

**SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
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**FACTORS AFFECTING THE IMPLEMENTATION OF DIRECTLY OBSERVED
THERAPY SHOURT-COURSE (DOTS) IN THE TREATMENT OF TUBERCULOSIS
IN OSU-KLOTTEY SUB-METRO.**

BY

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DECLARATION

I declare that except for other people's investigations which have been duly acknowledged, this work is the result of my own original research, and that this thesis, either in whole or in part has not been presented elsewhere.

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DEDICATION

This study is dedicated to my whole family and those who helped in whichever throughout my study period.

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I thank Heavenly Father for seeing me through this course and successfully completing my research work.

My sincere gratitude goes to my supervisor Dr. Emmanuel Asampong at the department of Social and Behavioral Science, School of Public Health, University of Ghana for his immense contribution, support and encouragement throughout the study.

To my research assistant, I am grateful for the time you spent going into the community helping me collect my data. Also, thanking all the participants for your cooperation because without you the research would not be a success.

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ABSTRACT

Introduction: Currently, there is an annual decline in TB incidence rate of 1.5% globally which is lower than the expected 10%, according to the new End TB strategy which encourages innovation and improving tools that have been used to control TB to end it. A tool that has proven successful in the world is Directly Observed Therapy Short-course, which is one of the core principals of the stop TB strategy that ended in 2015. Even though there is a new strategy, the breakdown of high-quality DOTS would have an impact on the outcome of TB treatment and control. This study was conducted in Osu-klottey sub-metro in the Greater Accra Region on the factors affecting the implementation of DOTS in the treatment of TB.

Methods: This study was a cross sectional study, using qualitative approach to collect data on TB patients and health workers (nurses and treatment supporters). Purposive sampling technique was used to select participants. In-depth and key informant interviews were conducted and analyzed using Nvivo11.

Results: Health workers faced difficulties in implementing DOTS because of inadequate number of staff, staff attrition, and shortfalls of other facilities in addition to phasing out of treatment supporters. They expressed fear of contracting the disease even as they showed concern about re-infection of TB among drug abusers. Health seeking behavior of the TB patients showed their attitude towards TB and the DOTS accounting for their preference which affects accessibility of the strategy in the community. In describing the attitude of health workers towards them, TB patients expressed how they were made to feel like they were very important and loved in addition to being encouraged and comforted even as they were rejected by the community. Majority of the patients did not know about TB before they became ill. This study went ahead to discover that

patients who had physical manifestations for example becoming lean, viewed the disease as being serious compared to those who did not.

Conclusion: DOTS strategy is still relevant in the treatment and elimination of TB and for its implementation to be improved, there is need for high-quality care and creation of more TB awareness.

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LIST OF ABBREVIATIONS

TB - Tuberculosis

HIV/AIDS - Human immunodeficiency virus/acquired immunodeficiency syndrome

WHO - World Health Organization

MDGs - Millennium Development Goals

SDGs - Sustainable Development Goals

NTP - National Tuberculosis Control Program

DOTS - Directly Observed Therapy Short-course

BCG - Bacille Calmette Guerin vaccine

INH - Isonicotinylhydrazide prophylaxis

DOT - Directly Observed Therapy

DOTS – Directly Observed Therapy Short-course

KIIs - Key informant interviews

IDIs - In-depth interviews

HW – Healthcare workers

CD-ROM - Compact Disc, read-only-memory

R - Respondent

TBP – Tuberculosis patient

WHO/TDR - World Health Organization/ Tropical Disease Research

CHAPTER ONE

INTRODUCTION

1.1 Background

Tuberculosis (TB) is an infectious disease which has been in existence for a long time. It is known to be the world's deadliest infectious disease that is transmitted through the air and targets the lungs. It can infect other parts of the body and when that happens it is called extra-pulmonary TB. The disease is spread when someone with active TB coughs or sneezes thus spreading droplets containing the bacteria into the air. People who are infected with the bacteria causing tuberculosis can live a normal life without developing the disease, though the disease can be aggravated in low immune system especially by human immunodeficiency virus/acquired immunodeficiency syndrome HIV/AIDS infection (World Health Organization, 2015).

Prevalence research that has been done reveal that the disease claims 3 lives every minute worldwide which in a year is very high. From recent prevalence surveys, it is evident that there are more people than estimated who are undiagnosed, not treated or not officially registered by national TB programmes. These missed cases are a global public health failure considering that TB is airborne and each undiscovered and untreated individual can infect as many as 10 to 15 people every year; this is a big danger to health security of the whole world (WHO, 2015).

In 2014 more than 9 million individuals turned out to be sick (TB) and 1.5 people died making it the world's biggest killer disease from a single infectious agent overtaking HIV (WHO, 2015). In 2015, 10.4 million individuals fell sick with TB and 1.8 million died from it (including 0.4 million among individuals with HIV). Over 95% of deaths from TB occur in low- and middle-income countries.

The year 2015 marked the deadline for the global TB targets that had been set in the context of the MDGs and it also marked the beginning of the SDGs. According to the report in (World Health Organization, 2015) in order to decrease TB burden, detection and treatment gaps must be addressed. As the world moves forward to endorse End TB Strategy, it has also been noted that there is still a significant percentage of deaths that are TB related.

According to Barker, (2008) in many parts of the world the incidence has been falling but in Sub-Saharan Africa, the incidence has increased about ten times and World Health Organization, (2012) indicate that the African Region has the highest rates of tuberculosis and deaths per capita which is around 24%.

In Ghana, according to Dr. F. Bonsu (2016, Unpublished Presentation), there is an unacceptable high TB death rate of 7%. In 2011, the TB annual report showed that deaths among people with TB was 7.2% with a default proportion of 3.0% in the year 2010 (Ghana NTP, 2013).

A tool that has been used for a long time in the treatment and control of TB that has proven in many countries is the Directly Observed Therapy Short-course (DOTS) strategy. DOTS strategy is a short course chemotherapy that combines appropriate TB diagnosis. According to WHO, (2013) it was launched in the mid-1990s when WHO declared it a global emergency and it remained as a core element of the “Stop TB Strategy” which ran from 2006 to 2015 and, it still plays a big role in the new “End TB Strategy” which is to run from 2016 to 2020. It has five elements that include political commitment with increased and sustained financing, case detection through quality-assured bacteriology, standardized treatment with supervision and patient support, secure drug supply and management and good impact measurement system (Uplekar & World Health Organization, 2006).

All the above-mentioned elements have far reaching impacts that directly influences DOTS implementation and its quality. Services for TB care should identify and address factors that may make patients interrupt or terminate treatment. Measures that are locally suitable ought to be undertaken to identify and address physical, financial, social and cultural barriers, and also health system barriers to accessing quality TB treatment services (Uplekar & World Health Organization, 2006).

1.2 Problem statement

According to Barker, (2008), in sub-Saharan Africa, the TB incidence has increased about ten times and WHO, (2012) indicates that the African Region, which has the highest rates of TB cases and deaths contributes 24% of the world's cases. In 2014 over 9 million people turned out to be sick with TB and 1.5 million people died making it the world's greatest killer disease from a single infectious agent thus overtaking HIV (WHO, 2015). In 2015, an additional increase of 1.4 million people fell ill with TB and 0.8 million died from the disease (including 0.4 million among people with HIV). More than 95% of deaths from TB occurred in low- and middle-income countries (WHO, 2016).

Currently, there is an annual decline in TB incidence rate of 1.5% globally which is unacceptable (WHO, 2015) and if this trend continues, it will take a lot more time before TB can be ended. The new End TB strategy envisions that the decline of TB incidence should be 10% annually and WHO (2015) indicates that it is possible to accelerate that decline to 10% per year to attain the target set for 2025.

In Ghana one of the tools that is used widely in controlling TB is the DOTS and has been accredited to be highly effective (WHO, 2013). DOTS was a big part of the stop TB strategy which ended in

2015. The new End TB strategies does not mention DOTS though it calls for strengthening and improving tools that have been used to control TB, with the focus of ending it and it also encourages innovativeness (WHO, 2015).

Prevalence in TB in Ghana has changed a little bit over time and is reported at 329 per 100,000 population in 2008, 282 in 2014. The incident rate was 165 per 100,000 population in 2014 and 160 in 2015 (National TB Programme, 2014). The incident rate in 2015 was 160 per 100,000 population which was a slight improvement from the previous year <http://www.ghananewsagency.org/health/ghana-commemorates-world-tb-day--101992>.

According to discussion with the Ghana TB control manager, DOTS not being part of the new End TB strategy is highly acknowledged and supporting roles for DOTS in Ghana such as treatment supporters are being phased out. Breakdown of high-quality DOTS would have an impact on the new target set at 90% which is higher than the previously achieved 85% (Uplekar & World Health Organization, 2006). Consequentially, changes in the implementation process of DOTS is bound to have adverse effects on TB control in Osu-Klottey Sub-Metro and Ghana at-large.

1.3 Justification

The purpose of this study was to explore factors affecting the implementation of DOTS strategy in Osu-Klottey sub-metro. The findings from this study will not only contribute to the existing body of knowledge on the topic of TB but also, new knowledge on how to ensure that the success of DOTS implementation is maintained, improved where need be and new strategies that are society appropriate are developed. In the treatment of TB, adherence is key and it is complex and challenging. The treatment itself is lengthy and has inevitable side effects making psychosocial support an integral part of TB treatment. Thus, the need to investigate attitude and misconceptions

in the community towards DOTS itself and TB in order to reduce the social burden and increase case detection and treatment of TB.

Improvement of DOTS is needed to reduce the social burden of TB, tackle the high death rate in Ghana because the deaths due to the disease are preventable and to evaluate elements of DOTS programme that are key in eliminating TB.

1.4 Theoretical framework

This theoretical framework is adopted from the health belief model. This model holds that modifying variables, cues to action and self-efficacy affect people's perception of susceptibility to and seriousness of a disease, benefits and barriers of the intervention which in turn influences people's behavior. The people's behavior will determine the uptake of an intervention (Hayden & Paterson, 2013).

Perceived seriousness addresses one's beliefs about how severe the ailment is. More often, it is based on medical information but, it may also come from beliefs that one has about the difficulties that would come with the disease or the impact it would have generally on his/her life. If the disease is perceived as minor, the person might choose to stay home with the thought of getting better but, if the disease is perceived to be serious the person is more likely to go to the hospital (Hayden & Paterson, 2013; Conner & Norman, 2005). Some of the symptoms of TB include coughing and vomiting and many at times it can be passed as being minor which is a challenge in itself. How health workers perceive DOTS strategy would be reflected in how they implement it and how they handle patients. Patients might not adhere to DOTS because of the lengthy time that the therapy takes in comparison to income (Hayden & Paterson, 2013).

Perceived susceptibility is a construct that prompts individuals to adopt healthier practices (Conner & Norman, 2005). The more prominent the perceived risk, the greater the probability of taking part in practices that would decrease the risk. That is, it can serve as a motivator for people to go and get tested for tuberculosis (case detection) once they know the risk involved and take drugs as directed under the DOTS regimen. It can also be negative as the knowledge of one's status may lead to stigmatization. Dr. F. Bonsu in the 2016 World Tuberculosis Day urged the public to report to a clinic nearby when they manifest certain symptoms in addition to observing good hygiene practices and ensure enough ventilation to increase case detection and susceptibility respectively. <http://www.ghananewsagency.org/health/ghana-commemorates-world-tb-day--101992> .

It is only when individuals believe they are at risk of contracting a disease that they will do anything they can to prevent it from happening. When people believe they are not susceptible, unhealthy behavior tend to be the result. In some cases, even with the knowledge of susceptibility, preventive measures are not taken. Perceived threat comes as a result of perception of susceptibility and seriousness of the disease. Increased susceptibility does not always lead to behavior change, neither does perception of increased threat.

Perceived benefits speak to an individual's opinion of the value or usefulness of a new practice in decreasing the risk of contracting a disease (Link & Phelan, 1995). In the case of DOTS, using it effectively to be cured from TB would be one of the perceived benefits. It plays an important role in adoption of prevention behavior. Behavior that would favor curing of TB. The therapy itself is long and uncomfortable and has many inconveniences. Those who perceive to benefit in the long run are more likely to adhere to the instructions of DOTS as a regimen (both healthcare workers and patients). The earlier TB is detected the higher the chance of survival when the patients are put on DOTS.

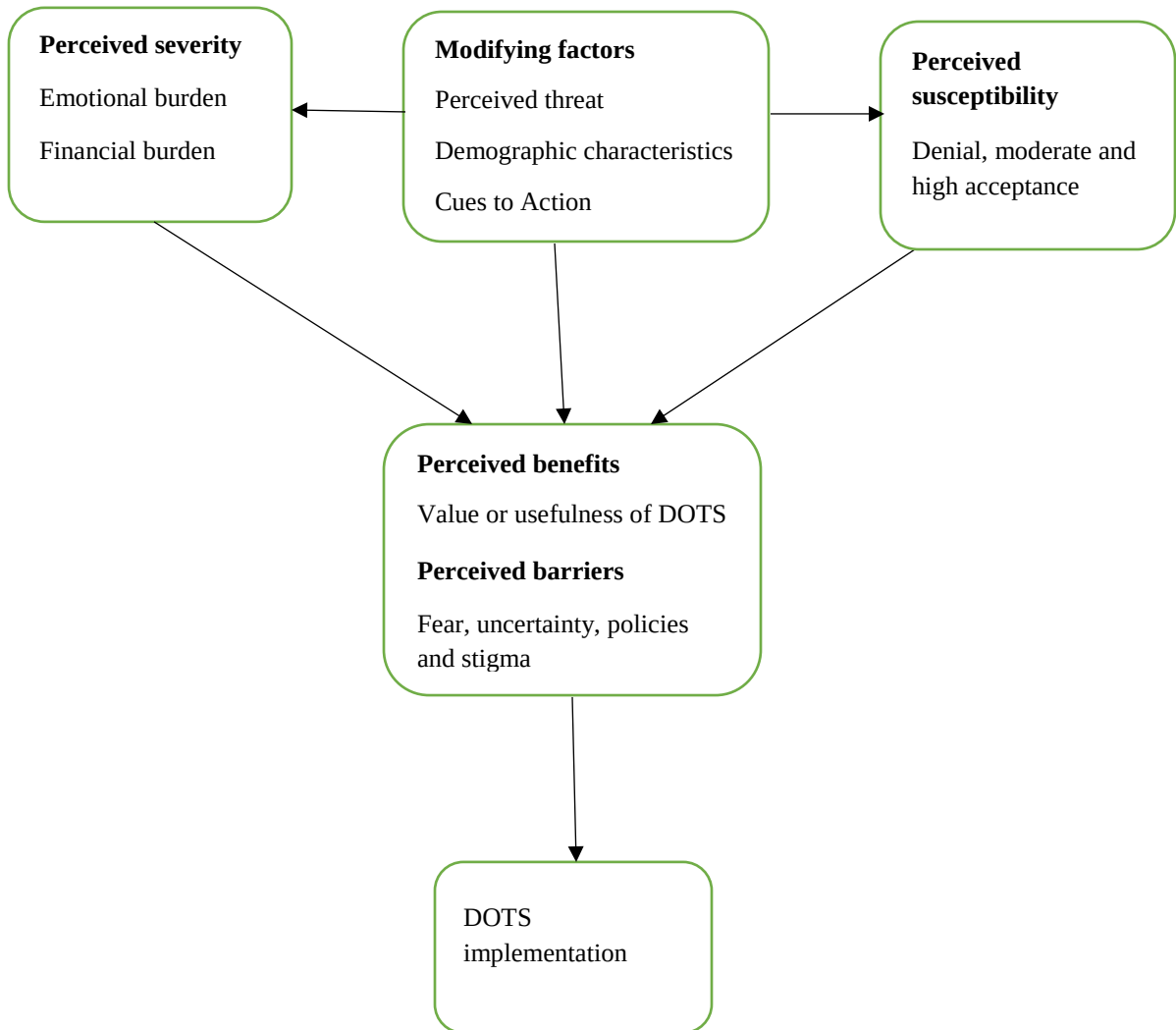
Perceived barrier is one's own assessment of the obstacles in the way of him or her adopting a new practice. It is exceptionally significant in determining change in behavior. When a person believes that the advantages of the new practice exceeds the consequences of continuing the old behavioral conduct, they will embrace the new one. Barriers such as fear of painful tests, treatment, finances, subjective norms, embarrassment, stigma and uncertainty crop up.

The four major constructs of perceptions are modified by other variables which are called the modifying variables (Hayden & Paterson, 2013). In the case of DOTS such variables include education level, past experiences in terms of exposure to TB/DOTS programmes, knowledge of TB/DOTS. These are characteristics that have an impact on personal perceptions.

Behavior is also influenced by cues to action, that is, events, people or things that move people to change their conduct. For example, TB-related death in the family, media report, mass campaign, reminder by health workers e.t.c. Having the disease may encourage one to educate others about it.

Self-efficacy is the belief an individual's capability to execute the course of action required to produce a certain outcome (Conner & Norman, 2005). Unless one thinks that s/he can do something new, they would not try it. If they think a behavior is beneficial but they cannot do it for example because of subjective norms, then the probability that they will not try it is high.

FIGURE 1: Theoretical framework on the improved implementation of DOTS



Perceived severity, perceived susceptibility and the modifying factors directly influences the perceived benefits and barriers of the use of DOTS for both TB patients and health care workers. This will determine the implementation of the DOTS. These perceptions influence patients' decision making and appropriate or inappropriate use of the therapy. On the other hand, perceptions of health care workers determine the implementation of the therapy.

1.5 Research questions

- What is the knowledge and attitude of TB patients and health care workers towards DOTS?
- How do health workers perceive DOTS implementation?
- Is the DOTS strategy accessible in the community?

1.6 Research objectives

1.6.1 General objective

- To explore the factors affecting DOTS implementation.

1.6.2 Specific objectives

- To assess the knowledge and attitude of patients and healthcare workers towards DOTS.
- To understand health workers' perception of the DOTS strategy implementation.
- To determine the accessibility of the strategy in the community.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Tuberculosis (TB) is the world's deadliest infectious disease that is airborne. Its causal agents are *Mycobacterium Tuberculosis*, and occasionally *Mycobacterium Bovis* and *Mycobacterium Africanum* (WHO, 2013). The disease is spread when people who are sick with pulmonary TB expel bacteria, by coughing for example. 5-15% of the estimated 2-3 billion people infected with the bacteria will develop the disease during their lifetime. However, people infected with HIV have a higher probability of developing TB.

2.1 Diagnosis and treatment of tuberculosis

There are different ways of diagnosing TB and the most common one is the sputum smear microscopy in which bacteria are observed in sputum samples examined under a microscope. In countries where laboratory capacity are more developed, cases of TB are also diagnosed via culture methods which is the current reference standard.

A tool that has been used for the treatment of TB and has proven successful is the Directly Observed Therapy Short-course (DOTS) (WHO, 2013). DOTS as WHO's tuberculosis control strategy has its roots in the classical demonstration by Styblo in the 1980s that high treatment success rates were achievable in low income setting. That is, sub-Saharan Africa and Latin America. Styblo's approach was adopted by the World Health Assembly in 1991 and renamed DOTS strategy in 1994 (Mauch et al., 2011).

The DOTS strategy has four key technical pillars: detection of smear-positive pulmonary tuberculosis using sputum microscopy, in patients presenting themselves to public clinics; directly-

observed treatment with short-course chemotherapy; guaranteed continuous drug supply; and a case recording system tracking treatment outcomes (World Health Organization, 2015).

Among the SDGs, Goal 3 encompasses ensuring healthy lives and promoting well-being for all at all ages. It covers a range of health-related issues such as maternal and child health, communicable and non-communicable diseases, and target 3.3 clearly calls for ending major global epidemics including TB, HIV, malaria and neglected tropical diseases by 2030 (Raviglione & Sulis, 2016).

2.2 Global statistics of tuberculosis

Globally, it is estimated that in 2015, 1.8 million people died of TB, at least 3 people per minute, of whom 0.4 million were coinfecting with HIV. In spite of the fact that the deaths from TB fell by 22% between 2000 and 2015, TB still remained to be one of the top 10 causes of death worldwide in 2015, responsible for more deaths than HIV and malaria (World Health Organization, 2015).

In 2014 more than 9 million people became ill with TB and 1.5 people died making it the world's biggest killer disease from a single infectious agent overtaking HIV (WHO, 2015). In 2015, 10.4 million people fell ill with TB and 1.8 million died from the disease (including 0.4 million among people with HIV) which is an increase in comparison with the previous year. Over 95% of TB deaths occur in low- and middle-income countries (WHO, 2016).

From 2014 to 2015, the rate of decline in TB incidence globally has remained at 1.5%. There is need to accelerated this to a 4% to 5% annual decline by 2020 in order to reach the first milestones of the End TB Strategy. The first milestone of the End TB Strategy is set for 2020 and it includes a 35% decrease in the number of deaths that occur from TB and a 20% decrease in the TB incidence rate, as compare to 2015(WHO, 2015). In addition to this, no households affected by TB should face catastrophic expenses. Currently, there is an annual decline global TB incidence of 1.5%

which is unacceptable. WHO (2015) indicates that it is possible to accelerate that decline to 10% per year to attain the target set for 2025.

Dr. Raviglione who is the Director of the WHO's Global TB Programme on Citizen News Service (CNS) was reported saying that if the current rate of decline of TB incidence which is 1.5% continues, it will take many centuries before TB is eliminated. The End TB Strategy calls for a drastic acceleration in this decline by bringing it to 10% by the end of 2025. This would only be possible if countries demonstrate their political will which is reflected in their commitment and investment. In the 46th Union World Conference on Lung Health, it was shown that in Russia TB rates are already declining by 10% confirming that the target is achievable. www.modernghana.com/news/660409/1/will-2030-global-goals-help-accelerate-progress-to.html

“To decelerate by more than 10%, there is need to optimize the use of all the tools that are currently available - BCG vaccine, INH prophylaxis, rapid molecular testing, optimum treatment regimens- - and above all hold governments accountable for universal health coverage and social/financial protection for people with TB.” www.modernghana.com/news/660409/1/will-2030-global-goals-help-accelerate-progress-to.html

2.3 Tuberculosis in Ghana

In the Stop TB Strategy, the global target was to provide high quality diagnosis and treatment and also achieve equal or greater than 85% treatment success rate by 2015. According to World Health Organization, (2006), the core element of improved quality is improved human resource capacity for undertaking required DOTS task; sputum smear microscopy, drug management, supervision, recording and reporting practices e.t.c. Ghana is said to have reached the 85% target and as Kolappan et al., (2013) says, to sustain the high effectiveness of DOTS programme vigilant supervision is needed. Human resource capacity plays an important role in the detection and

treatment of the disease. Some of the questions that would come up include whether health professionals are well trained, do they have the knowledge of the disease, and are they from within the community (Sanders, 2007).

In the new End TB Strategy, focus is on people-centred targets because this would improve the quality of current interventions and widen the reach. Countries, Ghana include, are to reach 90% of all people with TB, 90% of key populations and achieve at least a 90% treatment success for all people diagnosed through treatment services that is affordable, adherence to complete and correct treatment and social support (WHO, 2015). Quality treatment, support and follow-up is needed to achieve at least a 90% treatment success rate among those recognized as requiring treatment, that is, all those diagnosed not those who have started treatment.

TB has continued to be the leading cause of death among individuals living with HIV which accounts for nearly one in three HIV related deaths. Less than half of TB patients are tested for HIV and only half of the estimated number of people who become ill with HIV related TB receive treatment (World Health Organization, 2015).

In 2013 about 360,000 people died of HIV-associated TB. Approximately 25% of deaths among HIV-positive people are due to TB. In 2013 it was estimated that 1.1 million new cases of TB amongst people who were HIV-positive where by 78% were living in Africa. People who are infected with HIV are 26 to 31 times more likely to become sick with TB. For people suffering from other conditions that impair the immune system, they are at a greater risk of getting active TB (WHO, 2013). Persons who are infected with the bacteria causing tuberculosis can live a normal life without the development of the disease, but the disease can be aggravated in low immune system especially by HIV/AIDS infection.

According to WHO, TB is linked to poverty and its control lies in justice and human rights. In Africa, especially in the sub-Saharan Africa, the higher incidence and prevalence of HIV/AIDS and TB pose a challenge (Kirigia & Muthuri, 2016) because of the high poverty in the region. Economic burden of TB is also high in this region.

2.4 Socio-economic impact of TB on patients

In India, a study done by Rajeswari et al., (2002) estimated the total socio-economic impact of TB on TB patients and their families to be US\$ 171 per case (Rajeswari et al., 2002)

It is estimated that more than 76,000 Ghanaians are afflicted with TB, with more than 9,700 people dying of the disease each year (Ghana Ministry of Health, 2016). A policy for free TB treatment is provided by the government of Ghana. This includes consultation at clinics, laboratory services and non-payment for drugs. According to discussions with the National TB control manager, despite the availability of free TB treatment there is still an unacceptable high death rate of 7%.

A study was done in Kenya in which the treatment was free and the author looked into the direct and indirect costs associated with TB. The study was done in Kitui and Mutomo districts. It was noted that travel to and from the health facility accounted for most direct costs of pre-diagnosis and additionally, there were costs incurred on food purchased too (Mauch et al., 2011).

Even for those under the Directly Observed Therapy (DOT), costs were incurred when they went to collect drugs or for a follow-up sputum test, food and accommodation. Key findings showed that transport was the biggest cost item thus, the results confirmed a ‘medical poverty trap’; expenditure increased while income decreased. To be precise, the median direct cost of US\$ 55.8 and indirect cost of US\$ 294.2 was used (Mauch et al., 2011).

During the world TB day, 2016 in Ghana, Hon. Alex Segbafia was reported saying that although TB is a pro-poor disease all stakeholders involved need to galvanize their support to ending TB because “TB anywhere is TB everywhere”, (Kebaafrica.org, 2016). The socio-economic status of individuals in the community or even the community at large has made TB to pose a threat to the greater community because once a portion of people do not access treatment, they can easily infect others or if they default. This has even been made easier by migration which is on the increase and key populations such as persons with HIV, infants and elderly e.t.c are highly susceptible to TB (WHO, 2015). Other key populations such as prostitutes, prisoners, those who inject drugs, smoker and alcohol abusers e.t.c. are usually neglected but can pose a big threat if they continue to be neglected.

2.5 Socio-cultural impact of TB on patients

Tuberculosis is a typical social disease, it goes beyond the diagnosis. Social representations of TB focus on aspects associated with feeling and manifestation that is stirred by the disease (de Souza, da Silva, & Schlindwein Meirelles, 2010). It sometime reinforces stigma and prejudices on the way TB is perceived.

Regardless of the decrease in TB frequency around the world, its incidence is still rising in certain crisis-affected populations like refugees, people living with HIV and poverty especially in developing countries. Stigmatization poses a problem to current TB control endeavors because socio-cultural aspect of life can have an impact on adherence to TB treatment. WHO has cited stigma in its analysis as the health system and sociocultural barrier to TB control. Stigma can be propagated by health workers as well as by community members (Schaaf, 2007).

The effect of stigma include experiences of social seclusion or rejection from family members, friends, neighbors and/or health providers, internalized shame, discrimination and its

repercussions. The impact of stigma has led to divorce, cancellation of marriages and isolation within the family (Thomas et al., 2016).

Stigma towards women is particularly severe than men. Marriage chances is affected when a woman's TB state is made known, thus difficulty finding a marriage partner. Families go as far as hiding family members who have the disease or even deny that the daughter has the illness (Cofie & Liu, 2014). In places like Bombay, India, married women hid because they did not want to go through rejection and/or harassment by the husband or in-laws (Nair, George, & Chack, 1997; Mcarthur, 2013). People with tuberculosis face discrimination in almost all cultures and it is a fundamental aspect of illness experience for many chronic disorders TB included.

People with TB change the way they perceive both their bodies and social role. Prejudice and physical manifestations from the side effects of the therapy plays a part in this (de Souza et al., 2010). In the treatment of TB, adherence is key and it is complex and challenging. The treatment itself is lengthy and has inevitable side effects making psychosocial support an integral part of TB treatment. Thus, the need to investigate attitude and misconceptions in the community in order to reduce stigma and to get more people diagnosed with TB to start/continue on DOTS treatment.

To end TB there is need for a paradigm shift in TB care and prevention. The shift is needed in broad areas including; change in mind set, implementation of approaches to TB that is grounded in human rights and gender equity, innovative TB programmes equipped to end TB and maintaining a central focus on patients and communities affected by TB (WHO, 2015).

2.6 TB intervention programmes

In the Philippines where DOTS was initiated in 1997, a national sample survey conducted 10 years later demonstrated a 31% reduction in culture-positive prevalence, and a 27% reduction in smear-

positive prevalence. A nationwide programme in Peru showed that decline in tuberculosis incidence almost doubled between 1991 and 1999 through the implementation of DOTS(Suárez et al., 2001).

A study done by Kolappan et al., (2013) showed that despite the average annual success rate of 78% at a TB unit in Tiruvallur area being lower than the expected rate of 85%, the implementation of DOTS was followed by a substantial decrease in the prevalence of pulmonary tuberculosis over five years in a rural population. Notwithstanding, it was off-set by an increase in the next two and half years. Although the average annual decline over the seven and half-year period was still significant, the findings suggest that sustaining the high effectiveness of DOTS programme needed vigilant supervision.

TB programs should be equipped to leave behind the past approach of slowly scaling up pilot projects in order to more rapidly scale up treatment and care for drug-sensitive and drug-resistant TB. Programs must be equipped to rapidly and efficiently roll out any new medicines, diagnostics and vaccines that reach the market before 2025 (WHO, 2015).

Decentralization of DOT for TB to community (home-based DOT) has led to the improvement of treatment of TB and it has reduced the burden to the health care facilities (facility-based DOT). According to (Mhimbira et al., 2016), systematic reviews that have been done show that patients under home-based DOT can achieve similar or better results compared to facility-based DOT, the former has raised concerns. Health care workers have expressed concerns about treatment adherence, storage of drugs and absence of supervision which may contribute to indefensible TB treatment outcomes.

The results demonstrated that patients that decided to undertake home-based DOT under programmatic conditions are more likely to have risk factors (such as old age, HIV infections and smear negative TB) for mortality and have an increased mortality as compared to facility-based DOT (Mhimbira et al., 2016).

Stigma presents a challenge to the effective control TB. A direct way to deal with stigma would include understanding the beliefs and attitudes of the communities towards the ailment through research and tending to the issue through awareness campaigns (de Souza et al., 2010). An indirect way to deal with reducing stigma is to create more socially accessible services. In Kenya, a study done showed how feasible it was to incorporate Family Planning services into the Primary Health Care framework, bringing about social accessibility for women as a “one stop clinic”.

Dr. F. Bonsu in the 2016 World Tuberculosis Day urged health care workers to strive to improve on the current treatment success rate of 85% saying that we are not proud of the deaths occurring because they are preventable. He also appealed to the society at large to report to the closest hospital whenever they detect TB-like symptoms for example, persistent cough for more than two weeks, progressive loss of weight, feeling breathless, sweating exorbitantly especially at night and having chest pains. In addition, he urged the public to observe good hygiene practices and ensure enough ventilation <http://www.ghananewsagency.org/health/ghana-commemorates-world-tb-day-101992>.

In a study done in Nigeria, Knowledge of HIV status was found to be necessary because as long as HIV/AIDS is a public health burden, TB will continue to be a problem within the country. The author concluded by saying that for DOTS strategy implementation to be effective in eliminating TB worldwide, there is need for holistic approach in reaching all patients with high quality care.

In Nigeria, those with low level of education could not understand their disease state and lacked the ability to read the instructions of dosage regimen on the labels (Bello, 2010).

Ghana DHS, (2014), revealed that the higher one's education level the more knowledge they had on TB. The ratio of men to women who sought treatment was 2:1 which brings in gender disparities. Is it because of their roles in the community or decision makers together with other factors that brought out this outcome? 67% of women are literate compared to 82% of men confirming the findings in the DHS that more men are knowledgeable about TB than women (Ghana DHS, 2014).

The results from a study done in Ghana by Amo-Adjei & Kumi-Kyereme, (2013) showed that region of residence, education level, religious affiliation, ethnicity, household wealth status, exposure to print, radio and television, marital status and age cohort were all associated with myths and misconceptions about TB transmission. As age increases, the propensity of entertaining misconceptions about TB rises.

In Bangladesh, television was cited as one of the main sources of information and a small proportion of the participants cited radio and bill boards. It mirrored the positive effect of the government's initiatives of mass awareness using media. The respondents also mentioned that TB could be cured by taking specific drugs from DOTS centers (Tasnim, Rahman, & Hoque, 2012).

Patients often indicate that the attitudes and behavior of health professionals towards them are usually demeaning (Cofie & Liu, 2014). The results from this study showed that these attitudes and behavior affected the patients' confidence and the way they related with other people in the community. The stigma attached to the TB in the society has made patients on TB treatment endure a lot of emotional difficulties. Most patients indicated that their close family members avoided

sharing household items like cups and plates with them. This study went ahead to confirm that the probability of patients' failure to credit their symptoms to TB may be a direct result of the stigma appended to the disease in society.

In India, data results showed that the most difficult issues for patients and their caretakers were related to coping with DOTS strategy itself. The challenges were grouped into two and one of them was socio-economic and cultural implications of having a family member ailing with TB. The way DOTS is organized in India, it makes the patients visible to others and due to the long time that it takes for treatment, the families are affected economically. Concerns about the attitudes of DOTS providers also arose and some patients perceived DOTS to be rigid and intrusive (Yellappa et al., 2016).

Yellappa et al., (2016) revealed that it was among the young patients that the tendency to hide the disease was prevalent. The elderly patients living in the rural areas shared their challenges with neighbors and there was a certain degree of social acknowledgment. As compared to those who did not have social support, patients who had it were less worried about stigmatization. In contrast, patients living in urban areas took extreme measures/care not to uncover their illness status to anyone, regardless of the age group.

A study carried out in south western Nigeria showed that final year medical students had inadequate knowledge of the management of TB according to DOTS regimen. Only 34.5% were able to effectively identify regimen duration for new tuberculosis cases and 6.7% identified regimen duration for re-treatment of tuberculosis as per the guidelines set. The researcher suggested that it was the duty of medical colleges and the curriculum to produce well trained and skilled medical practitioners. That is because, the attitudes and knowledge level of graduating doctors may influence the outcome of DOTS and TB control programs. The article went on to say

that there is need for massive increase in DOTS awareness among medical practitioners (Olakunle et al., 2014).

Stigma from the family, community and health care workers is worrying and calls for psychosocial interventions to address the challenges not just for patients who suffer stigma but also emphasizes on the need for sensitization efforts among the care givers and the community. Sensitization efforts among the care givers and the community are significant in facilitating the kind of support that patients require, especially with an illness that requires prolonged treatment(Thomas et al., 2016). Findings from the same study also highlighted the economic burden with issues related to inaccessibility of treatment, distance, transport costs and costs incurred during hospitalization.

In an article that looked at the productivity of losses associated with tuberculosis deaths in the world health organization Africa region, results revealed that the 47 WHO African Region Member States lost 1.37% of their combined GDP due to the 753,423 TB deaths in 2014. This is a huge loss since 47% of the population live on less than one dollar per day. In addition, 75.86% of the loss was represented by those aged 15-59 years which is the most productive age bracket (Kirigia & Muthuri, 2016).

In Behzadifar et al., (2015) patients expressed the need for a change in the attitudes and beliefs of people about treatment of TB using DOTS. This includes; acknowledgment of the disease, putting one's trust in DOTS health professionals, be convinced of the improvements of their health, to be ensured that proper use of medication would lead to total recovery after treatment, in accordance with DOTS. Patients requested that their privacy be considered even as they receive more attention from the healthcare professionals.

For DOTS to be successful in the treatment of TB, coordinated effort between the healthcare professional and the patient is required. The cultural context, attitude of the patient, patient and family education and information, supported by the proper legislation are important in helping to decrease concerns of patients on their livelihood and absence of patient adherence to treatment and healthcare costs (Behzadifar et al., 2015).

Providing high quality care in the treatment of tuberculosis is needed to increase the success rate, and this goes along with the cooperation of patients and medical healthcare workers together with the change in their attitude and perceptions (Sabaté, 2003).

CHAPTER THREE

METHODS

3.1 Type of study

The study adopted a cross-sectional study using qualitative approach to collect data. This approach was used to better understand and gain an insight on factors that affect the implementation of Directly Observed Therapy Short-course (DOTS) from both the health workers' and the patients' perspective. The sampling technique that was used was purposive sampling. Key informant interviews (KIIs) was used on the healthcare workers and in-depth interviews (IDIs) was conducted on the TB patients as data collection techniques.

3.2 Study area

The study location for the research was Osu-klottey sub-metro in Accra Metropolis located in the Greater Accra Region. Precisely, Ridge Hospital which has a DOTS unit that serves a big catchment area. It is the regional hospital and also a teaching and referral hospital. Ridge hospital is located in North ridge bounded to the south by Castle Road, Kanda to the west and Independence Avenue to the east.

Its catchment area includes, La, Osu, Nima, Adabraka, Kokomlemle, New town and Alajo. All the catchment areas are close to Ridge Hospital in proximity and the areas portray a diverse array of social-economic status of the population. As a referral hospital receiving patients from areas, only those patients living in Osu-Klottey will included for the purpose of the study.

The languages commonly spoken in the area is Twi and Ga. The age structure of the region indicates that the proportion of the population who are aged under 15 years is 31.3%, and those aged 15-64 are 62.5% and 65+ 3.5% (Ghana Statistical Service, 2012). It is evident that a higher proportion of the population is between ages 15 to 64.

In 2014, Greater Accra Region recorded the second highest number of TB cases after Ashanti Region (Appiah, 2014).

3.3 Sampling

3.3.1 Sample population

The study population involved health workers at the DOTS unit Ridge hospital and TB patients between the age of 15 and 54 who were registered on the DOTS programme in the same hospital. Only patients living in Osu-Klottey Sub-Metro were included.

3.3.2 Inclusion criteria

Health workers who at the time the research was being conducted were administering DOTS to TB patients at the DOTS center, Ridge Hospital were included.

The research also included TB patients, both males and females aged 15 to 54, patients who had been registered under DOTS for more than three months up to 12 months after termination of therapy and were sputum smear-positive when they were diagnosed. The patient had to be residing in Osu-Klottey Sub-Metro.

3.3.3 Exclusion criteria

Health workers who were not administering DOTS at the time the research was being conducted were excluded.

TB patients who were less than 15 years or more than 54 years of age, patients who were registered under DOTS but had been on treatment for less than three months and patients who were not sputum positive during diagnosis was excluded. Also, patients who lived outside Osu-Klottey Sub-Metro who might have been referred to Ridge Hospital were excluded.

3.4 Sampling procedure

Purposive sampling technique was used to recruit respondents from Ridge Hospital's DOTS unit records hence as Osu-Klottey is very big. Ridge hospital was purposively chosen because it is a referral hospital and would have big spectrum of patients.

Patients who were enrolled in the DOTS programme were selected and from therein those who were between ages 15 and 54 were identified. The patients who were finally chosen that fit the criteria of having been on DOTS for more than three months, were sputum smear-positive when they were diagnosed and lived within Osu-Klottey were given identification numbers.

Purposive sampling technique was also used to select health workers administering DOTS at the moment the research was conducted who were selected from Ridge Hospital's DOTS center.

The high burden age for TB in Ghana is between 15 and 54 years which explains the age inclusion criteria and the Greater Accra Region is ranked second after Ashanti region when it comes to the number of TB cases. A TB patient is said to not be infectious after being on the therapy for at least two weeks. Studies however have shown that patients who are on TB treatment may potentially be infectious for a longer period than previously thought (Carter, 2010). Thus, the reason to why only patients who had been on treatment for three months and more were chosen as a precaution for the researchers.

Smear-positive cases have been the primary target/focus of the DOTS strategy since its inception because they are the ones who can spread the disease and that is why the focus was on smear-positive cases (WHO, 2007).

3.5 Data collection tools and techniques

Data was collected from two groups namely; health workers and TB patients. The health workers were from the DOTS unit at Ridge Hospital while the TB patients who fit the inclusion criteria were extracted from the records at the Ridge Hospital DOTS unit.

Data was collected over a period of three weeks. Key informant interviews were used on five health workers and was conducted within Ridge hospital. Due to the busy schedule of the health workers, the interviews were conducted when the opportunity presented itself, as scheduling a specific time was not possible.

In-depth interviews were used on TB patients who were traced to their homes through their address and phones from the TB register with the help of DOTS programme volunteers. These volunteers are already working with the hospital in the community thus, they already know the TB patients. Usually the health care workers pair the TB patient with a community volunteer who will be with the patient from the beginning of treatment and administers DOT after the first two weeks. Apart from the interviews conducted at patients' homes, some were conducted at the hospital canteen for those who expressed concerns over the TB agenda and it was convenient for others. Together with the research assistants, in-depth interviews were conducted until the point of saturation was reached. The KIIs were conducted in English while the IDIs were conducted in the languages the participants were comfortable with and that included; Twi, Ga, English and one Fanti. The rationale for the KIIs and the IDIs was to understand the health workers' and the TB patients' perspective of DOTS.

At Ridge hospital, a TB patient is required to go to the DOTS unit every day for the first two weeks for treatment. After successfully completing the two-week long therapy the patient is no longer

considered dangerously infectious and is left in the hands of a community volunteer until their follow-up clinic visit in two months when they are evaluated. The next visit to the hospital will be after three months then when they finish the drugs. It is the community volunteers that administer DOT when they are not at the DOTS unit.

3.6 Issues covered

The topics for the KII and IDI were similar as; knowledge of DOTS, attitudes and perceptions towards DOTS and accessibility of DOTS in the community. The difference came out in the participant's perspective as one group was looking at DOTS from a patient's point of view and the other group from a health worker's point of view.

3.7 Training of research assistants and pre-test

A one-day training programme for four research assistants was held. All the research assistants lived in Osu Klottey Sub Metro. Three were DOTS volunteers from the Ridge Hospital. They have been volunteers for six years now and have vast knowledge of TB on the ground. One spoke Twi and two spoke Ga. Osu Klottey is a Ga area so there was an anticipation for more interviews conducted in Ga but more interviews were carried out in Twi. The one who spoke Twi could speak Fanti as well. All of them spoke and understood English. The fourth research assistant also served as the transcriber as he spoke both Twi and Ga. Pre-test was done the same day.

3.8 Quality control

Certain measures were put in place to ensure quality of the study such as; training of the four research assistants who assisted with the data collection.

Twi, Ga, English and Fanti were used interchangeably during interviews that ensured maximum understanding depending on the language the respondent will be comfortable with.

The researcher was present in all the interviews conducted, the research assistants took part in the pilot thus were familiar with the research before the actual data collection.

Data was collected by all research assistants involved and the researcher. One did the recording, the other moderated and the third took notes.

Only the researcher had access to the recordings as the original recording was copied to the researcher's personal computer then to one CD-ROM and the one on the recorder was deleted. The CD-ROM copy was kept in a desk drawer and the researcher kept the data in a folder in a personal computer secured with a password for a period of one year after the study. After the period elapses, the CD-ROM will be burnt and the folder on the computer deleted permanently.

3.9 Data processing and analysis

The respondents were given identification numbers from the beginning so that their confidentiality and safety was ensured knowing that TB patients still face stigmatization and may face further humiliation or victimization.

The interviews that were conducted in Twi, Ga and Fanti were translated to English. The transcripts were again reviewed by listening to the voice recordings and comparing and contrasting its content with the related transcript. The interviews conducted in English were transcribed verbatim. All the transcripts were imported into Nvivo 11 for analysis. Data from the KIIs and the IDIs were coded separately.

On Nvivo 11, attributes were created on the sources such as age, sex of respondent, employment status and level of education. Auto coding begun by creating nodes which were put in three different folders named questions, interviewer and respondents according to the different heading

styles. The query functions on Nvivo 11 were used to generate nodes. From the word cloud, text search query was used which led to word trees where words and phrases that stood out were looked into.

Additional codes that were relevant to the study were identified too. Codes meant for final coding and analysis were identified then grouped into themes that represent the research questions. Quotes representing the themes that emerge were selected and were able to provide descriptive accounts of the data. These descriptive accounts were then reviewed against the existing literature making it possible to explain and interpret data.

3.10 Ethical consideration

Approval of the study was gotten from the Ethical Review Committee of Ghana Health Service and the Medical Director Ridge Hospital. Approval was sought from the latter because I used records from their hospital to get my respondents and in addition, the health workers were from the hospital.

For the health workers, their consent was sought for at the Ridge hospital prior to the interview day giving them an overview of what the study was about. As for the TB patients, the names that had been extracted from the register that fit the inclusion criteria were given a call by the various TB volunteers who explained to them what the study was about and asked for permission to pay them a visit. All the participants were then presented with a written consent form on the interview day with all the details. Those who could not read had the consent form explained to them in the language they understood.

All the participants were assured of confidentiality together with privacy and were made to understand that they should feel free to discontinue the interview there being no implications.

Tuberculosis is a disease that is still stigmatized thus privacy was a priority since the respondent might be victimized. The participants were also given an opportunity to suggest a location where they would feel comfortable. Some of the patients when they were given a call, expressed their concerns about not being comfortable with the researchers going to their homes because of the TB agenda and they suggested that they come to the hospital instead. For such cases transport reimbursement of 30 cedes was given.

A small remuneration was given to the healthcare workers in terms of airtime worth 100 cedes. The TB patients were given a bag of rice (2kg).

3.11 Data storage

At the end of every data collection day, the researcher and the research assistants met and discussed what happened. Notes taken and recordings were clarified. The audio recordings were then given to the translator on the same day who did the transcription verbatim for those not in English to avoid forgetting as a quality control measure. At the end of the day, the researcher took the recording and transferred the data to her personal computer under a folder secured by a password only known to the researcher. During the data collection period, it was only the researcher who had access to the data.

3.12 Limitation of the study

The busy schedule of the health workers allowed the researcher little time to conduct the interviews as the prior agreed time had to be changed many times due to impromptu activities.

Though some interviews were conducted in English, majority were in Twi, Ga and one in Fanti. Language barrier was therefore a challenge and reliance were on the well able research assistants who could speak both Ga and Twi as anticipated. However, the Fanti interview was not planned

for but one research assistant could speak both Twi and Fanti and was able to go on with the interview.

A few of the respondents from the register who fit the inclusion criteria were no longer living in within the catchment area of Ridge hospital, two declined to consent and so had to be left out of the study.

3.13 Research funding

The study was funded by World Health Organization/ Tropical Disease Research (WHO/TDR).

CHAPTER FOUR

RESULTS

4.0 Introduction

The results for the participating health workers and the TB patients were presented separately. Themes that emerged from both health workers and TB patients' data included: health workers' knowledge of the DOTS programme, barriers in the health system, retention of the treatment supporters, fear of contracting TB, re-infection after cure and for TB patients; treatment seeking behavior of patients, perception of patients on severity of the disease, positive health workers' attitude towards TB patients, health education messages on TB.

4.1 Socio-demographic characteristics of respondents

There were four females and one male participating health workers and their age range was between 31 and 60. The duration of stay for health workers in the DOTS unit is one year for nurses and not defined for the treatment supporters.

Eight of the participating TB patients were male while four were female. Their average age was 43 years, and their age ranged between 23 and 54 years. All of them had been under DOTS for more than three months up to twelve months after termination of the therapy and were sputum smear-positive when they were diagnosed. More than half of the participating patients had secondary education and below and were not employed. The participants came from Osu Amatra, Osu Castle, Osu Kuku Hill, Sahara, Adabraka and Kokomlemle all located in Osu-Klotey Sub-metro as indicated in Appendix 2.

4.2 Results from health workers

4.2.1 Health workers' knowledge of the DOTS programme

The health workers displayed an understanding of what TB was but when it came to the DOTS, the understanding was not the same. For example, when asked the difference between DOT and DOTS, the responses varied with some showing confusion as illustrated in the quotes below:

“DOTS simply means, a center made up of tuberculosis treatment unit at the hospital. No. Yes DOTS is the same as DOT. No it's not the same. Because we do not have the DOT but we have the DOTS.” KII HW R2

“Directly Observed Treatment as in with the other side of general nursing, we give patients their drugs and they take it home but with DOTS, patients come and you supervise them to swallow the drugs because taking medication for a period of six months can be boring so that you do not feel like taking it. That is why we do DOTS, we supervise their taking the treatment in the hospital as in in the facility but not just giving the drugs to take home but you monitor their taking the medication. DOT and DOTS is the same thing. Yes.” KII HW R4

One participant however, said that DOTS is the plural of DOT.

“DOTS is Direct Observation Treatments. It is about you treating the person directly, the person will take the medicine in front of you therefore you do not have to give the person medicine to take home so that if the person is not taking it you would not see. It is so you have to see the person taking the medicine every morning.” KII HW R3

Others had a good understanding of not only TB but also DOTS as illustrated in an example below:

“No DOT and DOTS are different. One is the treatment and other is for supervision.” KII HW R1

4.2.2 Barriers in the health system

The participants shared a lot about the difficulties that they face as a unit stating that it affects how they work. Some of the barriers included shortfalls of other facilities leading to overwhelming numbers/cases at Ridge hospital, staff attrition, inadequate staff situation, language and financial logistics for patients.

The shortfalls of other health facilities in the district and Greater Accra region was highlighted by a health worker describing the overwhelming numbers of cases.

“We have a lot of cases which are transferred from Somenya and some are transferred from far away from our District. As far as Amasama getting to Eastern region, they transfer them to Ridge Hospital because some of the hospitals in that place they do not have the facilities.” KII HW R2

He went further to point out that some DOTS facilities do not have drugs and patients who seek treatment in those hospitals are normally referred to Ridge hospital.

“They do not have it and some of the places they have the facility but no drugs. We are here in Ridge hospital and people come all the way from Somenya, some from Madina sometimes they go to other hospitals but they say they do not have drugs and the best thing is to go to Ridge hospital or go to Adabraka.” KII HW R2

Staff attrition and the inadequate staff situation for example was described by health workers as being worrying because TB programme is entails a lot. The following quotes manifest these sentiments.

“The first thing is on staff attrition. They bring new staff in, you train them and when they are actually used to what you want to do, they are taken away to another unit. So the staff attrition is a major challenge.” KII HW R5

“Again, inadequate staff situation. We are running two separate units, two programs under the same unit. It is the same nurses taking care of dressings, that is one dressing both surgical and septic dressings and it is the same nurses who are also managing the TB cases. We are inadequate. Most often, you frustrate yourself. TB program entails a lot, you need to do some things like home verification before you start treatment, you do contact tracing, also we do regular home visits, we again do public education in some areas like markets, churches, schools, lorry stations...” KII HW R5

The demographic characteristics of the patients are well known to the health workers as not being well to do. From time to time the health workers help the patients get some basic necessities such as food, transportation and sometimes shelter. For instance, a health worker expounded on these necessities as a part of controlling TB.

“Difficulties sometimes is in logistics and mostly our patients are not so well to do economic wise. So, when they take the medicine they become very hungry, most of them are homeless, they do not even have work. Our challenge is sometimes, providing for their basic needs. We used to have aids from NTP supporter but for

some time now it has not been so forth coming. So taking care of our patients' basic need, as in, food and sometimes shelter. We have had patients that we have to cater for them in this hospital because they are homeless and because TB is airborne fear of them spreading it, we have to calm them sort of here for them to complete their treatment course before we discharge them. Because sometimes, logistics financially taking care of our patients is a problem because if you give them medication and they are hungry, taking it again will be a problem because where do I get food to eat after taking it. And taking medication in an empty stomach, so after taking it, how do I get food to eat?" KII HW R4

In addition to the necessities like transport, food and shelter, the health workers expressed the challenge they sometimes face with language.

"But, the only problem is transportation to the place and sometimes the language barrier too." KII HW R4

"...sometimes patients come and they can only speak Ga. The volunteers who are in the communities at least they can speak the local language." KII HW R1

Stigmatization by health care workers towards colleagues working in the DOTS center was expressed as a worry by a participant:

"The TB stigma is something that we are all worried about why, because, even in our own setting, our own colleagues you know health workers stigmatize us because any time they see somebody looking emaciated they think that that person has TB and sometimes, they will come to the office to call you to tell you how one of your

people is here and so go and attend to them. All you know that patient has another condition because personally I have experienced it.” KII HW R5

4.2.3 Retention of the treatment supporters

It came out that treatment supporters contribute a lot to the DOTS programme. All the health workers expressed their worry on phasing out of the treatment supporters stating that the supporters reach places they cannot reach, and that they bring on board strengths that significantly help in combating TB. One of the participants illustrated this by saying:

“It is not the best because you see, us nurses, we have so many things we do in the hospital like for this unit we run two units, dress room and the DOTS unit. So we cannot always be going out supervising patients. So the program trying to phase them out is not helping matters because, I think they are really instrumental in helping us to really treat the TB clients. Because they are with them in the communities so they are tracing our patients for us more or less is, or was better than we doing it ourselves because we do not always have the time to do that.” KII HW R4

Similarly, another health worker expressed the view of retaining the treatment supporters if it was left to her alone as illustrated below:

“The treatment supporters are really doing a lot of things because, with them at the facility and I am talking only for Ridge, we did not experience this treatment interruptions here and there and for that matter we do not have records of defaulters or loss of follow-up patients. Left to me alone, I would like the program to continue to maintain them and so that is why we are still keeping them, we are

still maintaining them even though the numbers have reduced. Currently I have only four active community supporters. They are ready to come any time, any day you call them even when I do not have money and sometimes if I am able to squeeze some money from elsewhere I just give it as a motivation for them and they are okay with it.” KII HW R5

In another interview, a health worker pointed out the “doctor-patient relationship” where people may feel shy to approach nurses but, because the volunteers are not seen as doctors, they are more approachable.

“...you see if you are a health worker and somebody knows someone who has TB, he or she may feel shy you know, but if you are a volunteer you are not a healthcare worker. You are just an ordinary person like that person! You might find the case and then you can talk to the person casually and the person will agree and you can then take the person to the DOTS Center.” KII HW R3

Having treatment supporters was stated by a health worker saying that it makes TB patients not to have excuses for not taking medication the right way. The medication is taken to them by the treatment supporters on a regular basis and they are supervised when taking the medicine in addition to other things:

“I do not think it is a good move to phase treatment supporters out because, those of us in the treatment room we are understaffed and most of the patients who have TB some are not employed. So sometimes getting transport to come to the facility to take that medication is a problem. When they come to the facility then they will start giving you stories, yesterday they did not eat, today I do not have fair to go

home. We end up either buying food for them or giving them money to go back home. So the volunteers were helping out a lot in the management of TB so if they are phased out it will be a difficult thing.” KII HW R4

Some were of the opinion that for stigma towards patients in the community who have TB to be reduced, the treatment supporters are key players.

“For stigma to be reduced, that is where the volunteers come in, and we involve family members. The treatment supporters do understand the local dialect very well so, they are able to relate to the patient very well and they translate what is needed from them to their better understanding. When they come, as for me I cannot say that I understand Ga, the Twi is just to express myself but when you get the treatment supporters they can speak the language of the patients, and they are able to explain it better to the patient and the family and because they are with them in the community they can feel welcomed and loved.” KII HW R1

4.2.4 Fear of contracting TB

The participants went ahead to share their thoughts on what it is like to deal with tuberculosis patients and the fear that is associated with it. Consequently, this directly influenced how they handled the patients when implementing the DOTS as described by workers. For example, a participant stated that she is more careful interacting with patients in their first month of treatment even though she knows they are infected but cannot transmit the disease after two weeks:

“Yes for me for instance I am a human being and I have fears because the disease is transferable you have to take measures. If the person is not treated for maybe from two weeks to one month, that one you have to be careful with the person

covering the mouth when coughing. But we are taught after 2 weeks to one month the person will be infected but cannot transfer it to another person. So from one month going I am okay, but from the first two weeks to one month I have been careful with myself when treating somebody by telling the person to cover the mouth when coughing.” KII HW R3

Another participant expressed his fear of contracting the disease but focused more on measures he takes to prevent it from happening owing it to the knowledge he has on TB:

“Sometimes I get very scared because we have opened our minds to help the community. Sometimes I get afraid that I will be infected but because of the education I make sure that my diets will be very good so that my immune system will be very strong and I will not be infected. And also we feel so bad about when you see such a situation sometimes you ask yourself why you should get yourself involved with this work though it is something that we have taken upon ourselves. We take the risk and since I started this work none of us have been affected by the disease.” KII HW R2

Some said they do not fear contracting TB but pointed out that they knew colleagues who fear the disease as illustrated in the following quote:

“Personally, I do not fear. I do not fear being infected because it is airborne so the more you run away from it the closer you are drawn to it. You sitting closer to a pulmonary positive case, even if he or she should cough right now without covering the direction of the wind blows away from you so it is rather the way the one who

is further who will get it than you who is closer. Personally, I know some of my colleagues who entertain fear but personally I do not feel it.” KII HW R1

4.2.5 Re-infection after cure

Re-infection among people who inject drugs, abuse alcohol and smoke cigarettes was expressed as a concern by all the participating health workers. The following quote is an example demonstrating this.

“Most of those who get recurrence tuberculosis are either drug addicts or alcoholics so you know you have been treated you take alcohol you smoke your immunity is compromised and they do not eat well and most of them come from the slums so you go and drink smoke you not get enough food to eat and nutrition of balanced meal to eat in order to boost you immunity so every time they are exposed to infections.” KII HW R1

In addition to drug abusers being the largest population that faces re-infection, a participant made mention of the situation at the hospital when it comes to re-infection rates especially for those patients who had sought for treatment at Ridge hospital:

“Yes we have several of them who are re-infected. The most important thing is that with us as a facility, we do not have too much of defaulters. I can say we are about one out of 50-60. Those we manage within this facility. But, often, we receive cases coming from outside who took their treatment elsewhere who have relapsed and the contributing factors are numerous...” KII HW R5

4.3 RESULTS FROM TB PATIENTS

4.3.1 TREATMENT SEEKING BEHAVIOR OF PATIENTS

Treatment seeking behavior among the participating TB patients varied widely. The tendency to self-medicate before seeking professional help was portrayed by most participants. The name of TB in the local languages go ahead to show how the disease is perceived as a ghost disease, dead person cough or even a bad cough. At the same time, majority of the patients delayed in seeking treatment because they thought they had a normal cough as illustrated in the following quotes:

“It is 'Samawa', it is related to coughing and when it happens, it is incurable. 'Sama' means dead person cough. Something like ghost, ghost cough.” IDI TBP R5

“That's where I started to know that I have got the sickness but first I didn't know, I thought it is a normal cough. I was buying medicine.” IDI TBP R11

“I thought it was just normal cough for which if I buy medicine eeheh, but I would still continue coughing. Around midnight, you cough, cough so I said no...I have a private doctor I will go to him.” IDI TBP R10

Some patients expressed their belief that the disease can also be spiritual. Most of them talked about embracing both the spiritual and the DOTS.

“This disease can be spiritually sold to people. But for my disease, I do not believe that it was spiritually sold to me.” IDI TBP R3

One participant pointed out that the uncertainty surrounding the disease drives people to seek for spiritual channels. A description of how not being able to get diagnosis even one goes to the hospital was given as follows:

“At times it is very difficult to trace this sickness that is why some people go for spiritual this thing. So that the sickness would come out and when the sickness comes out if you go to a lab or something then you can see. If you have some spiritual prayer people, normally if it is catching you, you can go to the DOTS Center they can treat you but they will not get it. They will not see that this is what is happening to you.” IDI TBP R1

Another participant pointed out that he preferred herbal medicine to spiritual camps but when it comes to TB, even herbal medicine would be futile.

“Me I believe in traditional medicine but I do not believe in this spiritual this thing camps. I used to take herbal medicine. No, for TB, you go to the hospital.” IDI TBP R11

Some participants expressed their preference to certain hospitals as they saw them to be better than others in terms of services. One patient described this saying:

“My personal experience, I had two options; Mamobi hospital which is closer to where I stay and this place. But I think the crowd in Mamobi, sometimes I did not like, so I chose this place because of that. My main reason for choosing this place or preferring this place was because I did not like the crowd over there, the people, sometimes the service. I saw this place as a better place.” IDI TBP R9

4.3.2 PERCEPTION OF PATIENT ON SEVERITY OF THE DISEASE

Majority of the participants saw the disease as being serious because of the fact that it can kill and, the physical manifestations that are associated with it such as becoming lean, coughing blood and painful sensation in the ribs. Some of the views were:

“It is very serious. The reason why I say it is very serious is that, when you get the disease and you do not take it to the hospital, it will kill you. You will die because the more you cough, the more you feel pains in your ribs, so if you do not go to the hospital....and even if you go to the hospital and you do not take the drugs it will still kill you.” IDI TBP R7

Similar views were expressed by another participant emphasizing its seriousness on the fact that TB is airborne and has to be arrested before it is transmitted to other people:

“It is serious because if I look at the extent to which I have to cough and even cough blood. If you are coughing blood, then it means that it is a serious thing. It is not something that is normal and I do not know if it is a virus and it is something that spreads, it is airborne so if you do not arrest the disease, it means that you will be allowing it to spread so immediately it is identified, you have to arrest the disease and make sure it does not spread so that is what makes it serious.” IDI TBP R9

Three participants said that TB was a minor disease since it could be cured. An example from one participant demonstrating this as being minor is shown below:

“Because there is medicine, I do not think it is a serious disease” IDI TBP R11

He further indicated like the other participants that he did not grow lean when he contracted the disease and was on treatment.

“No, I never grew lean, so if I am going, I say I am going to hospital. I am going to Ridge but nobody knew what I was going to do at Ridge.” IDI TBP R11

Another participant pointed out that she thought TB was serious because it could not be cured, but after going through the DOTS, she does not think so anymore.

“People believe that it is a very serious disease, it is incurable but I don't think so. At first I did but after going through the process, curing, I was like no, TB is curable and not that serious.” IDI TBP R5

4.3.3 POSITIVE HEALTH WORKERS' ATTITUDE TOWARDS TB PATIENTS

The patients demonstrated health workers' attitude towards them in regards to how they were treated by rating them on a scale of 0-10. The score from all the participants stood between 9 and 10. When giving reasons for the score, one thing that cut across all the responses was their feelings of being loved and how happy they felt which motivated them to adhere to the DOTS. The following quotes illustrate this:

“They were very good. Whenever I go, they always look to it you are okay, yeah. Since others are rejecting you, neglecting you, they bring you closer and then always encourage you saying it is nothing, it is curable, feel free, mingle with others...” IDI TBP R5

“Oh, honestly, how I was treated when I came here really gave me some comfort in that, when I got infected with the disease I got really sad and depressed about

it... When I come they encourage me and the ladies would always call me, they get so happy whenever they see me.” IDI TBP R12

Apart from encouragement by the health workers that all the participants talked about, one participant particularly said that sometimes patients depend on health workers to take medicine:

“You see, how they treat you, it helps you to recover, to take the medicine. You see, they do not allow you to walk from here or to take cab, they themselves will bring the medicine to your house. So if you do not take it, it is your own fault. You know sometimes, we patients, we depend on the nurses, they help us to get more courage to take the medicine.” IDI TBP R11

Some of the participants rubbed shoulders with the health workers but even with that they appreciated the workers’ attitude.

“The only thing they said was that I bring my fasting to a halt and take my drugs. Aside that, no one did anything wrong to me there. That is why I gave them 9 out of 10.” IDI TBP R7

“Honestly, I encountered a brawl from a senior nurse but I apologized for being wrong. All the other staff there are courteous and good to the patients. They made me feel good.” IDI TBP 4

4.3.4 HEALTH EDUCATION MESSAGES ON TB

The participants had an understanding of TB but not so much on DOTS as they portrayed DOTS as a place where treatment is sought. Prior to having the disease majority of the participants expressed that they had no knowledge about the disease. Those who had heard about TB had

misconceptions about the disease. For example, one participant said that before he contracted the disease all he knew was that TB being incurable:

“Before I had it I did not know much I only knew that this is an incurable disease and it has no cure and all that. So, I didn't know so much about it.” IDI TBP R9

Others had never heard about it before as illustrated in an example below:

“Initially I did not know about TB I had not heard about it before.” IDI TBP R5

Another participant went ahead to suggest that more awareness on TB should be created because there are so many misconceptions that make people more scared. She also pointed out that she learnt about TB in a book.

“Yes ...I read it in a book. There should be more awareness. If there is, it is not enough because, I did not know about TB until I read it in a science text book and then went to the internet. People are scared of getting TB, they think it is incurable but it is curable so I think that they should do more.” IDI TBP R5

Similarly, another participant also pointed out that people not knowing that the treatment for TB is free can cause them to not go to the hospital as described by a participant who said:

“If there could be sensitization or public education on this, it would be beneficial for all of us. Because someone may have this problem and may not even know that this is the problem they have. And some others also think that if they come to the hospital they would be billed and they do not have money. So I believe that if there could be public announcements and education it can really help.” IDI TBP R7

CHAPTER FIVE

DISCUSSION

5.0 Introduction

This study demonstrated that the knowledge, attitudes and perceptions of both the patients and health workers influence DOTS implementation. The evidence in this study showed that challenges faced by health workers include those in the health care system such as staff attrition, and not having adequate human resource to carry out DOTS tasks, in addition to the need to retain treatment supporters. Fear of contracting TB among health workers was evident and there were also concerns about re-infections that occur. The treatment seeking behavior of the TB patients varied as well as severity of the disease, as illustrated by the results and was driven by their attitude and perceptions towards the disease and the treatment procedure. The attitude of health workers was portrayed by TB patients as positive though, the awareness level of the patients was low as most did not know about the disease prior to contracting it.

5.1 Socio-demographic characteristics of respondents

The demographic characteristics showed that the ratio of men to women who had TB was 2:1. In the Ghana DHS, (2014), the ratio of men to women who sought treatment was 2:1 which brings in gender disparities that was confirmed by the results as the number of men was more than women. More men seek for TB treatment than women yet more women die from TB more than men. Many TB cases among women go undetected in addition to other gender related factors (Onifade et al., 2010). More than half of the participating patients had secondary education and below and were not employed. The results showed that there were more female health workers than male.

5.2 Discussion for health workers

5.2.1 Knowledge of the DOTS programme

Studies have shown that trained and skilled medical practitioners perform better. That is because, the knowledge level of health workers and their attitudes may influence the outcome of DOTS and TB control programs (Olakunle et al., 2014). Some of the questions often asked include whether health workers are well trained, do they have the knowledge of the disease, and are they from within the community (Sanders, 2007). Lack of comprehensive knowledge of what DOTS stands for and its aim was portrayed by some of the health workers not knowing the difference between DOT and DOTS and terming them as the same. Their knowledge of what DOTS entails was also limited however, they had knowledge on TB.

5.2.2 Barriers in the health system

According to World Health Organization, (2006), the core element of improved quality is improved human resource capacity for undertaking required DOTS task; sputum smear microscopy, drug management, supervision, recording and reporting practices e.t.c. In the findings however, one of the major concerns was the need for human resource as the workload was overwhelming for the health workers.

As much as frameworks for TB control may be put in place, the technical capacity for implementing them is often severely limited. Sometimes lacking the capacity to carry out supervisions, follow-ups and diagnostic tests effectively compromises quality assurance. For example, drug management can dictate quality assurance (WHO, 2010). This study showed that other facilities' shortfalls in not having drugs led to the overwhelming cases that Ridge hospital faced. Patients also preferred certain facilities over others because of quality care. There is need to

acknowledge shortage of human and financial resources to implement TB related activities in the sub-metro, region and the country at-large (WHO, 2017).

A need for massive increase in DOTS awareness among medical practitioners is consistent with other studies (Olakunle et al., 2014). This is confirmed by the experiences of the respondents with their fellow medical practitioners from other units. It has a lot to do with the fact that health workers are afraid of contracting the disease so they try as much as possible to not get close to TB and those health workers who work at the DOTS unit. The lack of awareness of DOTS leads to increased stigma towards DOTS unit health workers and TB patients by other medical practitioners. A TB patient is considered to no longer be infectious after following the treatment regimen for the first two weeks. After words, they are free to mingle with others as they pose no threat of transmitting the disease (Dharmadhikari et al., 2014).

5.2.3 Retention of the treatment supporters

Ghana is said to have achieved the treatment success rate target of 85% and according to Kolappan et al., (2013), to sustain the high effectiveness of DOTS strategy vigilant supervision is needed. Human resource capacity plays an important role in the detection and treatment of the disease.

The new End TB Strategy focuses on people-centered targets because this would improve the quality of current interventions and widen the reach. Quality treatment, support and follow-up is needed to achieve at least a 90% treatment success rate among people identified as needing treatment, that is, all those diagnosed not those who have started treatment (WHO, 2015). The phasing out of the treatment supporters was adamantly seen as a move that could potentially compromise achieving the goal set to End TB. The role of the treatment supporters seemed to fill in for the nurses as they are based in the communities. They are trained to find suspects, they are

well known by their community members, they can help debunk stigma as they interact with the patients and they also motivate the patients.

5.2.4 Fear of contracting TB

A study done by Tudor et al., (2013) in Ghana showed that the fear of contracting nosocomial TB was very high among the healthcare worker. They said that they feared working with TB patients and avoided having contact with them. In this study, the health workers expressed their fear about contracting TB but contrary to the research by Tudor et al., (2013), they did not avoid the TB patients but rather took measures to prevent transmission. They adamantly said that because it can be cured, then they do not fear it. TB is airborne and one can contract it anywhere, therefore being in an environment where TB patients are makes it possible to take measures for prevention.

5.2.5 Re-infection after cure

WHO, (2015) pointed out that key populations such as those who inject drugs, smokers and alcohol abusers are highly susceptible to TB. Re-infection is common among this population and is confirmed by the results. Even the deaths that have occurred are mostly in this group. According to WHO, (2017), smokers fundamentally have a prolonged period of infectiousness and can keep on transmitting tuberculosis for a longer period than those who do not smoke which can affect the entire community considering that one person can infect up to 10 people.

5.3 Discussion for TB patients

5.3.1 Treatment seeking behavior of patients

The results from a study done in Ghana by Amo-Adjei & Kumi-Kyereme, (2013) showed that as age increases, the propensity of entertaining misconceptions about TB went up. Similarly, in this study, those who expressed their belief in spiritual healing and herbal medicine were mostly the

older respondents. The younger patients adamantly expressed that seeking professional medical attention was the best.

The socio-economic status of individuals in the community or even the community at large has made TB to pose a threat to the greater community because once a portion of people do not access treatment, they can easily infect others. A study that was done in Kenya in which the treatment was free showed that there were direct and indirect costs associated with TB and this was consistent with the findings in this study. It was noted that travel to and from the health facility accounted for most direct costs of pre-diagnosis and additionally, there were costs incurred on food purchased too (Mauch et al., 2011). Even with the free TB management services, the findings showed that transport to go to the hospital and buying different food was a challenge. There were costs incurred in lab tests before diagnosis. In addition to the food the respondents were given at the hospital, they were advised to eat certain foods that would help improve their health and regain strength. Even for those under the Directly Observed Therapy (DOT), costs were incurred when they went to collect drugs or for a follow-up sputum test and food. Jobs were lost, others were advised to stop working which meant that their income reduced. The findings confirmed a ‘medical poverty trap’; expenditure increased while income decreased.

In another study, economic burden with issues related to inaccessibility of treatment, distance, transport costs and costs incurred during hospitalization were highlighted (Thomas et al., 2016). The findings showed that there are people who think they have TB but lack transport to go to the hospital and they continue to be a threat to the whole community.

Preference of hospitals also play a role in accessing treatment, which is driven by the services provided at a particular hospital and the health worker – patient relationship.

5.3.2 Perception of patient on severity of the disease

Tuberculosis is a typical social disease, it goes beyond the diagnosis. Social representations of TB focus on aspects associated to feelings and physical manifestations that are stirred by the disease (de Souza, da Silva, & Schlindwein Meirelles, 2010). It sometime reinforces stigma and prejudices about the way of perceiving TB. The findings showed that patients who had physical manifestations of the disease such as becoming lean, saw the disease as very serious while those whose body did not become lean saw it as a minor disease which could simply be cured. The perceived seriousness came from the stigma that is attached to the disease and not being able to hide it because of the physical manifestation. Stigmatization therefore poses a problem to TB control endeavors using DOTS because socio-cultural aspect of life can have an impact on hiding which can expose more people to the disease as seeking treatment is delayed.

5.3.3 Health workers' attitude towards TB patients

In a study done by Cofie & Lui, (2014), there was an indication by most patients that the attitudes and behavior of health professionals towards them were demeaning. These attitudes and behavior affected their confidence and the way they related to others in the community. The patients also indicated that close family members avoided sharing household items with them. Thus, stigma instigated by the society was the likely reason to patients fail to attribute their symptoms to TB. This was partially confirmed in the results in which the patients described being rejected by family members, which led them to turn to TB health workers who seemed not to have any problem mingling with them. The positive attitude and behavior of the TB health workers influenced how they interacted with the community as they did not isolate themselves though they still hid their ailment status.

According to Schaaf, (2007), WHO cited stigma in its analysis as a health system and sociocultural barriers to controlling TB stating that health workers and community members can be perpetuate stigma. The findings however portray the health workers as a source of motivation to the patients. The TB patients expressed how they were made to feel like they were very important, loved, and happy in addition to being encouraged and comforted. It was also suggested that health workers could potentially help alleviate stigma, as their interaction with the patients demonstrate that it is okay to interact with TB patients and those who have been cured from TB.

5.3.4 Health education messages on TB

Having an understanding of the beliefs and attitudes of the communities towards the ailment is a direct way of dealing with stigma through awareness campaigns (de Souza et al., 2010). Evidently the low awareness of TB in the population showed the quality of awareness campaigns. Majority of the respondents had never heard of TB before they were sick, and those who had heard could not link their symptoms to the disease. Others expressed that they never paid attention to the disease because they never thought they would contract it. As part of the DOTS programme, awareness campaigns are carried out in a bid to have more people tested. Arguably, the little awareness may be attributed to human resource and campaign designs. This also calls for more involvement of the community at large with the campaigns (Queiroz et al., 2012).

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Factors affecting the implementation of DOTS vary but the key factors include; barriers in the health system, phasing out of treatment supporters, treatment seeking behavior of the patients and health education messages on TB.

This study suggested that increasing the number of personnel at the TB DOTS unit, maintaining the treatment supporters, and increasing awareness campaigns through health education messages that are audience specific would improve the quality and implementation of DOTS. Also, equipping other hospitals with medicine would decongest Ridge hospital. According to WHO,

(2017), one of the reasons for hospitals not being equipped has been attributed to the failure in addressing commodity access issues and poor funding.

Therefore, DOTS strategy is still relevant in the treatment and elimination of TB and for its implementation to be effective, there is need for holistic approach in reaching all patients with high quality care and creating awareness (Bello, 2010).

6.2 Recommendations

Based on the findings from the study the following recommendations are made:

6.2.1 Recommendations for policy makers.

- In order to improved quality, human resource capacity should be increased so that they can undertake the required DOTS task and drug management.
- The treatment supporters should be retained or at least increase the number of nurses in DOTS centers.
- The study showed that re-infection is rampant among drug abusers and those who drink and smoke cigarettes. Health education messages should be designed specifically to reach this population.
- More awareness should be created for both the public and health care workers so that misconceptions surrounding the disease is debunked which could reduce stigma against TB patients and health workers working with TB patients.

6.2.2 Recommendations for further research studies to be conducted by researchers

- Further studies should be done on the same topic but at the National TB control programme level to compare and contrast their perspective to that of those on the ground such as the health workers and the patients.

- Out of 100 TB patients 7 die from the disease. It would be interesting to know how many of those 7 deaths were from re-infection and whether they were drug abusers, alcoholics, smokers or all of the above.

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APPENDICES

Appendix 1: Consent Forms

Patient Consent Form

Study Title: FACTORS AFFECTING THE IMPLEMENTATION OF DIRECTLY OBSERVED THERAPY SHORT-COURSE (DOTS) IN OSU-KLOTTEY SUB-METRO IN GHANA.

Investigator: Merline Atieno Ndolo

Dear Sir/Madam,

Merline Atieno Ndolo is conducting a study to explore factors that affect the performance of DOTS in order to improve its success. The findings of this study will give us an understanding of the social burden which is essential in coming up with appropriate strategies to improve TB patient care using DOTS, thus reduce further spread of TB in the community and to find ways to reduce stigmatization.

A trained interviewer will administer an interview which will be recorded in order to collect data and it should take up to one hour to complete. There are no foreseeable risks associated with the interview and you can contact me on the following cell phone numbers 0267546358 or to contact the Medical Officer of Ridge Hospital DOTS unit, if you have any further questions after the interview. For more clarification you can contact Ghana Health Services Ethics Review Committee: 233 (0) 243235225 or 0507041223.

Your participation in this study is voluntary. The information you may give us today could help us achieve the objectives of this study. Please note that any information which may identify you will be kept strictly confidential and your responses will in no way lead to any adverse effect on

you and no medical care will be withheld from you because of the responses you may provide.

You may go ahead to ask any questions for clarity

With the acknowledgement that the respondent has taken time from his/her schedule to participate in the research, an incentive of a 2kg bag of rice will be given.

If you agree to this interview you may sign below, but if you do not agree, you can let me know at this point and I will not proceed with the interview.

The above document for research has not only been read but also explained to me. I have also been given an opportunity to ask any questions for the purpose of clarity. I agree to participate as a respondent.

1. Respondent (18-54 years). Indicate age as at last birthday.....

Date..... Signature

Thumbprint.

2. Parent/Guardian to a 15-17 years old minor

I certify that the minor named below to go ahead and take part in the interview after being explained to and understanding the research.

Date..... Signature of parent/ guardian.....

Thumbprint.

3. Respondent (15-17 years). Indicate age as at last birthday.....

Date..... Signature.....

Thumbprint.

Healthcare Worker Consent Form

Study Title: FACTORS AFFECTING THE IMPLEMENTATION OF DIRECTLY OBSERVED THERAPY SHORT-COURSE (DOTS) IN OSU-KLOTTEY SUB-METRO IN GHANA.

Investigator: Merline Atieno Ndolo

Dear Sir/Madam,

Merline Atieno Ndolo is conducting a study to explore factors that affect the implementation of DOTS in order to improve its success and ensure sustainability. The findings of this study will give us an understanding of the social burden which is essential in coming up with appropriate strategies to improve TB patient care using DOTS, thus reduce further spread of TB in the community and to find ways to reduce stigmatization.

A trained interviewer will administer an interview which will be recorded in order to collect data and it should take up to one hour or less to complete, taking into consideration any interruptions. There are no foreseeable risks associated with the interview and you can contact me on the following cell phone numbers 0267546358 if you have any further questions after the interview. For more clarification you can contact Ghana Health Services Ethics Review Committee: 233 (0) 243235225 or 0507041223.

Your participation in this study is voluntary. The information you may give us today could help us achieve the objectives of this study. Please note that any information which may identify you will be kept strictly confidential. You may go ahead to ask any questions for clarity. With the acknowledgement that the respondent has taken time from his/her schedule to participate in the research, an incentive of a 20 Ghana cedi worth airtime will be given. If you agree to this interview

you may sign below, but if you do not agree, you can let me know at this point and I will not proceed with the interview.

The above document for research has not only been read but also explained to me. I have also been given an opportunity to ask any questions for the purpose of clarity. I agree to participate as a respondent.

Indicate age range: 20-30 ☐ 30-40 ☐ 40-50 ☐ 50-60 ☐ 60-70 ☐ Others ☐

Date..... Signature

Thumbprint

Appendix 2: Demographic characteristics of respondents

Table 1: Demographic characteristics of participating patients

Participant	Age	Gender	Employment status	Education background	Residence
R1	30	Male	Not employed	Polytechnic	Osu Amatra
R2	54	Male	Employed	JHS	Osu Castle
R3	23	Female	Not employed	JHS	Osu Kuku Hill
R4	54	Female	Self-employed	JHS	Osu Kingdom Books
R5	26	Female	Employed	SHS	Osu Anorhor
R6	42	Male	Not employed	JHS	Osu Anorhor
R7	51	Male	Not employed	Primary	Sahara
R8	51	Male	Employed	A level	Adabraka
R9	44	Male	Employed	Polytechnic	Kokomlemle
R10	49	Male	Not employed	A level	Adabraka
R11	49	Male	Self-employed	Polytechnic	Kokomlemle
R12	43	Females	Employed	JSH	Kokomlemle

Table 2: Demographic characteristics of participating health workers

Participant	Age group	Gender	Education background
R1	31-35	Female	Degree
R2	36-40	Male	Polytechnic
R3	36-40	Female	S.H.S
R4	31-35	Female	Diploma in General Nursing
R5	56-60	Female	Degree

Appendix 3: Interview Guide

In-depth interview guide for TB patients

- Employment status and level of education.
- What are the TB signs and symptoms and how do people get it?
- Is it curable?
- If yes, what medicine do you know?
- Do people regard it as serious or minor? How do you regard it?
- What is the local name of the disease?
- What is DOTS?
- What have you learnt from DOTS?
- How did you find out that you had TB and did you seek treatment immediately?
- You are now (were) on DOTS, is there anything you have not like about it? Why?
- Do you know other people who have TB? Do they go to the same DOTS center as you?
- For what reason would a person prefer to go to DOTS centers far from home.
- Did you inform others that you were on treatment?
- Were there costs that you incurred during treatment? (Probe on transport and food)
- On a scale of 0-10 with 10 being the best how would you rate the attitude of staff who attend to you?

Key informant interview guide for health care workers

- Level of education.
- Criteria to post health workers on the TB unit.
- Are health workers willing to accept posting to the unit? If no, why?
- Is there a training that you go through?
- Tell me what you know about DOTS. What does the programme entail?
- What is the difference between DOT and DOTS? (Probe)
- What are the positive aspects of the DOTS? What about the difficulties?
- How do you think these aspects can be overcome?
- What is it like to deal with people with tuberculosis?
- What is your personal view about working in the DOTS unit?