this study, prevailing cultural beliefs observed could influence perceptions of clients towards treatment. Though participants showed good knowledge of TB and DOTS practices, the study revealed some misconceptions about the aetiology and transmission of TB which hinders the prompt enrollment on DOTS. This is not different from other studies where misconceptions on the cause of TB were culturally perceived (Ahmed, Chaudhry, & Farooq, 2014; Kipp et al., 2011). In addition, Moller & Erstad, (2007) further reported that community members perceived TB as a punishment for individuals who smoke and drink. Thus, such patients had no respect in the community. These misconceptions explain the cultural attribution to the aetiology of TB.

In this current study, knowledgeable clients were of different views on the drug size and daily visit to health facilities for treatment. In relation to the conceptual framework of this study, it was expected that such negative attitudes would lead to treatment non-adherence. However, this was not the case in the study. These findings, therefore, are inconsistent with previous studies that showed that unfavourable attitudes negatively affects intention and possibly lead to a less

likelihood of the occurrence of a behaviour (Ajzen & Fishbein, 2005). The difference in findings could be as a result of other mediating factors such as available counselling services for clients in the current study which was not the case in the previous study.

5.3 Psychological Factors that Influence Adherence to TB Treatment

The psychological factors explored entail the personal cognitive responses experienced by the patients. Two major factors including emotional experiences and motivation for treatment were revealed as having an impact on patient's adherence. The study revealed that patients experienced different kinds of emotions such as anxiety, anger, depression, sorrow, hopelessness, and the fear of the unknown due to threatening symptoms of the illness. Furthermore, Peltzer et al. (2012) divulged that severe psychological distress such as anxiety also characterized the lifestyle of clients infected with TB. Again, Naidoo et al. (2009) in their study also reported major psychological defects such as anger and helplessness to be associated with TB clients in South Africa. TB patients in their study experienced anger as they attributed their illness to infection from other family members who were infected earlier but failed to either disclose or seek proper treatment. Anger and the experience of helplessness were dominated during the intensive phase of the disease.

In addition, the findings of the study show that the patients experienced the fear of the unknown. The fear of infecting others with the disease as well as the fear of death were some emotional experiences among TB patients. Evidence in this current study was also documented in previous studies (see Dias, et al., 2013; Souza, et al., 2010). Owing to the cultural perception of TB as spiritual and incurable, patients reported that the fear of death is what they most often experience. This result confirms the findings of a previous study where community perceptions

on TB were explored among illiterate non-TB patients (Karim, Johansson, Diwan, & Kulane, 2011). Though the participants of this study were more educated than those involved in the previous study, fear of death remains a key psychological factor that posed a mental burden among TB patients (Dias et al., 2013). Therefore, from this study, it is opined that the educational level of individuals does not matter in the experience of the fear of death among TB patients. Conversely, Theron et al. (2015) pointed out that individuals with a low level of health education were more distressed mentally than those with some level of education.

The study further found out that the fear of the unknown experienced became a motivating factor, which enhanced adherence to DOTS. The patients saw death as inevitable in the absence of treatment. Thus, this fear facilitated their adherence to treatment. Likewise, in a previous study which explored the experiences of clients who had completed DOTS, it was believed by the respondents that TB was unavoidably deadly. However, they regarded treatment as a way to stay alive and strong, which was likely a contributing factor to their adherence to treatment (Dias et al., 2013). On the other hand, other studies, found psychological distress to be associated with non-adherence (see Theron et al., 2015; Ugarte-Gil, 2013; Glaser, 1991). This can be associated with a comparatively high prevalence of psychological distress existing in study sites of the previous studies.

More so, as predicted in the conceptual framework, self-efficacy, and intention to complete treatment were also observed as some motivating factors that ensure the continuous compliance to TB treatment among patients in the intensive and continuous phases of treatment. Some of the patients had access to health facilities, medications and health workers. In addition, they felt capable of enduring the side effects associated with the intake of the medication as well as modify their lifestyle. Self-efficacy among the patients was also attributed to the affordability of

medications. Moreover, self-efficacy was attributed to the development of positive intentions such as the desire to complete treatment in order to return to their normal life, which consequently ensured treatment adherence. This interconnectivity of self-efficacy, intention and adherent behaviours are depicted in the conceptual framework of the study. A previous study by Akeju, Wright & Maja (2017) also noted that the determination to be cured of TB patients ensured compliance with TB treatment. On the other hand, they revealed that experience of side effect of medications had an adverse effect on adherence that was not the case in this study. This can be attributed to the availability of health education and continuous counselling on adherence received by the patients.

Furthermore, the current study revealed that patients believed in the efficacy of the treatment and experienced a reduction in symptoms at least two months into the treatment. These findings are similar to that of a previous study by Akeju et al. (2017).

On the other hand, some participants who attributed the adverse symptoms of the illness to the intake of anti-TB drugs were compelled to opt out of DOTS for herbal treatment. A comparable study was done which indicated that patients who were feeling worse from the DOTS treatment, opted for the services of a traditional healer after they quitted their DOTS treatment (Widjanarko, Gompelman, Dijkers, & Van der Werf, 2009).

5.4 Social Factors that Influence Adherence to DOTS

Social factors entail the relationships patients have with significant others in the course of their treatment.

Findings of this study revealed that social supports were obtained from family, close friends, and the health sector. The support obtained was in the form of tangible support, informational

support, and emotional/esteem support. Likewise, Akeju et al. (2017) and Muture et al. (2011) reported similar findings where family and friends provided encouragement, food, and money, among others, to TB patients to enhance the continuous taking of medication.

In addition, the study showed that social support impacted on the continuation of TB treatment amidst the challenges experienced which are similar to the findings of Kaliakbarova et al. (2013), where social support led to a reduction in interruption of anti-TB drugs for at least one day and increase in the intake of medication.

On the other hand, some of the patients did not have a good social support system and resorted to relocation to the rural communities to be catered for by other relatives during the inception of treatment. Others relied only on the one on one counselling and emotional support provided by health workers available mainly at the time of visit to the facility. Thus, until the period of a visit to the facility, patients continued to experience sorrow, confusion and hopelessness, which were evident in this study. Therefore, the progressive mental instability encountered by the clients could be attributed to the poor and readily unavailable social support system of these clients. This finding supports a previous study by Khanal et al (2017) where social support mediated between TB treatments and mental health and the absence of social support to TB clients negatively affected their psychological well-being.

5.5 Barriers to Successful Implementation of DOTS

DOTS strategy have been implemented with the aim of enhancing TB case detection and ensure treatment completion through the provision of drugs, supervision of drug intake, monitoring the treatment process among others (Dias et al., 2013). This TB control strategy has not attained a complete implementation outcome due to some barriers observed. The barriers to the

implementation of DOTS strategy are discussed in relation to provider compliance to intervention and challenges faced by patients.

The study revealed some key challenges that hinder healthcare provider compliance to DOTS intervention. These include passive case detection, the unavailability of protective gears, lack of effective TB diagnosis and progress monitoring machines such as GeneXpert, poor staff strength, and motivation, lack of funds for home visitation and supervision of clients. Similarly, WHO (2015) observed that financial support required to fight to eliminate TB is essential to bridge the resource gap. It further reported that available funds of about 6.4 billion US dollars are not enough to address such needs. In addition, the low case detection of TB cases, inadequate diagnostic tests, and relevant preventive services were found in a previous study (Tang & Squire, 2005).

More so, the challenges faced by TB patients in relation to adherence to DOTS include, inability to work, food burden, transportation burden. These findings are consistent with the socio-economic barriers such as lack of financial resources for accessing TB treatment encountered by TB patients in Yunnan, China as exposed by Hutchison (2017). Similar findings were indicated by Gyapong et al. (2012) and Diefenbach-elstob et al. (2017) on the experienced cost of transportation which was a challenge for patients. Likewise, Hutchison et al. (2017), noted financial burden faced by patients owing to the long duration of treatment and the inability to work during the period.

In addition, self-stigma was inevitable which had an influence on patients' intention to comply with treatment. Naidoo et al. (2009) found out that some TB patients experience self-imposed stigma, which was characterized by isolation from people, as was the case in this study.

Patients resorted to personal and external assistance to cope with these difficulties encountered. This finding is consistent with a previous study by Hutchison et al. (2017) which revealed that TB patients sold personal properties or borrowed money from significant others to meet the cost incurred from treatment.

5.6 Limitation of the Study

There was a challenge in finding a suitable location for the execution of the interviews. The difficulty in recruiting participants led to the interviewing of patients in the health facility right after their visit for treatment. This limitation, however, did not influence the quality and credibility of data obtained.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Direct Observed Treatment Short course was practised in all three facilities where the study was conducted. This practice requires the combined effort of patients, health workers, treatment supporters, NTP and GHS towards the eradication of TB in the country.

The participants of the study including key informants had good knowledge of TB and DOTS practices. However, these individuals had different perceptions of DOTS. Whereas some respondents viewed the practice as favorable, others were of the opposite view specifically concerning duration for treatment, the size of drugs as well as the regular visit to health facilities for treatment. It is worthy to note that despite these opposing views all the patients interviewed were adherent to treatment with just a few of them missing few days without the intake of the medicine.

It was observed that health system factors including, the affordability and efficacy of the anti-TB drug, availability of health education and counselling services and the overall positive impact of DOTS, were relevant for patients' adherence to TB treatment.

In addition, social support systems were found to constitute another contributing factor, which influences adherence to DOTS. The availability of treatment supporters such as spouses, family members, friends, and health workers served as a source of encouragement for the continuation of the treatment whereas lack of it led to a heightened level of self-stigma, fear, and sorrow among others.

More so, the patients and health workers alike experienced some challenges. The patients revealed that the inability to work, food burden, transportation burden, and self-stigma remained some challenges they face in the course of the treatment. These problems were managed by resorting to personal support as well as external assistance.

On the other hand, the health service challenges include late case detection, lack of protective gears and inadequate staff in the DOTS centres.

6.2 Recommendations

This section offers some suggestions on developing robust TB control measures towards the enhancement of the effectiveness of TB control. Based on the findings of the study, the following strategies are recommended:

To enhance the robustness of the DOTS strategy in Ghana, the identified challenges observed can be addressed by employing the following recommended strategies. These recommendations conform to the guidelines for TB treatment as stipulated by the WHO (World Health Organization, 2010).

6.2.1 Recommendations to NTP

1. There is the need for the NTP to re-introduce the Enabler's package to cater for the physical social support required by patients. Adequate money should be made available to patients to compensate them for the indirect costs incurred for accessing TB treatment, as stated in the patients' Charter for TB Care.
2. Furthermore, the NTP should see to the establishment of Clinical Psychology units within facilities where they are unavailable. This will enhance the provision of quality

counselling services to clients who attribute their experienced symptoms to the intake of anti-TB drugs as well as others who consider quitting the treatment due to societal misconceptions.

3. The NTP should consider resizing of the drugs into smaller but the same combination of the drug to enhance easy intake.
4. In order to enhance patients' access to drugs outside assigned facilities, the NTP should fully incorporate DOTS services into Community-based Health Planning Services, which is practised in most communities within the country. This will also reduce the transportation burden incurred by clients due to their frequent visits to health facilities.

6.2.2 Recommendations to Community Stakeholders and Patients

5. Patients who have completed treatment and have been healed, due to their first-hand TB experience, should avail themselves to be involved in stigma reduction activities in the community to support new patients accessing treatment. This can be done through the utilization of social mobilization strategies championed by community stakeholders, to form vibrant peer support groups within the communities.

6.2.3 Recommendation for Further Research

1. More research is needed on the feasibility, suitability and cost-effectiveness of Community Based DOTS.
2. Quantitative studies are also required to measure the levels of treatment adherence in view of the prevailing social, economic, and psychological barriers to TB treatment.

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APPENDICES

Appendix 1: Consent Forms

Study Title: Psychosocial Factors That Influence Adherence to Direct Observation Treatment among TB Patients in Accra Metropolitan.

Introduction

My name is …….. I am requesting you to participate in this research which seeks to find out the psychological and social factors that influence adherence to DOTS among TB patients in your district. Your personal opinion is needed concerning certain questions assessing the psychosocial factors that influence treatment adherence among TB patients.

Duration/procedure

I will be carrying out in-depth interviews in which our conversations will be audio-recorded. This will take about 30 to 40mins of your time. You have the right to agree or disagree with the audio recording. You can disagree to participate in this study if you are not comfortable with the audio recording of the interview. Your age and other personal information will be required; however, a code will be used for easy identification and sorting. This questions would be asked at your pace.

Potential Benefits

There are no immediate and direct benefits to you as a person for your participation in the study. However, the information you give will help the health team to evaluate and improve the Direct Observed Treatment used for TB treatment in Ghana. The findings of the study would help the NTP and health care providers to improve DOTS processes.

Potential Risks

There is no direct risk involved in participating in this study.

Confidentiality

Any information given will remain confidential and will be used for the purpose of this study only. Your name would not be mentioned in any report. The information you give would be cumulated with others and stored on a password protected computer. Access to the data would be

only limited to the researcher and the assistants. The recorded tapes would be kept for one year after which it would be discarded.

Compensation

For participating in the study, you will receive a token to cater for your lunch and water as an appreciation for your time at the end of the interview.

Voluntary Participation and Right to Leave the Research:

You are free to choose whether to take part in this study or not, and you are free to withdraw at any time at your own discretion. Feel free to ask any questions before or after the interview.

Contacts for Additional Information

If you have any further question please contact Faustina Gyimah Twumwaa on number 0241649387, email faustigyimah@gmail.com, Dr. Phyllis Dako-Gyeke, email gyekenay@yahoo.com or Madam Hannah Frimpong (Administrative Secretary, GHSERC) on 0507041223.

Voluntary Agreement Form

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any question I have asked have been answered to my satisfaction. I consent voluntarily to participate as a subject in this study and understand that I have the right to withdraw from the study at any time without in any way it affecting my further medical care**.** I have also agreed to allow the interview to be audio recorded.

I hereby agree to participate as a volunteer in this study.

……..... ……

Name and Signature or Mark of the Respondent Date

……..... ……

Name and Signature or Mark of the Witness Date

…… ……

Name and Signature of the Researcher Date

Appendix 2: Interview Guides

Appendix 2.1 In-Depth Interview Guide for TB Patients

Good day, Madam/Sir.

With your permission, can we begin?

Participant ID……

Health Facility……..

Client's Background information

Sex: (…..) Male (…..) Female

Age: (age at last birthday)……

Educational level: (…) No Formal Education (…) Some Primary (…..) Completed Primary

(….) Some Secondary (…) Completed Secondary (….) Tertiary (….) Above Tertiary

Marital Status: (…) Single (….) Married (…..) Divorced (…..) Widowed

Religion (…) Christian (…) Muslim (….) Other

Title of Occupation……..……...…….

Role in Occupation……

……

Place of residence……

Family background:

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Medical History

Weight Status……..

Date diagnosed……

Diagnostic Test Undertaken……

The phase of Treatment……

Duration on treatment since diagnosis ……

Records on Adherence

Phase of Treatment	Expected Number of Medicine Intake	Actual Number of Medicine intake	Missed Treatment Records	Remarks
Intensive Phase				
Continuous Phase				

FIELD NOTES ON PARTICIPANT'S INTERVIEW

Date…….

Name of Interviewer……

Place of Interview……

Participant ID……

COMMENTS ABOUT RESPONDENT

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COMMENTS ON SPECIFIC QUESTIONS

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ANY OTHER COMMENTS

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General Life History

1. Describe to me how your everyday life was before you were diagnosed with the disease?

PROBES

a. What did you do in the morning when you woke up each day?
b. What did you do in the afternoon? What did you do in the evening?
c. Places you visited frequently and activities you normally would engage in. Social gatherings? Others? Do you still undertake such activities now you have the illness?

2. So now, tell me how your illness started?

PROBES:

a. How did you first notice that "something was wrong"?
b. How did you discover it was TB?
c. What was your immediate reaction when you were diagnosed with TB?
d. Were you worried? If yes, how? If no, why were you not worried?
e. Did you believe the diagnosis?
f. How did you feel about the extended period of the illness by then?
g. Where were you diagnosed**?**
h. When were you diagnosed?
i. How Were You Diagnosed?

Knowledge of Tuberculosis

I am going to ask you a few questions to find out your knowledge of Tuberculosis.

3. Now, explain to me what Tuberculosis is? Probe for an explanation if the meaning is not clear

4. To the best of your knowledge, what are the symptoms/warning signs of TB?

PROBES:

a. Which of these symptoms do you experience; Protracted coughing for more than two weeks, fever, tiredness, weight- loss, loss of appetite, night sweat, phlegm, chest pain, weakness, and chills? Any other?
b. b. When do you experience these symptoms?
c. How does it occur?

5. What do you think is the cause of TB?

PROBES:

a. Bacterial infection (Mycobacterium tuberculosis)?
b. Local beliefs on the cause of TB? Why?
c. Personal attribution of cause of TB? Why?

6. How would you explain the mode of transmission of TB?

PROBES:

a. In your own opinion, which of these is responsible for the transmission of TB;

   Sneezing, coughing, indiscriminate spiting? Spiritual course? Any other?

b. How does the transmission occur?

7. Let's now focus on prevention. What do you think you can do personally to prevent others close to you from contracting the disease?

Explore: What can others do also to prevent themselves from contracting the disease?

Client's Perceptions of DOTS

Now I'm going to ask you few questions to find out what your views on DOTS are.

8. What do you understand by Direct Observed Treatment Short course?

PROBES: find out the participants perceptions on each probe question, to find out the patient's view

a. What is the purpose for the treatment? What do you think about this purpose of the treatment? Do you believe it or not?
b. How long does the treatment last? What do you think about this long duration for the treatment?
c. What kind of medication is given?
d. What dosage of the medication is given to you?
e. How frequently do you take the medication? How do you feel about taking such number of drugs each day?
f. How is your attendance for treatment? Do you miss the treatment schedules sometimes? If Yes, why and what are some of its consequence?

9. Have you received information on how DOTS works and how did u get to know about DOTS?

PROBE: If yes, when did you receive the information, by who, and what kind of information did you receive? Where did you receive the information; media, health workers, friends, family?

10. I want you to now describe to me how your life has been since you were enrolled on DOTS.

PROBE: Positive consequence: DOTS being useful and helpful? Experienced pain relief? Restoration of strength and reduction of other symptoms of the disease?
PROBE: Negative consequence: Side effects of medication such as vomiting, loss of appetite, skin rash, nausea, fever, etc.? Drug resistance and persistence of symptoms? An interruption in your normal everyday life? When do you experience these challenges? What do when you experience these challenges?

Adherence to DOTS

12. How would you describe a person who always visits the hospital to take her medication?

PROBE: How do they appear? Physically? Emotionally? Psychologically

How would you describe your adherence to DOTS? Good? Bad? Why?

Psychological Factors

13. How has TB made an impact on your everyday life mentally?

PROBE: How often do you think about your illness? What makes you think often about the illness? In what circumstances? What do you fear most about your illness?

14. What are some emotions you often experience since the onset of your illness?

(Explore emotions such as; sadness, anxiety, depression, anger, loneliness, helplessness, hope, faith and others mentioned by the participant).

15. Can you describe to me how these emotions mentioned influence your intentions to undergo treatment?

PROBE: Enhance or impede treatment adherence

16. Tell me your motivation for taking your medication when you began the treatment?

Enrollment on DOTS requires an individual to visit the health facility daily during the intensive phase of the treatment.

17.How does access to health facility impact on your thought concerning your illness?

PROBE: Feel stressed up to access services? Excited about health services and encouraged to continue with treatment? Why? Thought of worry? Causes of worry?

18. Are you able to afford the DOTS services?

Probe: How does affordability of health services influence your ability to access treatment regularly?
Probe: how does transportation and food intake cost burden you?

19. What have been your experiences at the health facility since you were put on DOTS?

Probe: The availability and readiness of the health staff in providing treatment?
Probe: Waiting time? How does it influence your intention to continue with the treatment?
Probe: Availability of anti-TB medication? How does it influence your attitude to continue with the treatment?

Social Factors

20.Let us now talk a bit about your social support system. Can you describe to me the social support systems available to you as you go through DOTS?

PROBE: Family and friends, treatment supporters, others?

PROBE: Health system support (NHIS, counsellors, nurses, and other health workers).

What are the specific supports you receive from each (family, friends or other treatment supporter, health workers)?

PROBE: Physical support (food, money), informational support, Esteem support (positive regards, encouragement), Emotional support (expression of empathy, understanding, caring).

21.How do your close relatives (wife, husband, children, parents, siblings) relate to you due to your illness? What about your friends?

PROBE: Verbal and non-verbal communication, eating together, sharing accommodation, working together, attending functions together etc.

22. How do health professionals your perceive or treat you?

PROBE: Choice of words (harsh or calm), the tone of voice (shouting tone or normal) facial expression (welcoming or not welcoming)

PROBE: What about your treatment supporters?

23. Does your schoolmates, employer/co-workers/employees know you have TB? If they do what has been their response to this?

Explore all possible behaviors and forms of communication (verbal and non-verbal). If you have not informed them, why?

PROBE: Choice of words (harsh or calm), tone of voice (shouting tone or normal) facial expression (welcoming or not welcoming), isolating themselves client or not?

Coping Strategies

Let's now focus on some of the strategies you adopt to deal with the challenges you encounter due to the illness.

24. Do you feel capable of managing the challenges you face due to your illness?

PROBE: If yes, how? Circumstances and coping strategy? If not, what abilities do you think you need to build to allow you to cope with DOTS challenges and other personal issue?

Final advice to anyone who has TB in order to enhance cure

Thank you for your time and contribution to the discussion !!!

Appendix 2.2 Key Informant Interview Guide

Good day Madam.

With your permission, can we begin?

Participant ID……

Health Facility……..

Key Informant's Background information

Sex: (…..) Male (…..) Female

Age: (age at last birthday)……

Educational level: (…) No Formal Education (…) Some Primary (…..) Completed Primary

(….) Some Secondary (…) Completed Secondary (….) Tertiary (….) Above Tertiary

Marital Status: (…) Single (….) Married (…..) Divorced (…..) Widowed

Occupation…….

Department…….

Years of work experience……..

Rank……..

FIELD NOTES (KII)

Date…….

Name of Interviewer……

Place of Interview……

Participant ID……

COMMENTS ABOUT RESPONDENT

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COMMENTS ON SPECIFIC QUESTIONS

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ANY OTHER COMMENT

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Knowledge of Tuberculosis and Diagnosis Of TB

Tuberculosis is a deadly disease globally. I would like to know more about this public health condition.

1. What is the cause of TB?

Probes: What predominant conditions do you think account for TB incidence in this Metropolis? Social factors; funeral, naming ceremony, wedding, school setting, housing systems? Economic activities; trading/ selling in the market, banking, others?

2. Throughout your years of practice, what in your opinion has been some of the common symptoms of TB?

Probe: Protracted coughing for more than two weeks, fever, tiredness, weight loss, loss of appetite, night sweat, phlegm, chest pain, weakness chills? Are symptoms easily detected or not? How?

3. Infectious diseases are easily transmitted from person to person. Can you explain to me how TB transmission occurs?
   Probe: What are the most infectious type of TB? (Pulmonary or extrapulmonary, Smear positive, Smear negative?)
   Probe: At what point in time is the disease much infectious?
4. Describe to me some effective infection control measures that are adopted in this facility?
   Probe: Prevention of client to health workers transmission, Prevention of the client to treatment supporters transmission, Prevention of the client to others transmission

TB Case Detection

One major challenge of TB eradication worldwide has to do with TB case detection

5. The WHO TB guidelines have stipulated certain processes for diagnoses of TB. Can you take me through the processes involved in the diagnoses of patients in this health facility?

Probe: Who needs to be screened? In what instance does screening occur? Is this role of screening performed in this facility? How often? If not regular, what factors hinder performance?

Probe: Active or Passive detection? Which one is practiced? Why?

6. What are the available TB diagnostic tests in this health facility and how effective is each of these tests?

Probes: How is the clinical assessment of suspected individuals done?

What tests undertaken (Smear microscopy or Xpert MTB/RIF, Liquid culture, chest radiography, any other)? Why is this test taken over the other? The effectiveness of the test taken (Duration for a tool to produce test results? Power of the test/Ability to detect true cases when symptoms are present)?

TB Treatment Regimen and Perceptions on DOTS

Now I'm going to ask you a few questions about Treatment and your opinion on DOTS.

7. What entails TB treatment in this health facility?

Probe: New pulmonary TB patients, New extra pulmonary client, Previously treated clients

(relapse/ default/failure), Transfer-in.

8. What is the composition of the medication given to the different categories of clients?

   Probe: Drug combination? Dosage per body weight? Frequency of days? Relate to newly registered clients, Previously treated clients (relapse/ default/failure), Transfer-in

   Probe: Precautions, adverse effects, drug interaction.

9. How are the side effects of anti-TB drugs managed?
   Probe: How are the major adverse effects such as skin rash with or without itching, deafness, dizziness, confusion, Jaundice, hepatitis, and visual impairment managed?
   Probe: How do you manage minor side effects such as anorexia, nausea, abdominal pain, joint pains, flu syndrome (fever, chills, malaise, headache, bone pain)?
10. What is the choice of TB regimens in special situations such as pregnancy, breastfeeding, concurrent use of oral contraceptives, liver disease, and renal failure?

    Probe: Combination of drugs? dosage? What informs dosage? Duration of treatment? The frequency of treatment; daily, some days in a week? Why?

11. Overall, what are your perception on the TB regimen given?

    Probe: Size of the drug? Drug intake? Do you think another form of drug intake aside from ingestion, could be suitable? Explore reasons? Do you think that the size of drugs can induce fear in some patients? Any relationship between anti-TB drug dosage and patients' adherence to treatment? What about the duration for treatment and adherence?

12. What are the DOTS practices in this health facility?

    Probe: Procedures in DOTS, Counselling? Who does the counselling and how often?

    Other assistance?

<u>Supervision and Monitoring of Treatment</u>

WHO recommends that National TB control Programs (NTP) ensure that supervision and support are provided for all TB patients in order to achieve completion of the full course of therapy.

13. How is supervision practiced in this health facility?

    Probe: Follow-ups, treatment supports, choice of treatment supporters, peculiar characteristics of treatment supporters, kinds of support.

14. All patients should be monitored to assess their response to therapy. How is the monitoring of TB cases done in this facility?

    Probe: Identification and management of adverse drug reactions? Persistence or

of symptoms of TB? Name symptoms? Symptoms of adverse drug reactions?

Treatment Interruptions?

Probe: Sputum smear or culture reexamination? Test after the intensive phase?

15. What do you think can be done to encourage patients to adhere to the DOTS and complete their treatment?
16. What are the current barriers this facility faces which hinder the implementation of the WHO guidelines for DOTS?
17. What kinds of support would you/facility need to facilitate your services pertaining to DOTS?

Thank you for your time and contribution to the discussion!!!

Appendix 3: Table of Themes

Name	Description
Adherence to DOTS	Client's adherence, clients' missed treatment, perception of others' adherence
TB case detection	Experienced predictive signs, diagnosis of TB
Challenges on DOTS	Personal challenges and health system challenges
Coping Strategies	Personal and external strategies adopted
Meaning of DOTS	Key informants knowledge on TB and DOTS, Patients knowledge on TB and DOTS, misconceptions about TB
Participants perceptions of DOTS	Positive perceptions, negative perceptions, influence on DOTS
Psychological Factors	Emotional experiences, motivation for treatment
Social Factors	Forms of support, Sources of support, Impact of social support, stigma from people