UNIVERSITY OF THE WESTERN CAPE

Faculty of Community and Health Sciences

FACTORS THAT CONTRIBUTE TO TREATMENT DEFAULTING AMONGST TUBERCULOSIS PATIENTS IN WINDHOEK DISTRICT, NAMIBIA

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A mini-thesis submitted in partial fulfillment of the requirement for the degree of masters in Public Health, the Faculty of Community and Health Sciences, School of Public Health, University of the Western Cape.

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KEY WORDS

TB

TB patients

TB treatment

Treatment defaulting

TB nurses

HIV/AIDS

Adherence behavior

Poor adherence

Health centre

Windhoek

ABSTRACT

Background: Tuberculosis (TB) is a resurgent disease in many parts of the world, fuelled by HIV/AIDS and poverty. According to WHO, over two billion people were estimated to be infected by TB globally, 9.4 million new cases of TB were reported, while about 1.7 million people were estimated to have lost their lives to TB in 2009 (WHO, 2010). The global defaulter rate for TB was estimated at about 9% in 2007 (WHO, 2007). With Africa remaining the global epicentre of the TB epidemic, the epidemic in Sub-Saharan Africa, one of the worst affected areas in the world, shows no evidence of decline (WHO, 2008). According to the 2009 MOHSS annual report, 1300 people lost their lives to TB in Namibia (MOHSS, 2010). The introduction of TB treatment saves many lives globally. However, despite this effort, TB patients have been reported to default treatment in many parts of the world including Namibia. Namibia reported a defaulter rate of 10% above the national target of less than 5% (Maletsky, 2008).

Aim: This study aimed to investigate the factors that contribute to treatment defaulting amongst TB patients at a major health centre in Windhoek district, Namibia.

Methodology: A descriptive qualitative study using in-depth interviews was conducted among ten TB defaulters. Key informant interviews were also conducted with the two TB nurses based at the health centre. Eligible participants were purposively selected. A thematic content analysis of transcribed data was conducted where themes related to patient's experiences of the illness; socio-economic; community, family, cultural and religious as well as health system factors were drawn out.

Results: The study results indicate that defaulting TB treatment is a big challenge to TB management. The reasons for defaulting given by respondents were complex and included patient factors such as medication related factors, lack of knowledge and information as well as alcohol abuse. The findings also revealed unemployment as a major socio-economic factor that contributes to defaulting. In addition, the study shows that community, family, religious and cultural factors such as poor family support, work-related factors and religious and cultural beliefs have an influence on defaulting. Accessibility to health care services, sharing of the TB department with ART patients and attitudes of health workers were identified as health service

factors that influence treatment defaulting. This study also highlights the relationship between some of these factors.

Conclusion: The study concludes that no single factor contributed to treatment defaulting amongst TB patients in the selected health centre in Windhoek district and this concurred with the literature. There are many different factors at different levels that have an influence on TB treatment defaulting. An interrelationship between personal, socio- economic, community, family, religious and cultural as well as health services- related factors was evident What makes it more complex is that these factors also impact on each other and therefore a holistic approach in the management of TB is required to address these factors. Recommendations based on the findings of the study are made.

DECLARATION

I, Tuwilika Kakili, hereby declare that this study is a true reflection of my own research, and that this work, or part thereof has not been submitted for a degree or examination at any other institution of higher education.

[Signature] Date: 12 November 2010

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DEDICATION:

I dedicate this study to my late mother.

ABREVIATIONS

AFB Acid-Fast Bacilli

AIDS Acquired Immunodeficiency Syndrome

APHA American Pharmacy Association Foundation

ART Antiretroviral Therapy

ARV Antiretroviral

CNR Case notification rate

DOTS Direct Observed Therapy Short Course

HIV Human immune Virus

KHC Katutura Health Center

MDR Multiple Drug Resistance

MEMS Medication Event Monitoring System

MOHSS Ministry of Health and Social service

PHC Primary Health Care

PTB Pulmonary Tuberculosis

SMS Short Messaging Service

TB Tuberculosis

TPB Theory of Planned Behavior

UWC University of the Western Cape.

WHO World Health organization

XDR-TB Extensive Drug Resistance Tuberculosis

DEFITIONS OF KEY TERMS

Defaulter

McLean (2003) describes a defaulter as a patient who interrupts treatment for two consecutive months or more.

In this study, a defaulter is a patient who misses two consecutive visits for medical appointment at Katutura Health Centre and has not obtained any service from any other facility that offers TB services assuming that the patient does not take any TB medication during that period or later.

Defaulter rate

This is defined as the proportion of patients who defaulted treatment in a particular period of time (Ministry of Health and Social Services (MOHSS), 2010).

Notification rate

This is defined as the proportion of reported infectious cases such as TB (MHOSS, 2008)

Prevalence rate

This is the number of existing cases of the disease at a given point in time (Beaglehole & Bonita, 2004).

Treatment success rate

This defined as is the proportion of TB patients who have been successfully cured and those who completed treatment (MOHSS, 2006).

Treatment outcomes

Treatment outcome is described by WHO (2007) as the end product of TB treatment. It includes the following: patients who are cured (smear positive patient converted to smear negative in the last month of treatment); completed treatment (a patient who has completed treatment but who does not meet the criteria to be classified as cured or failure); died (a patient who die for any reason during the course of treatment); failed treatment (a patient who is sputum smear positive

at five months or later at the end of treatment); defaulter; transferred out (patient who is transferred to another facility and whose treatment outcome is unknown) and successfully treated (these are patients who have been cured and those who completed treatment) (MHOSS, 2008: 44).

Case notification

Beaglehole & Bonita (2004: 38), define case notification is as "the reporting system of infectious diseases that require prompt action for control".

Sputum smear negative pulmonary TB

Sputum smear negative is described as the situation where at least three sputum smear examinations for AFB are negative and radiographic abnormalities are consistent with active pulmonary TB (WHO, 2004)

Sputum smear positive pulmonary TB

Smear positive on the other hand is described as a situation where at least two initial sputum smear (direct smear microscopy) are AFB positive; or one sputum examination is AFB positive and radiographic abnormalities are consistent with active pulmonary TB(WHO, 2004).

DOT Supporter

A DOT supporter is a person, not necessarily a health worker who is chosen and trusted by the TB patient to make sure that the patient takes the treatment regularly until completion of the treatment duration (WHO, 2004). In this study, a DOT supporter is any person chosen by the health worker in consultation with the TB patient.

Infection rate

Infection rate is defined as "the proportion of the population from which a specific pathogen is isolated" (Vaughan & Morrow, 1998:40).

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CHAPTER 1

INTRODUCTION

1.1 Overview of the TB epidemic globally

Tuberculosis (TB) is one of the oldest public health problem worldwide (World Health Organization (WHO), 2006). TB affects the health of millions of people and it was declared a global emergency in 1993 by the WHO (WHO, 2004). According to WHO, over two billion people were estimated to be infected by TB globally, 9.4 million new cases of TB were reported, while about 1.7 million people were estimated to have lost their lives to TB in 2009 (WHO, 2010). The global defaulter rate for TB was estimated at about 9% in 2007 (WHO, 2007). With Africa remaining the global epicentre of the TB epidemic, the epidemic in Sub-Saharan Africa, one of the worst affected areas in the world, shows no evidence of decline (WHO, 2008). The prevalence rate of TB in Africa was 480 per 100 000 people in 2008 (WHO, 2008).

1.2 Overview of TB in Namibia

Namibia is one of the countries hardest hit by the TB epidemic in Sub-Saharan African with an estimated 15,244 cases of TB reported in 2007. It has been ranked as the country with the second highest case notification rate of 722 per 100 000 population in the world after Swaziland (WHO, 2008a).

TB is believed to be a major contributor to the burden of disease, especially in low-income and middle income countries and particularly sub-Saharan Africa where it is being exacerbated by the HIV/AIDS pandemic (Munro, Lewin, Smith, Engel, Frethteim & Volmink, 2007). According to UNAIDS (2007), Namibia has an estimated HIV prevalence rate of 19.7% and it was ranked among the five countries that are worst affected by the HIV/AIDS pandemic. It is estimated that approximately 230,000 people (12.7% of population) are currently infected with HIV (MOHSS, 2006). The HIV prevalence among TB patients in Namibia was 59 % in 2007. The national TB defaulter rate however remains relatively high at 10% above the national target of less than 5% (Maletsky, 2008). According to MOHSS (2007), TB has been the second leading cause of death in Namibia after HIV/AIDS since 1996. The MOHSS reports that in 2007, TB was responsible for 7% of deaths in the age group of 15-54 years. The hospitalization of TB patients has

increased from 17% in 2006 to 19.2% in 2007 (MOHSS, 2008). The infection rate in Namibia varies from region to region. Khomas region which falls under the Windhoek district is one of the most affected regions with 3100 (23.5%) notified cases in 2008 (MOHSS, 2009).

1.3 Strategies for TB Treatment

According to WHO guidelines, treatment success rate of at least 85% must be achieved in order to avoid treatment failure (WHO, 2004). Following full TB treatment, the infection can be fully cured and this can prevent the spread of the infection in the community and multi drug resistance that arises from poor adherence to TB treatment (WHO, 2006). WHO introduced the Direct Observed Therapy (DOT) strategy for TB treatment in 1993. According to the DOT strategy, the patient is expected to take the TB treatment under the direct supervision of a health worker at the health facility or in the presence of another person (DOT supporter) in the initial stage (two months) of treatment (WHO, 2006). Namibia adopted the WHO TB treatment guidelines and the DOT strategy was implemented from 1995 and rolled out countrywide by the end of 1996. In Namibia, once a patient is diagnosed with TB, the patient is given adherence counseling by the nurses before he or she commences treatment. There after, patients continue to collect their drugs from the nurses at the health facilities or from the community health promoters at the DOT points.

The latest strategy in the management of TB is the Stop TB strategy which was implemented in 2006 to compliment the DOT strategy in the management of TB (WHO, 2007). This strategy however does not replace the DOT strategy but goes beyond the DOT strategy.

The introduction of the aforementioned strategies has been reported to be an effective and efficient way of treating TB and has increased the availability of TB treatment as well as improving the survival rates of TB patients globally (WHO, 2007). Mortality and morbidity due to TB infection has been drastically reduced worldwide, especially in developing countries since the introduction of the aforementioned strategies (WHO, 2007).

In Namibia, significant treatment outcomes with regard to TB has been achieved since the introduction of DOT and Stop TB strategies at all health facilities countrywide in 1995 and 2006 respectively (MOHSS, 2006). The outcomes include:

- A decline in death rates due to TB related cases from 13% in 2007 to 7% in 2008(MOHSS, 2008).
- A decline in case notification of all forms of TB from 15244 in 2007 to 13917 cases in 2008 (MOHSS, 2008).

In Namibia, more TB patients are accessing treatment through public health care facilities. The country is meeting 98.7% of its TB treatment target since it rolled out free access to TB treatment at all public health care facilities (MOHSS, 2006). However, not much progress has been made with regard to treatment adherence as the TB treatment defaulter rate for Namibia is still high (10%) and with the success rate of 75% below the WHO target of 85% (MOHSS, 2009). This warrants a critical need to explore the factors which influence TB treatment defaulting in order to design appropriate and effective interventions to reach the WHO goal of 85% treatment success rate.

1.4 Description of Study Setting

This study was conducted in the Windhoek District of the Khomas region in Namibia. Namibia is one of the most sparsely populated countries in the world, with an estimated population of about two million people in 2006 of which 66% reportedly live in rural areas (Government of the Republic of Namibia Census, 2007). The Windhoek district is in the centre of the Khomas region which is the largest region in Namibia with an area of 284, 809 square kilometers (MOHSS, 2005). It is a densely populated area with a population of about 250 000 people (Central Bureau of Statistics, 2004). Migration to the Windhoek city has been reported to have contributed to the increase in the population growth in Khomas region. The common health problems in the district are TB, HIV/AIDS and alcoholism. Khomas region is served by two state hospitals, two health centers and seven public health clinics. Unemployment levels are also very high at an estimated 40% (Central Bureau of Statistics, 2004).

A total of 2,474 cases of all forms of TB were notified in 2007 for Khomas region, giving a case notification rate of 751/100 000 population (MOHSS, 2008). The prevalence of HIV among TB patients in Khomas region was 65.9% in 2007 (MOHSS, 2008).The defaulter rate in Khomas region was estimated to be about 19% in 2007, while the defaulter rate for Windhoek district was

15% according to the TB annual report of 2009 (MOHSS, 2010). This study was conducted at one of the health centers in one of Windhoek district's urban areas. This health center was chosen because it is the largest in the region and it has a large number of patients (282 patients) who are enrolled in the TB programme than in other similar health facilities in the region. In addition the facility has the highest defaulter rate of 17% in the district according to the MOHSS (2009) statistics.

1.5 Stakeholder Consultation

The stakeholder consultation was conducted before the study commenced to get the views of the responsible organizations on the extent of TB and to the issues that needed to be addressed. A face to face consultation was conducted with the National Director for special programmes where management of TB falls under the Ministry of Health to gain insight into the Ministry's view on the burden of TB nationally (Namibia). A further consultation was conducted with the regional TB coordinator for Khomas region where the study was conducted to gain insight into the problem of TB in the region and in Windhoek district in particular. In addition an e-mail based consultation was conducted with the Penduka programme (a non-profit organization that was set up to fight TB in several regions of the country) in Khomas region to gain some insight into the organization's view of the burden of TB. This organization provides TB DOT supporters to the community and work in collaboration with the Ministry of Health in fighting TB. Both the Ministry and Penduka highlighted TB defaulting as a problem and they believe that several issues exist that are likely to influence adherence to TB treatment in the district but the exact factors are not known.

1.6 Problem Statement

Although TB control services have been decentralized to the thirteen DOT points in Khomas region, the Windhoek district still has high defaulter rates ranging from 15% in new sputum smear negative Pulmonary Tuberculosis (PTB) patients to 19% in other forms of TB and smear-not-done PTB adults (these are patients who's sputum were not taken for diagnostic testing) (MOHSS, 2008). This is compared to the national figures of 10% (Maletsky, 2008). A study done in Namibia on TB defaulting has identified some factors that influence defaulting behavior

but such factors could not be explored in-depth as the study used quantitative method and only focused on patients who were on DOTS (Mainga, 2008). The reasons for defaulting and variations between TB patients are however not known. This raises questions about TB treatment adherence as it can be assumed that poor adherence would perpetually be a precursor to defaulting behavior (McLean, 2003).The researcher therefore felt that the reasons for patients defaulting on follow up needed to be investigated by describing patients' experiences with treatment within the local context.

1.7 Rationale of the Study

The purpose of this study is to obtain an in-depth understanding of the factors that contribute to treatment defaulting amongst TB patients who are enrolled in the TB treatment programme at one health center in an urban area in the Windhoek district, Khomas region, Namibia.

1.8 Outline of the study

CHAPTER 1

Chapter 1 introduces the study, including the formulation of the problem statement and rational for the study.

CHAPTER 2

This chapter focuses on the review of the relevant literature. The literature review will draw upon issues on the global incidence of TB defaulting, strategies for management of TB, factors that contributes to treatment defaulting as well as theories that can be used to explain defaulting.
CHAPTER 3

This chapter explains the research methodology namely; the aims and objectives, the research design, the study population, sampling, data collection, data analysis, rigor, ethical considerations as well as limitations of the study.

CHAPTER 4

This chapter presents the study results.

CHAPTER 5

This chapter discusses the findings of the study.

CHAPTER 6

Conclusion and recommendations are made in this chapter.

CHAPTER 2

LITERATURE REVIEW

2. 1. Introduction

This chapter will discuss literature on adherence to TB treatment and the factors that contribute to TB treatment defaulting. This includes strategies that are used to manage adherence; the patient- related factors; cultural, family and community-related factors; socio-economic factors; and health services factors that influence TB treatment defaulting. Finally, the chapter concludes by highlighting theories that explain treatment defaulting behaviour.

2.2 Adherence to TB treatment

Adherence to treatment is defined as the extent to which the patients take prescribed medication according to the instructions given by health workers (WHO, 2003a; Haynes, Mc Donald, Clarg & Montaque, 2002). Adherence requires the joint decision about treatment between the patient and the health worker. Reassurance

Rabkin, El-Sadr and Abrams, (2005:11), define adherence as "the engaged and accurate participation of an informed patient in a plan of care. In TB management, adherence includes continuing on a programme, attending scheduled visits, taking medicines as prescribed as well as lifestyle modification. Adherence therefore aims at optimizing clinical outcomes (Jani, Stewart & Tavel, undated).

Adherence to treatment among patients with TB is a major factor for the treatment success rate as poor adherence leads to higher relapse rates and increased drug resistance such as Multi Drug Resistance (MDR) and Extensive Drug Resistance (XDR). The WHO target of achieving 85% adherence has not been met by many countries worldwide despite a case detection of more than 70% (WHO, 2007). Evidence of poor TB treatment adherence still exist including treatment failure, development of MDR and XDR resistant strains as well as the spread of TB in communities (Wares et al., 2003). This can be very costly to a country and can have a negative impact on the health care system.

2.3 Global incidence of TB treatment defaulting

According to the WHO (2007) TB guidelines, treatment defaulting is defined as failure or interruption to take the prescribed treatment for a period of two consecutive months or longer. TB defaulting has been reported in various countries world wide. A study done in Chiapas, Mexico, found a defaulter rate of 5% (Guillen, Perez, Burguete, & de Juan, 2008). Another study reported a defaulter rate of 14% in Vietnam in 2004 (Vree et al., 2006) and 10% in 2002 in New Delhi, India (Jaiswal et al., 2003).

WHO (2008) reports that TB incidence has worsened in Africa especially sub-Saharan Africa where the epidemic is worsened by the HIV/AIDS pandemic. A low treatment success rate of 70% has been reported in Africa which has been blamed on treatment defaulting (WHO, 2008a). A study conducted in Nigeria found a defaulter rate of 23% in 2005 (Daniel, Oladapo & Alausa, 2006). In Zambia, an estimated 19% defaulter rate was reported according to the Ministry of Health report of 2003 (Kaona, Tuba, Siziya, & Sikaona, 2004). However, the defaulter rate has significantly dropped in Ethiopia from 38% in 1995 to 18% in 2004 after the introduction of the DOTS strategy in 1996 (Shergie & Lindtjorn, 2007).

Defaulting has significantly worsened the problem of MDR TB treatment in South Africa. MDR cases were estimated at 1% among new TB cases and 4% among re-treatment cases in 1999 which increased to 1.8% among new cases and 6.7% among re-treatment cases in 2004 (Ukpe, 2007). Overall, the defaulter rate for TB treatment in South Africa was 11.8% in 2005 which was higher than the 11.3% recorded in 2004 (Khan, 2007). KwaZulu-Natal province of South Africa has the worst defaulting problem in the country with a defaulter rate of 16.5% or higher (Khan, 2007).

Although the national TB control programme (NTCP) in Namibia has adopted the DOT strategy to deal with the immense problem of TB, many patients stop taking their medication before they successfully completed treatment, die due to late diagnosis or develop MDR TB (MOHSS, 2006). According to the NTCP report, the country achieved a TB cure rate of 80% in 2008 which is still below the ratified target of 85%.The defaulter rate remained at 10% for new smear positive PTB and 14% for smear positive re-treatment PTB (MOHSS, 2008).

2.4 Strategies for management of TB

Several strategies have been developed for the management of TB and are applicable to different therapies as their strength and weaknesses differ. These strategies are also used to monitor adherence. The strategies include the following: DOT strategy (WHO, 2003b; Farmer & Kim, 1998; Sturbeck, 2003); Stop TB strategy; pill counts (McLean, 2003): self report (Chesney, Morin & Sherr, 2001); Medication Event Monitoring System (MEMS) (Moulding, 2007); and Short Messaging Service (SMS) (WHO, 2003b).These strategies will be discussed in more detail below.

2.4.1 Direct Observed Therapy

The DOT strategy has been extensively and successfully used in the management of TB. The DOT strategy comprises of the following five elements:

- Sustained political commitment

  Sustained political commitment by national governments is crucial for effective implementation of DOTS. Political commitment is needed to foster national and international partnerships for TB control. It also supports the overall structural and financial changes necessary to improve the availability, distribution and motivation of adequate resources including competent human resources for the control of TB (Joint Effort to Eradicate Tuberculosis, 2008).

- Access to a quality assured network of sputum smear microscopy

  Bacteriology remains the recommended method of TB case detection, first using sputum-smear microscopy and then culture and drug susceptibility testing. A wide network of properly equipped laboratories with well-trained personnel is necessary to ensure access to quality assured sputum-smear microscopy (WHO, 2006).

- Standardized short-course chemotherapy

  TB control should be organized and administered nationwide in a standardized short course regimen for all TB cases for the period of six months. The treatment should be of

fixed-dose drug combinations to facilitate adherence to treatment and to reduce the risk of developing drug resistance. It is recommended that all TB patients in the initial phase should be under supervision of a DOT supporter for at least two months to ensure adherence (WHO, 2006).

- Uninterrupted supply of quality assured anti-TB drugs

  An uninterrupted and sustained supply of quality assured anti-TB drugs is fundamental to TB control. Anti-TB drugs are should be made available free of charge to all TB patients as recommended by WHO (WHO 2006).

- A recording and reporting system

  A reliable monitoring and evaluation system with regular communication between all levels of the health system is vital. Standardized recording of individual patient data, including information on treatment outcomes should be ensured. Regular programme supervision should therefore be carried out to verify the quality of information (WHO, 2006).

According to the WHO TB guidelines, the DOT strategy entails that the patients take the treatment daily at the health facility or at the DOT point in their respective community under the direct supervision of the health care provider or a DOT supporter who can be any trusted member of the community in the initial phase of treatment. Thereafter, once the health care provider is satisfied with the progress of the patient, the patient should continue treatment follow- up at the health facility every second week until the treatment is completed (WHO, 2003a). The WHO recommends that all smear positive TB patients stay on DOT through out the treatment. According to Farmer & Kim (1998), the DOT strategy has been found to be feasible in managing adherence for TB treatment as it does not require complicated multiple doses and that the treatment is of short duration (six months treatment course, first two months under DOT). In Malawi, prior to the introduction of DOT, the cure rate for TB was 24% among the smear positive patients and after the implementation of DOT, the cure rate improved to 68% (Kelly, 2001). However, even though DOT has been shown to improve outcomes of care, it places a huge burden on the staff at the health facilities (Volmink & Gardner, 2002). Sturbeck (2003) also

argues that the DOT strategy is very costly and is not feasible for other life long therapies such as Anti Retroviral Treatment (ART), therapy for diabetes and hypertension as these programmes are complex and their treatment require frequent doses in a day.

2.4.2 Stop TB strategy

This strategy has been implemented to compliment the DOT strategy in the management of TB. The Stop TB strategy was implemented in 2006 and it goes beyond the DOT strategy. According to WHO (2007), this strategy looks at the following components:

- Pursuing high-quality DOTS expansion and enhancement
- Quality- assured laboratory and treatment services
- Collaborative TB/HIV activities. This includes HIV testing for all the TB patients for HIV, screening for TB among all HIV positive patients and provision of Cotrimoxazole preventative therapy (CPT), ART and Isoniazid preventative therapy (IPT).
- Engaging all health care providers (public and private sectors) in TB management and implementation of international standards of tuberculosis care.
- MDR-TB surveillance and control
- Strengthening health care systems and improving access to care by improving health policy, human resource development, financing management, logistics, service delivery and information systems.
- Empowering people with TB and communities. This includes advocacy, social mobilization, and patient charter for TB care and community participation in TB care.
- Research to improve TB control and monitoring and evaluation systems.

2.4.3 Short Messaging Service (SMS)

According to this strategy, a short message with up to 160 characters is transmitted via cell phones reminding the patients to take their treatment (WHO, 2003b).This strategy is believed to be cost effective and it reduces the patient load for DOT employees and consequently increasing

the cure rate according to a pilot study done in Cape Town (WHO, 2003b). However, this strategy is only limited to patients who have access to cell phone technology.

2.4.4 Medication Event Monitoring System (MEMS)

This strategy involves an electronic device that is fitted on the pill container which record the date and time the medication container is opened. This device is considered to provide reliable measurements for adherence (Bangsberg et al., 2001). Each time the bottle is opened, it is assumed that a dose is taken which however may lead to overestimation of adherence if the dose was not actually taken. This strategy is however expensive and it might not be feasible in limited resource settings (Moulding, 2007).

2.4.5 Self report

Self report requires the patients to report on their adherence behavior at each visit (Chesney et al., 2001). The patients report on how many doses they had taken and how many they had forgotten during that specific time period. The tools used to collect information include questionnaires, survey diaries and visual analogue scales (Chesney et al., 2001). With questionnaires, the patient is asked to answer the questions on the questionnaire about his/her adherence behavior, for instance on specific days. A visual analogue on the other hand is a measurement instrument that is used to measure the adherence behavior of the patient across a continuum of values (Chricton, 2001). The patients are asked to report on their adherence behavior using a scale, for instance a line marked with values one to ten (1-10). The outcome of the measurement will then determine the adherence levels of the patient. According to Bangsberg et al., (2001) and Moulding, (2007), self report is believed to be very flexible, cost effective, and can help in identifying the reasons for poor adherence and consequently reducing defaulting. This strategy can be widely used in many limited resource settings. However, it is prone to recall bias and can overestimate the adherence measurements (Chesney et al., 2001).

2.4.6 Pill Counts

With this strategy, the tablets that remained in the container are counted by the health care provider at every visit to the health facility. According to (McLean, 2003), the pill count strategy has been found to be cost effective; making it favorable for use in resource limited settings. However, patients can manipulate the left over tablets prior to the follow up and this may result in overestimation of adherence.

Other strategies such as pharmacy refills and plasma drug level monitoring are believed to be effective in measuring adherence but their effectiveness are limited. From the various strategies that were discussed, using more than one method in managing TB is believed to enhance the accuracy of measuring adherence and consequently reducing treatment defaulting rate (Chesney et al., 2001).

2.5 Factors that contribute to treatment defaulting

Despite the improvements that have been achieved in TB treatment, adherence to TB treatment remains a big challenge for both patients and care providers in the fight against TB. This section will therefore focus on what researchers have uncovered as the main factors that contribute to TB treatment defaulting in different parts of the world.

A systematic review of forty four qualitative studies conducted by the Medical Research Council of South Africa found several factors that influenced treatment defaulting such as knowledge and beliefs about treatment, negative attitudes towards TB and TB treatment, side effects, family and community support and health services factors (Munro et al., 2007a). Evidence from the literature on adherence to TB treatment can be divided into the following categories: patient-related factors, cultural, family and community-related factors, socio-economic factors and health services factors (Munro et al., 2007a; Guillen et al., 2008).

2.5.1 Patient- related factors

These factors are described as the factors that contribute or influence the patient's willingness to adhere to treatment. They include the following: illiteracy, negative perceptions and beliefs toward treatment, forgetfulness, long duration of treatment, side-effects to treatment, stress and

anxiety and depression, improvement in symptoms, ignorance and misconceptions about treatment (Munro et al., 2007a).

Illiteracy

Patients who are illiterate or who have lower levels of education were found to have a poor understanding of TB as well as its treatment and this resulted in them not carrying out the instructions that were given by the health workers (Kagee & Le Roux, 2007). This has been shown in a study done in Nepal among non-adherent patients. The majority of the participants in the latter study did not have basic literacy levels and they indicated that they did not understand what was said by the health workers which resulted in patients defaulting treatment (Wares et al., 2003).

Misconceptions about TB treatment

Misconceptions about TB treatment negatively affect the adherence behavior and consequently result in patients defaulting treatment. Studies done have shown that some patients believe that they are bewitched and can only be cured by the witch doctors (Jaiswal et al., 2003; Munro et al., 2007). Others believe that the treatment is not effective or their condition has worsened (Wares et al., 2003; Guillen et al., 2008), while others believe that they do not have TB, but only wanted cure for their symptoms and as a result ceased treatment once they start feeling better (Watkins, Rouse & Plant, 2004; Jaiswal et al., 2003). These misconceptions will lead to patients doubting the TB treatment and consequently defaulting treatment. According to a study conducted by Green (2004), patients' beliefs about the efficacy of the treatment were found to have a negative impact on adherence. The same study indicated that some patients preferred injections over tablets as they believed that tablets did not help and this may have a negative bearing on TB treatment adherence.

Alcoholism

In many developing countries, alcohol use is the major barrier to TB treatment adherence (Jaiswal et al., 2003). Studies conducted in New Delhi, India, Mexico and South Africa have found excessive alcohol consumption to be a major factor contributing to TB treatment defaulting. The studies found that patients tend to forget or ignore taking their medication after

excessive consumption of alcohol (Allen, 2006; Jaiswal et al., 2003; Guillen et al., 2008). Moreover a study conducted in Tashkent, Uzbekistan found a higher risk for default among the patients who abused alcohol (Hasker et al., 2008).

TB treatment regimen

Side effects from TB treatment are believed to have a significant impact on TB treatment adherence due to the high toxicity of the treatment (Marra, Cox, Palepu & Fitzgerald, 2004). Some studies indicate that TB patients experienced side effects from TB treatment such as nausea and vomiting, excessive sleeping, stomach problems and itching and therefore stopped taking treatment (Kaona et al., 2004; Tekle, Mariam & Ali, 2004; Chang, Leung & Tam, 2004). According to Kaona, et al., (2004), some patients revealed that they felt more ill after taking the tablets. As a result, patients often opted to simply discontinue the treatment and thus avoid the side effects (Kaona, et al., 2004). Moreover, other studies reported that the lengthy period for taking TB treatment was another reason that patients ceased taking the treatment (Allen, 2006; Watkins, Rouse & Plant, 2004; Munro et al., 2007a; Matebisa, 2004; Guillen et al., 2008).

According to Kaona et al., (2004) and Wares et al., (2003), some patients were reported to have stopped treatment because they started feeling well soon after taking their initial treatment. In addition, other studies cited that patients could not take TB treatment concurrently with other medications such as for hypertension and ARV as they believed that the medication would not work properly when combined (Watkins, Rouse & Plant, 2004; Rowe, Makhubule, Hargreaves, Porter & Hausler et al., 2005).

Mental status

Studies have indicated that mental conditions such as depressive disorders, anxiety and stress have a negative effect on treatment adherence (Kilbourne et al., 2005; Kagee & Le Roux, 2007). A study conducted in South Africa found that depressed patients default from treatment more than non-depressed patients. Moreover, it is indicated that patients who are on chronic medication such as for TB, diabetes, HIV/AIDS and hypertension tend to suffer from stress and depression as they have to adjust to coping with taking medication on a daily basis (Simpson, 2006; Kim, Han, Hill, Rose & Roary, 2003). According to some study reports, patient's

forgetfulness was cited by the TB defaulters as the most common reason for defaulting (Munro et al., 2007a). A study conducted in Zambia reported work, travelling and home tasks as factors that led to forgetting treatment (Kaona et al., 2004).

2.5.2 Cultural, family and community-related factors

Community and family related factors that have been found to have a negative influence on adherence to TB treatment include stigma and discrimination by the patient's family and the community at large. This is supported by a study done in Senegal that indicated that lack of family support including financial and emotional support and stigma from the community can have a negative impact on adherence to TB treatment (Thiam et al., 2007). Moreover, it was found that stigma associated with TB may lead to patients avoiding being seen at the clinic or seen taking TB medication, leading to defaulting (WHO, 2004; Karim, Chowdhury, Islam & Weiss, 2007). Further more, Edginton, Sekatan & Goldstein (2002) reported that in some cultures, female patients were at risk of divorce once their husbands discovered that they were on TB treatment, resulting in defaulting but no further explanations were given as to why this was the case by Edginton, Sekatan & Goldstein (2002). Other studies done in Pakistan and rural Bangladesh found that stigma may also make patients hesitant to ask their employers time off to collect medication thereby increasing defaulting (Khan, Walley, Witter, Shah & Javeed, 2005; Karim et al., 2007).

Movement of patients

Movement of the TB patients people from urban areas to rural areas and vice versa makes TB control extremely difficult. According to WHO (2007), patients find it difficult to continue with their treatment schedules when they are away from home. This is often caused when patients travel to social events that last for several days such as weddings, funerals and other family related gatherings (Wares et al., 2003). It was found that patients find it difficult to continue taking their treatment in the presence of others and this often results in treatment default (Munro et al., 2007a). According to a study conducted in Zambia, family, work as well as other daily commitments was reported to be a common reason for interrupting or defaulting on treatment among TB patients (Kaona, et al., 2004).

Moreover, studies have indicated that unemployed TB patients, especially males, find it difficult to continue with TB treatment as they leave their homes in search of employment such as seasonal employment on farms, fishing industries and mines (Shargie & Lindtjorn, 2007; Kaona, et al., 2004). Similarly, a study conducted in South Africa found that some TB patients default treatment due to seasonal travelling for job opportunities in the farming areas especially during the grape season (Govender & Mash, 2009).

Cultural beliefs

The cultural beliefs of a patient is also perceived to have an influence on treatment defaulting. In a study conducted by Khan et al., (2005), some patients were believed to have visited traditional healers who informed them that they did not have TB and therefore did not need to take the treatment. Similarly, an ethnographic study conducted in South Africa by Edginton, Sekatan & Goldstein (2002), noted that some patients who were on TB treatment consulted traditional healers, with negative consequences to adherence.

Poor family support

Living alone is reported to have contributed to TB treatment defaulting because there is no one to care for the patient at home (Jaiswal et al., 2003). It was found that social support from family or friends plays a very important role in TB treatment as a supporter encourages and motivates the patient to continue taking their treatment and their follow-up visits (Farmer, 2005; Shargie & Lindtjorn, 2007).Thus patients who are living with family or friends and have their support are likely to achieve optimal adherence (Daniel, Oladapo & Alausa, 2006).

2.5.3 Socio-economic factors

The socio-economic status of the patient has been indicated to have an influence on adherence to TB treatment. Factors such as unemployment and poverty have been found to have an influence on TB treatment adherence (Demissie, Getahum & Lindhtjorn, 2003; Wares et al., 2003; Allen, 2006; Rowe, Makhubule, Hargreaves, Porter & Hausler et al., 2005; Jaiswal et al., 2003).

Unemployment is a critical problem in many countries in the world especially in the developing countries. In countries where TB treatment is not free, unemployment influences the treatment

defaulting (Khan, et al., 2005). A study conducted in rural India found TB patients who were unemployed to have defaulted treatment as they could not afford transport to the clinic for follow-ups (Jaiswal et al., 2003). Unemployed patients usually suffer from malnutrition which increases their chances of contracting TB disease (TB alert, 2005).

Studies have shown that patients find it difficult to go and collect their treatment due to socio-economic factors such as the costs that are associated with transport to health facilities for appointments and the cost of food while awaiting treatment at the health facility (Demissie et al., 2003; Johansson, Diwan, Huong & Ahlberg, 1996). These costs burden the patients and as a result, patients find it a challenge to keep their follow-up appointments. This is evident from a study done in Bolivia where patients defaulted treatment due to lack of money to travel to health facilities (Greene, 2004). The same study indicated that some patients hid their disease for fear that employers might discover that they had TB and dismiss them from work. This fear resulted in them rather ceasing treatment in order to retain their jobs (Greene, 2004).

The lack of food due to poverty has been reported to have an influence on TB treatment defaulting. In an exploratory qualitative study conducted in a rural setting of Tarai, Nepal, patients on TB treatment who were living in poverty found it difficult to take treatment without food (Wares et al., 2003). Patients take treatment only when they have food as they were told not to take the treatment on an empty stomach (Ogden, 2000a). More over, taking TB treatment without food could make the patients sick, causing them to default from treatment (Zvavamwe & Ehlers, 2008).

Individuals and families who have become impoverished find it difficult to create safe and healthy living conditions for themselves and their families. They are often driven out of their homes because they cannot afford to pay rent or bond premiums (TB alert, 2005). They then have to move to a cheaper home usually in a lower social class, in the street or live in squatter camps (Khan et al., 2005). Overcrowding is very common in these communities and people are likely to live in dark and poorly ventilated rooms, and thus more likely to be infected by TB as TB is rife in such conditions (WHO, 2008a). A study conducted in Ghana found many TB defaulters living in overcrowded places such as slums and this was found to have contributed to a burden of TB epidemic (Dodor & Afenydu, 2005).

2.5.4 Health services related factors

Several health service related factors are believed to contribute to TB treatment defaulting. Such factors include the following:

Follow- up appointments and poor access to health services

Zvavamwe & Ehlers (2008) believe that public health care services are usually known to be slower in rendering health care as compared to private health care system mainly because of overcrowding at public health facilities. Studies conducted in Burkina Faso and Vietnam revealed problems manifesting from health facilities such as inconvenient opening times, long waiting times, and queues at health facilities when the patients go for their follow–up appointments (Sanou et al., 2004; Johansson et al., 1996). According to a study done in Gambia average, patients claimed that they often wait for about two to three hours (Harper, Ahmedu, Ogden, McAdam & Lienhardt, 2003) Moreover, follow up visits was reported to be a challenge for patients as they were not involved in the planning of their treatment (Matebisa, 2004; Munro et al., 2007). As a result the inconvenient follow-up dates that were given by health workers caused the patients to default TB treatment.

According to a case study done in Pakistan, access to health facilities was found to have a negative bearing on TB treatment adherence as patients found it difficult to reach the health care facilities due to far distances (Khan, et al., 2005). In addition, the same study indicated that although the intention of the DOT strategy was for the DOT supporter to visit the patient's home to see that the patient takes his/her medication, in practice the patients had to walk to the supporter's home to obtain their medication there. This proved to be difficult for patients who had serious symptoms, which made it difficult for them to walk and consequently defaulted on treatment (Khan, et al., 2005).

Lack of supply of TB medication

Studies conducted highlighted that lack of consistent supply of TB medication at health facilities influenced treatment defaulting (Jaiswal et al., 2003; Dick, Van der Walt, Hoogendoorn, & Tobia, 1996; Sanou et al., 2004). A study conducted in Ho Chi Minh City in Vietnam found that patients default treatment due to lack of TB treatment at the health care facility (Buu, Lonnroth

& Guy, 2003). Moreover, a review by Munro et al., al (2007a) has found similar results where the TB defaulters did not go back to the health facility because there were no TB drugs in stock for a period of time.

Health workers attitudes and practices

Literature on health workers attitudes have found negative attitudes of health workers to have contributed to TB treatment defaulting. Negative attitudes refer to health workers being rude, not providing patients with enough time to ask questions during the visits to the clinic, unsympathetic and inconsiderate towards patients health needs (Sagbakken, Frich & Bjune, 2008). This was confirmed by a study done in South Africa which found that in some instances, the negative attitudes of health care workers contributed to defaulting among the patients (Edginton, Sekatan & Goldstein, 2002). Patients were given tablets by health workers with little or no proper information on how to take them and in some situations, patients were not given time to ask questions (Sagbakken, Frich & Bjune, 2008). In addition, language barriers between health workers and patients, maltreatment of patients by health workers such as scolding the patients for missed appointments was found to influence treatment defaulting (Jaiswal et al., 2003; Dick et al., 1996; Sanou et al., 2004).

Inadequate information on side-effects

It was reported that health workers gave little information to the patients about the side effects of treatment. According to a study conducted in Pakistan, TB patients reported that they defaulted treatment because they were not given adequate information regarding treatment side- effects (Khan et al., 2005). More over, Naing et al., (2001) found similar reports that patients had defaulted because of lack of information on the possible side effects of the TB medication.

2.6 Theories used to explain treatment adherence

This section will explain the models that can be used to explain treatment defaulting behavior namely: Ley's Model of Compliance and Theory of Planned Behavior (TPB).

2.6.1 Ley's Model of Compliance

Treatment adherence can be explained theoretically by models that attempt to describe the interaction between factors that lead to adherence. Ley's Model of Compliance is one such model (Ogden, 2000b). According to this model, defaulting can be overcome by a combination of various factors such as patient's satisfaction of the consultation with the health care providers, patient's ability to understand the information provided as well as the ability of the patient to recall the information provided by the health care providers (Ogden, 2000b).

Patient satisfaction

Studies have shown that patients satisfaction levels stem from various components of consultation especially the emotional support that the patient receive from health care givers at the health care facilities (Munro, Lewin, Swart & Volmink, 2007). Patients were reported to be satisfied and comply with treatment if they understood the disease process well. It is therefore important for health care workers to provide adequate information to the patients regarding the diagnosis, prognosis of the disease, prescribed treatment as well as the potential side- effects of the treatment as it is believed to diminish defaulting behaviors (Ogden, 2000b).

Patient understanding

In order for the patient to effectively adhere to the instructions given, it is regarded as important that a patient has a clear understanding of what is expected of him or her with respect to the prescribed treatment (Munro et al., 2007b). Defaulting the prescribed treatment may occur as a result of lack of understanding of the information provided by the health care providers. It is therefore imperative that the health care providers clearly clarify the instructions that they are providing to the TB patients to curb defaulting behaviors (Ogden, 2000b).

Patient recall

Ogden (2000b) described patient recall as the extent to which the patients are able to remember the information provide by the health care providers. The same author continues to argue that the patients tend to recall the information that was clearly explained to them by the health care providers and this consequently reduces the defaulting behaviors. Various factors have however

been found to have an influence on the ability to recall the information provided. These factors include the educational level of the patient, medical knowledge and the mental instability such as anxiety (Munro et al., 2007b; Ogden, 2000b). Ogden (2000b) further maintain that the ability to recall the information is not influenced by the age of the patient as opposed to certain myths about the ageing process such as memory loss that is associated with forgetfulness.

2.6.2 Theory of planned behavior

Theory of planned behavior (TPB) explains the link between attitude and behavior and also predicts behavior based on the understanding that behavior can be planned (Armitage & Conner, 2001). This theory can help health care providers to understand how they can change the behavior of their patients (Armitage & Conner, 2001).

According to the TPB, there are three kinds of considerations that are considered vital in guiding human behavior namely: behavioral beliefs, normative beliefs and control beliefs. Behavioral beliefs produce positive or negative attitudes toward the behavior. Normative beliefs on the other hand result from subjective norms while control beliefs give rise to behavioral intention. Social norms give rise to two regulatory systems namely social sanctions and self sanctions (Bandura, 1994) Social norms therefore regulate behavior anticipatorily by the consequences that they provide. However, human beings do not conform to what others want; they instead develop their own standards and regulate their own behavior through self sanctions. Therefore if the TB patient believes that discontinuing the medication is the right thing to do and if the social network is weak then he/she will eventually default from the treatment. Godin & Kok (1996) argues that the interaction of the three beliefs can lead to the formation of behavioral intention. Arjzen (2008) and Armitage & Conner, (2001) believe that if the attitude and the subjective norm are favorable, then the perceived control or intention to perform a certain behavior will be strong.

The above theory (TPB) can be applied to improving or developing health communication interventions for TB patients. The health care providers can develop behavioral therapy for TB patients using the two theories. The two theories can therefore assist health care providers to

evaluate the behaviors of TB patients and guide them to develop behaviors that would result in adhering to TB treatment and consequently curbing the problem of TB defaulting.

2.7 Conclusion

The literature reviewed above highlights the fact that patient, community and family, socio-economic as well as health service-related factors are the main factors that are associated with TB treatment defaulting. This demonstrates that TB defaulting is not just an individual behavioral problem but a much wider problem with broader implications. Moreover, this review highlighted the fact that TB treatment defaulting is not isolated in a specific region but is a common problem in many parts of the world. The literature also highlighted the theories that can be applied in explaining treatment adherence.

CHAPTER 3

METHODOLOGY

This chapter focuses on the research design and method, choice of study population and the criteria which were used for the selection of the participants, sampling procedure and how data was generated. It also highlights different strategies used to ensure rigor, how data was analysed and the ethical considerations involved in the study.

3.1 Aim

This study aimed to describe and explore the factors that contribute to treatment defaulting amongst TB patients at one health centre in Windhoek district, Namibia.

3.2 Objectives

1. To describe the treatment experiences of TB patients who are on TB treatment at the selected health centre.

2. To describe patients related factors that influence defaulting.

3. To investigate community related factors that influence defaulting.

4. To describe health system factors that influence defaulting.

5. To examine whether there is an interrelationship between these factors.

3.3 Research Design

A descriptive and exploratory qualitative study was conducted to describe and explore factors that influence TB treatment defaulting. A qualitative methodology was chosen for this study as it provides in-depth understanding about the problem and its usefulness in exploring people's knowledge, views and experiences (Pope & Mays, 1995). This is confirmed by Baum (2008: 180) when she states that:"Qualitative research is best suited for studies that aim at exploring health behaviors and gives an understanding of how people interpret health and diseases and make sense of their experiences as well as a systematic review of the research question that can not be answered by quantitative methods". Qualitative research uses techniques such as

naturalism that help to understand the behavior of participants in their daily lives (Green & Britten, 1998).With a descriptive design, the researcher assemble new information about a phenomenon (TB defaulting) and greater openness from participants was encouraged. The process of naturalism was used by the researcher to explore patients' health behaviors as it occurs in their everyday life. During the study, open-ended questions and probes were used to explore more in-depth information from the participants. This allowed the participants to express themselves in their own words which would have been more difficult if using quantitative method. Moreover, exploring the participants' lived experiences with TB yielded possible factors that influenced treatment defaulting.

3.4 Study population

The study population is defined as: "a group of individuals inhabiting a specific area or sharing specific characteristics" (Katzenellenbogen et al. 1997:74). In this study, the study population includes all the adults' males and females aged above 18 years of age who are on TB treatment at the selected health centre and are regarded as defaulters to treatment (as described earlier) by the health care team. The second study population was nurses working with TB patients (at least for two years) at the selected health center.

3.5 Sampling

The study used purposive sampling in selecting study participants. Purposive sampling is described as a method whereby the researcher decides which study units should be included in the study sample (Chopra & Coveney, 2003). This type of selective sampling allows for knowledgeable participants (who will be information rich cases) to be selected for the study (Coyne, 1997). Information rich cases are those participants from whom one can learn a great deal of information about the issues that are of importance to the study (Coyne, 1997).

After explanation of the purpose of the study to the two TB nurses at the health centre (the health center was chosen because it is the largest in the district and it has the highest defaulter rate of 17%), the TB nurses helped to identify potential participants who were considered as defaulters through the TB register. The criteria for inclusion for the patient study population were that they were defaulters and were able to communicate in English, Afrikaans and Oshiwambo. These

languages were chosen because they are the most common spoken languages in the area where the study was conducted. The TB nurses informed the researcher of the date when the identified participants were coming for their appointments and provided the contact details of the identified defaulters. During the period of 15 December 2009 to 18 January 2010 potential participants were approached by the researcher for possible participation in the study. The researcher also contacted the participants who were not yet back on treatment telephonically for possible participation in the study. In February, the researcher met with the eligible participants and gave an explanation of the purpose of the study. The participants were asked to give written consent once they had agreed to participate in the study. The eligibility criteria were: adults aged 18 and above; they had to be residents of the Khomas region; identified as defaulters of TB treatment and speaking English, Oshiwambo or Afrikaans. A total of ten participants were interviewed (five male and five females).

The only two TB nurses who are working with TB patients specifically at the selected health centre were selected as key informants. They were recruited on the basis of having experience about TB treatment at the health centre.

3.6 Data collection

The study made use of two data collection methods namely: key informant interviews and individual in-depth interviews.

3.6.1 Key informant interviews

Sankar et al., (2006) defined key informants as the people in the community who are more knowledgeable about the research subject or practice or have more experience with the topic. Key informants interviews on the other hand refer to an open conversation with people who are considered to be particularly knowledgeable about the topic of interest (Liamputtong & Ezzy, 2005).

Key informants interviews were conducted in February, 2010 with the two TB nurses at the selected health centre before the in-depth interviews with the TB patients. Prior to the interviews, arrangements were made with the key informants regarding a convenient venue, date and time

for the interview. All the ethical issues were explained to the participants prior to the interview. The interviews were conducted in a private room at the health centre to ensure anonymity and confidentiality as well as privacy of the key informants. The participants included a male enrolled nurse and a female registered nurse who both worked with TB patients for more than two years. The researcher attempted to gather the professional views of the key informants on the problem of TB treatment defaulting. The researcher conducted the key informant interviews in English. The interviews were recorded on audiotape and transcribed verbatim.

3.6.2 In-depth interviews

The primary source of data collection method in the study was in-depth interviews with the selected participants. In-depth interviews are flexible ways of obtaining a wide range of detailed information when seeking to learn about people's experience, which in this case was their experience with TB treatment (Robson, 1993). In-depth interviews were chosen because they are believed to yield a high response rate, yield rich data and new insights. The participant also does not need to be literate (as was the case with some of the participants in this study) and questions can be clarified through probing during the process of the interview (Verity & Murray, 1999). The interviews were conducted in one of the three afore-mentioned languages depending on the participant's choice between the periods of 23rd February to 23th March 2010.

The setting where the interviews took place is believed to affect the interview and the way participants answer the questions (Polit & Hungler, 1999). A private comfortable conference room at the health centre that is used occasionally for meetings and another room that is sometimes used for counseling services were negotiated with the staff and were used for the interviews. Because of the fact that the venue might have made the participants' uncomfortable seeing that they were defaulters, the researcher ensured at all times that the participants were comfortable and at ease prior to and during the interviews and assured them of privacy with regards to what was to be discussed. The rooms where the interviews were conducted was well ventilated and with an air conditioner. A small table and two chairs were arranged in the above mentioned rooms to allow face-to-face interaction between the researcher and the participant. The digital voice recorder that was used to record the interview was placed strategically to

capture both the researcher's and participant's voices. All the participants agreed to be tape recorded.

According to Robson (1993), probing encourages participants to talk freely about their experiences. The researcher used prompts and probes when necessary, during the interviews to obtain in-depth information from the participant in a non-judgmental manner (Bowling, 1997).

Semi-structured interview guides (see Appendix 1 and Appendix 2) were designed and used during the key informant interview as well as the individual in-depth interview. The interview guide is a vital tool in qualitative research as it ensures uniformity and consistency throughout the data collection processes and also ensures that all the issues are covered (Robson, 1993; Liamputtong & Ezzy, 2005).

The interviews started off with a brief explanation of the purpose of the interview and other ethical issues. Reflective notes were taken during the interview. Reflexivity involves the realisation that the researcher is part of the social world he/she studies and that this realisation is part of an honest examination of the values and interest that may impinge on research work (Rose & Webb, 1998). Throughout the study the researcher examined and noted the impact of her presence. Field notes were kept to keep track of what was done in the field and documented important information from the interview that could not be recorded by digital/tape recorder such as non verbal cues. Non-verbal cues (facial expressions and gestures) help one to better understand verbal responses (Robson, 1993). All the interviews were audio recorded, transcribed verbatim to ensure that no information was lost prior to data analysis and translated to English by the researcher. A debriefing session was carried out at the end of each interview where the participants were asked to verify whether the researcher understood their perceptions and opinions. After the interview, refreshments were provided to each participant as a token of appreciation, which the participants appreciated.

3.7 Data analysis

Data analysis started concurrently with data collection to note new emerging issues that needed clarification for further interviews. Manual analysis of data through thematic analysis was done by the researcher. Gifford (Undated) defined thematic analysis as the process of uncovering the

common patterns of data and grouping them into themes. The researcher took field notes as well as reflective notes against which data could be validated.

The data analysis followed the five steps of thematic framework namely: familiarization, identifying a thematic framework, indexing, charting and mapping and interpretation (Pope, Ziebland & Mays, 2000). Firstly, after each interview, familiarization of data was done by listening to the recorded tapes, studying the field notes and reflective notes and reading the transcribed data to list the ideas. The main ideas that emerged were then recorded. The aim was for the researcher to acquaint herself with the data and key ideas. Secondly the main issues, concepts, categories and sub-categories derived from the data were grouped together and then a code was assigned to each group category using a color highlighter (Gifford, Undated). There after, the main ideas that were identified were grouped into five major categories. The comparison between raw data and the established data was done to identify new ideas or categories. At the end of each subsequent interview, the data was charted and checked for any similarities or differences with the existing themes. Thereafter similar themes were charted under the appropriate categories. Finally, the derived themes were grouped together, summarized and illustrated with quotes thereby giving meanings to the analyzed data.

3.8 Rigor

In qualitative research, rigor is of utmost importance to ensure that results are reliable and valid (Marshall & Rossman, 1995). An interview guide was developed and followed to ensure that similar issues were discussed across the interviews. Interviews were transcribed verbatim to ensure that no data was lost in the process. The researcher listened to some recordings after transcribing, to check the accuracy of the transcriptions.

Triangulation was employed to ensure rigor by using different methods of data collection (Gifford, 1996), whereby the information from in-depth interviews was triangulated with key informant interviews. Source triangulation was also used in the form of the two different categories of participants namely, the TB defaulters and the TB nurses. Field notes and reflective notes were taken during data collection as part of the researcher's reflective process (Rose & Webb, 1998) which added to the analysis process. The researcher had debriefing sessions with

her supervisor during the course of data collection and analysis to reflect on the process and her own attitude and feelings. In addition, the transcriptions summaries were sent to the supervisor for confirmation on the quality of the interviews conducted and for external verification. The researcher also presented the coding to her supervisor for verification. Moreover, member checking was done with the participants to ensure validity (Creswell & Miller, 2000). After each interview the researcher gave the participants a brief summary of her understanding of the interview to check and confirm the information and check whether the researcher understood them correctly and also to check if the information obtained was the reflection of their views.

3.9 Ethics considerations

Ethical approval for the study was obtained from the University of the Western Cape Research Ethics Committee. Permission to conduct the study was sought and granted from The Permanent Secretary of the MOHSS upon the recommendations by their Health Research Unit. The approval letter was forwarded to the director of Khomas region Primary Health Care Division and the head of the health centre.

Given the sensitivity of this research, which request some aspects of the private life experiences of TB patients participants, basic principles of human research ethics (respect of persons, beneficence, non-malevolence, voluntary participation, confidentiality and justice) was safeguarded by the researcher (Human Sciences Research Council, 2009). Prior to the interviews, all participants were given participants' information sheets in the participant's preferred language explaining the purpose of the research. The purpose of the research was explained to them verbally and in their preferred language. Written consent was obtained from all participants once they had agreed to participate. This informed consent ensures that the participants themselves understands what is expected of them and agree with it (Terblanche, Durkheim & Painter, 2007). The participants were notified that participation in the study was voluntary and that they had the right to withdraw at any time during the study without any negative consequences. The patient participants were assured that by refusing to participate in the study, it would not affect future treatment that they would receive from the health care institution. Confidentiality and anonymity was ensured for the patient participants.

Confidentiality for the key informants was ensured but anonymity could not be ensured because they were the only two at the facility.

The interviews were conducted in a private room at the health centre to ensure anonymity and confidentiality as well as privacy of the participants. Prior to the interview, the intention to audio tape the interview was discussed with the participants and their permission to be audio taped was sought. To ensure anonymity, identifiers were removed from the transcripts and audio tapes and the tapes and transcripts were kept in a locked cupboard. Data was entered in the computer with a password protection for files. The researcher who was involved in the analysis process was the only one who had access to the cupboard and password.

3.10 Limitations to the study

The findings of this study was limited to the Khomas region; adults TB treatment defaulters aged 18 years and older. In addition, this study was limited to 10 participants and patients who could speak English, Oshiwambo and Afrikaans since the researcher can only speak these languages. Therefore defaulters who did not speak these languages were excluded from the study, which could mean that valuable information that could have been derived from these people is lost. Selection bias might have occurred because participants were selected with the help of the TB nurses. This was however minimized as the researcher had the final say over the selection and the eligibility criteria were strictly adhered to when selecting the study participants.

The study focused on one health facility in the country which means that findings from the study cannot be generalized to all the TB defaulters in other regions as it is not full representative of this population. The recommendations may not be relevant to any other areas in Namibia apart from Khomas region where the study was conducted. However, the purpose of this study was not to generalize but rather to gain a deeper understanding of the issues relating to TB defaulting and the lessons learnt could be interpreted by others in their own context.

CHAPTER 4

RESULTS

In this chapter the findings of the study is presented including the demographic characteristics of the participants. Major themes and sub-themes that emerged from the analysis of the study are presented and quotes used to illustrate the comments that were made by the participants. The findings of the interviews are clustered around the following four themes namely:

- Patient related factors
- Community, family, cultural and religious related factors
- Socio-economic factors
- Health service related factors

4.1 Demographic data

The key informants were one male (enrolled nurse) and one female (registered nurse) aged 27 and 35 years. Both key informants worked with TB patients for more than two years and were trained in TB treatment management and treatment adherence counseling for both TB and HIV. The characteristics of the participants of the in-depth interviews (TB defaulters) are shown in Table 1. These participants were aged between 24 and 65 years. The majority of the participants (five) spoke Oshiwambo; three spoke English; and two participants spoke Afrikaans. Moreover, the table indicates that the majority (six) of the participants were unemployed. Three of the participants interviewed have no formal education, four have basic education and the remaining three have above basic education. All the defaulters had defaulted treatment before they re-started treatment and one of them had not resumed treatment during the time of the interview.

Table 1: Characteristic of TB defaulters

Characteristic	Male	Female	Total
Age			
24-30	1	2	3
31- 40	-	2	2
41-50	3	1	4
51 - 65	1	-	1
Language			
English	1	2	3
Afrikaans	1	1	2
Oshiwambo	3	2	5
Employment status			
employed	2	2	4
Unemployed	3	3	6
Course of treatment that patients had been on			
Six months	3	2	5
Eight months	2	3	5

4.2 Patient related factors

Various personal factors have emerged and have been indicated to have an influence on the defaulting behavior of the TB defaulters in this study.

4.2.1 Medication-related factors

Many of the TB defaulters had a problem with the actual medication. They reported that the tablets were too many and too big to swallow.

However, the key informants had a different view on the number of tablets that patients were taking as they felt that the number of tablets had been greatly reduced after the implementation of the new treatment guidelines. They maintain that before the implementation of the new treatment guidelines, the patients took many more tablets. One key informant however reported that despite the reduction in the number of tablets, some TB patients still think that the tablets are too many and these might be patients with co-infection.

This is also supported by one defaulter:

> *"I am taking ARVs , the tablets just become too much and looking at them is making me sick so much that I decided to stop them for a while just to rest my heart"*

It appears that some defaulters who were on second line of treatment (where they are required to complete two months daily injections) were not happy with the injections as they reported that the injections were too painful and this resulted in them defaulting treatment:

> *"…who on earth can take those injections for two months sister, ah ah, no no, they are tiring and painful…"*

One of the key informants supported the above statement:

> *"The injections are also a big problem to patients who are on second line treatment because many patients are complaining that they left treatment because of the injections, but what can you do, its part of the treatment, one can only emphasize the importance of completing the treatment……"*

One key informant highlighted the fact that the long duration of the treatment was another contributing factor to treatment defaulting which was acknowledged by defaulters themselves. The side effects of the TB drugs also seemed to have had an impact on TB treatment defaulting. Seven of the TB defaulters interviewed indicated that they defaulted treatment because of the side effects such as vomiting, weakness and making them sick and sleepy as confirmed by the defaulters themselves:

> *"…I decided to ignore the treatment because the tablets make me feel sick; I can't live like that sister"*

One of the key informants supported this finding:

> *"Mmh, the patient will tell you that sister, the medication is killing me, I am always vomiting and it's now worse since I started the medication and in that way the patient will not come back for treatment"*

However, despite the side-effects, some of the defaulters realized the importance of continuing with their treatment:

> *"The tablets were making me sleepy in the beginning but I ignored it because all the tablets have side effects"*

It appears that little information was given to the patients regarding the possible side effects of treatment.

> *"….sometimes the nurses here do not explain the problems with tablets in the beginning, only when you go back and complain, its when they will tell you that its because of the tablets that you are taking……"*

4.2.2 Lack of knowledge and information

It appears that some TB defaulters had little knowledge about TB treatment as is evident from some of the quotations below. One defaulter reported that she thought she was only supposed to go to the clinic when she was not feeling well. Six TB defaulters reported that they stopped the treatment because the treatment was not helping and their condition had not improved since they started the treatment.

On the other hand, some TB defaulters said that they felt better after starting taking the treatment and they therefore did not find the need to continue with the treatment:

> *"…when I felt better, I thought I was okay and I stopped taking the tablets until I started coughing again."*

This statement was backed by the key informants:

> *"…sometimes these patients are defaulting treatment because after starting TB treatment for some few months, they become better and they just conclude that they are healed."*

Some misconceptions also seemed to influence defaulting. For example, some TB defaulters believed that the tablets did not have the same effects as the injections. Another participant shared her experience of defaulting treatment during pregnancy:

> *"….and two months after I started taking the tablets, I realized that I am pregnant and I stopped the tablets immediately because I was afraid of harming my baby."*

Surprisingly, when asked, this defaulter never sought professional help from the clinic for clarity on this issue.

Some TB defaulters were misled by their friends:

> *"…my friend told me that TB tablets will make me not to get children anymore and she knows of her aunty who took TB tablets for eight months and after that she could not get children anymore."*

4.2.3 Alcohol abuse

The abuse of alcohol seems to be another factor for treatment defaulting. One defaulter reported that he defaulted treatment because he preferred to drink alcohol:

> *"Sister, this may sound funny but I was also drinking a lot sometimes, and then I decided to stop the tablets but alcohol use to help me to forget my problems"*

Both key informants also supported the above statement that alcohol is a major contributor to treatment defaulting:

> " *Drinking and smoking is also a problem in TB patients, they drink and they forget to come to the clinic and when they are traced by Penduka group, they are found at the "tombo" [a local term for 'alcohol'] houses and shebeens very drunk"*

4.3 Socio-economic factors

The participants mentioned unemployment as a key factor that they felt contributed to treatment defaulting. The unaffordability of transport fare due to unemployment was reported to be contributing to treatment defaulting. This is illustrated by the following quote:

> *"…and I am unemployed and I was not having taxi money to come to the clinic…."*

The above statement is further confirmed by key informants with these statements:

> *"yaah, the problem is also lack of job, most of these TB patients do not work and they will tell you that they do not have money to come to the clinic or they went to go and look for jobs, that's why they did not come for follow ups."*

> *"……transport to come to the clinic is also a problem in Windhoek especially to patients who are not working and they are staying far like the MIX* [an informal settlement located approximately 10km north of Windhoek] *patient - they complain that they spent around N$50-00 on transport every time they come to the clinic."*

On the other hand, lack of transport money did not prevent other patients from coming for their treatment as one defaulter reported that she asked her neighbors for transport to the clinic when she did not have transport money.

The lack of food due to unemployment was also found to have an influence on treatment defaulting. One defaulter had this to say:

> *"…I don't work sister, so there is no enough food at home and the nurses told us that it's not good to take the tablets on the empty stomach…."*

One key informant confirmed that not all the TB patients received food from Penduka programme as the programme could not cater for everyone. Only some patients who were on DOTS received a daily meal when they came for their treatment at the clinic.

4.4 Community, family, cultural and religious factors

The participants reported various factors such as poor family support, work-related factors as well as cultural and religious factors as factors that influence defaulting behavior.

4.4.1 Poor family support

Communication break down in the family appears to have influenced the ability of the TB defaulters to inform their family that they had TB resulting in defaulting. One defaulter indicated that he did not see the need to tell people at home because he was not communicating well with other family members. Key informants confirmed that sometimes TB patients found it difficult to inform their family especially if there was poor communication already at home as well as fear of rejection and discrimination:

> *"….some patients are really afraid to be rejected by people in the community if they find out that they have TB and in the end they do not come back to the clinic to collect their treatment"*

An overwhelming majority of TB defaulters confirmed this sentiment that families and other members of the community were not supportive. This is clearly illustrated below:

> *"…when I told my husband that I have TB and HIV positive, he just said "pusek"* [a very derogatory term for 'leave'], *out of my house [point with fingers], we don't want to be infected by you."*

Some of the defaulters did not inform their family that they were taking TB treatment because they feared rejection from their families and were afraid of what people at home would say if they told them that they had TB:

> *"I am afraid, my people can be difficult at times, especially my mother, I really don't know what she will say if I tell her that I have TB. She is very strict and she might even chase me out of her house, so I decided to keep it to myself."*

Both key informants confirmed that many defaulters had poor support from their families and community where they lived and that they were experiencing stigma at the hands of their

families and community. The key informants further reported that this was evident when the Penduka programme staff went to trace some of the defaulters at home. They found out that some families and neighbours of the defaulter were calling the patient names and showed little interest in the patient's treatment. Moreover, the key informants further stated that there was a belief in the community that when a patient is diagnosed with TB, then he/she is also HIV positive. This misconception has however contributed to stigma in the community according to the key informants.

On the other hand, these claims were contested by one defaulter who highlighted that his family was supportive:

> *"My mother support me well, I was very weak, so weak that I could not even walk and my mother was always there for me she always collecting my medication until I could walk again"*

Living alone was cited by some defaulters as one of the reasons contributing to defaulting. They indicated that they found it extremely difficult to take treatment because there was no one to support and encourage them to take their treatment. This finding is confirmed by one key informant:

> *"….. You will find those patients who are living alone, sometimes there is no one to support or encourage them to drink their medication or sometimes the patient can be weak and no one to collect the medication for the patient or no one to cook for the patient"*

Another factor that some TB defaulters raised that contributed to treatment defaulting was forgetfulness because sometimes there was no one at home to remind the patient to go to the clinic.

4.4.2 Work related factors

Discrimination was mentioned as a key work-related factor which contributed to treatment defaulting. The TB defaulters felt that disclosing their TB status to their employers and colleagues contributed to discrimination at the work place. Some defaulters reported that they

defaulted treatment because of fear of losing their jobs. One defaulter said that telling her employer led to her dismissal from work:

> *"I am a domestic worker and when I told my boss that I have TB, I was shifted to work in the garden and when I refused, my boss fired me because she said she can not risk her family to get TB from an employee like me……"*

Reports by the key informants on the support of employers were mixed. One key informant confirmed that some patients reported that their employers did not give them time off to collect their treatment. On the other hand, the second key informant experienced employers bringing TB patients, or at least sending some one to bring the patient with the company car during office hours.

4.4.3 Religious and cultural beliefs

Religious beliefs and culture were also found to be factors associated with TB treatment defaulting.

It appears that some of the TB defaulters left TB treatment because of religious reasons:

> *"I am a born again Christian and I believe that God is healing me from TB and I have seen the difference when I stopped the tablets"*

One key informant confirmed that some TB patients defaulted treatment because of their religion, especially the born again Christians who believed that God will cure them from TB.

The key informants were of the opinion that traditional healers were influencing certain TB patients (Oshiwambo speaking) who were on treatment. The traditional healers made them believe that they were bewitched and could only be cured with traditional medicine. The opinion of the key informants was confirmed by one defaulter:

> *"….the traditional healer told me that I am witched and I should stop the TB tablets and continue to take the herbs that she gave me"*

4.5 Health services factors

TB defaulters cited various challenges at the health facilities such as accessibility, overcrowding at the clinic, inflexible opening time of the TB clinic and nurses attitudes as factors that influenced treatment defaulting.

4.5.1 Accessibility to TB services

A few defaulters raised complaints about the distance to the health care facilities. They felt that the clinic was too far and this contributed to defaulting behaviors and the flowing statement was confirmed by the key informants:

> *"Oh sister, I stay very far, far away from here [pointing in the direction of the area], MIX location, mmh, [giggles] I even wonder if you know it; its outside Windhoek on your way to Okahandja maybe over 10kms, you can't even walk there. When I don't have transport money I don't come here at all because this government does not want to build a clinic for us there. Its not my problem that I didn't come back for tablets……"*

Most of the defaulters highlighted overcrowding at the clinic as another problem in defaulting treatment. They reported that the TB clinic was crowded with patients who were receiving TB and ARV treatment and sometimes the TB patients could not find a seat while waiting for the service. Some TB patients also found it difficult at times to collect their treatment at the health facility because of the inflexible opening times at the clinic. Some defaulters claimed that they wanted to collect their treatment at lunch time (between 13H00 and 14H00) but the clinic was closed. The following quote describe the defaulter's frustration:

> *"…and sometimes you want to come and get your tablets lunch time but the clinic is closed that time, it is very frustrating sister, the nurses here all goes for lunch at the same time, its unfair"*

4.5.2 TB clinic location: Sharing the venue with ARV patients

The key informants were of the opinion that the location of the TB clinic plays a major role in TB treatment defaulting (TB and ARV departments are combined as one department which is situated separately and has separate entrance from the main health centre). The key informants

said that many TB patients did not want to be seen at the clinic because of the ARV patients that were utilizing the same department. This was confirmed by the majority of the TB defaulters who were also against the location of the TB clinic:

> *"…the clinics is really a problem, to be seen here with HIV positive people, no [participant shakes his head and moves the right index finger around], If you have a small heart like me, you will not come back here anymore, especially Tuesdays, its chaos"*

4.5.3 Attitudes of health care providers

Reports by defaulters regarding the attitudes of health care providers were mixed. Some defaulters reported satisfaction with the nurses' attitudes, whilst others appear to be completely disgruntled with the nurses' attitudes. Some found them friendly while others not:

> *"Oh sister, us patients sometimes are the problem;, sometimes we are not coming for the tablets and when we come back at the clinic, we don't want to be asked, the nurse are really, really doing their best, they are very friendly and helpful. You will find them even making jokes to us at least trying to put smiles on our faces. I don't have problems with them at all……"*

> *"Nurses! Mmh, these nurses are rude and they do not have time for the patients (participant puts frown on face). You just come in the TB room and you get your tablets and go home. They could not even ask how you are or how the tablets are making you feel…."*

In addition, the key informants reported that some defaulters were reluctant to come to the clinic when they learnt that there was a new nurse at the TB clinic as they preferred to be cared for by the nurses whom they knew. Therefore, once they saw new faces at the clinic, they stopped coming.

In conclusion, the chapter highlights the findings of the study. Four major themes and various sub-themes were identified from the study as key factors that contributed to TB treatment

defaulting. These factors included patient factors; community, family, cultural and religious factors; socio-economic factors; as well as health service related factors.

The next chapter discusses the findings of the study.

CHAPTER 5

DISCUSSION

Introduction

This chapter presents the discussion of the study findings. The discussion will be centered on factors that emerged from the study. Further more, the study will highlight and discuss the interrelationship between these factors that have emerged from the study.

5.1 Impact of poor communication between TB patient and service provider

Poor communication can have several negative implications as is demonstrated in the following sections.

5.1.1 Lack of knowledge on TB treatment

The lack of knowledge on TB treatment was a factor that influenced treatment defaulting. More than half of the defaulters interviewed in the current study reported that they defaulted treatment because they thought that they were cured when their health status improved. This is an indication that either the information with regard to the six months duration of treatment is not given or that the information given is not well absorbed. This finding clearly indicates that personal factors (e.g. lack of knowledge) are often influenced and reinforced by health service related factors (e.g. poor communication) as demonstrated in this study. If health workers do not communicate effectively with the patients during their visits at the health facility, the patients will not have adequate knowledge on the aspects that are related to TB treatment. In a study done by Hasker et al., (2010), the participants (defaulters) reported poor communication with the health care workers. This resulted in patient's defaulting treatment after their symptoms abated or when they saw no improvement in their health condition (Hasker et al., 2010). This occurred because they lacked knowledge about the disease and the treatment process (Hasker et al., 2010). This finding is consistent with a study done in Ghana that found that some patients ceased treatment because their symptoms had abated again indicating lack of knowledge due to poor communication (Dodor & Afenydu, 2005).

Studies done in Malaysia, Gambia and Ethiopia have also shown similar findings indicating that poor knowledge about length of treatment consistently predict default (Boyle, Power, Ibrahim & Watson, 2002; Harper, Ahmadu, Ogden, McAdam & Lienhardt, 2003; Tekle, 2002). The latter studies indicated that patients were not informed about the duration of the treatment because of poor patient/health worker relationship. Moreover, Govender & Mash (2009) further supported these findings where the defaulters did not seem to understand the information and instructions that they were given which led to defaulting behavior. Similarly, this study found patients to default treatment because of lack of information. These findings support Ley's model of compliance that indicates that if the patient has adequate information on the disease and treatment process and fully understand that information, the patient will be satisfied and hence compliant to treatment (Ogden, 2000b). Health workers can therefore utilize this model by ensuring that patients not only receive the information but also that this information is fully understood by the patient.

5.1.2 Gaps in information on TB treatment

Several gaps in information with regard to TB treatment emerged during the study. Information about side effects is an issue where poor communication plays a role. Kaona et al., (2004), point out that the patients often experience adverse effects from TB treatment due to the high toxicity of the drugs. Side effects from the tablets such as vomiting, sleeping disorder, erectile dysfunction and general body weakness were raised in the current study as having a negative impact on TB adherence as found in other studies (Govender & Mash (2009); Tshitangano, Pengpid & Peltzer (2010).

When health education is given to patients about treatment adherence, information on side effects are often overlooked or not discussed (Awofeso, 2008). This study found little and in some instances, no information was given to the patients regarding the possible side effects of treatment. It is recommended that health workers should therefore provide concise pretreatment information and counseling to patients with more emphasis on potential side effects that are associated with TB treatment to minimize defaulting (Awofeso, 2008).

Moreover, pregnancy and breast feeding was also found to have an influence on TB treatment adherence in the current study as they were concerned with the effects that the treatment would have on their babies. However, it was interesting to note that none of them sought professional help from the clinic for clarity regarding their concerns. Moreover, misconceptions regarding TB treatment such as infertility and reduced effectiveness of the tablets as compared to injections appear to have prevented some defaulters from completing treatment. These findings are suggestive of lack of information among the TB defaulters. Similarly, a study by Green (2004) and a review by Vermeire, Hearnshaw, Van Royen & Denekens (2001) found patients' beliefs about the efficacy of the treatment to have a negative impact on treatment adherence.

These findings justify the need for extensive health education campaigns on TB treatment among the community and improved communication and mutual understanding between health workers and TB patients as indicated by Ley's model of compliance (Ogden, 2000b). This model indicates that patients need to clearly understand the information that is provided by the health workers in order to comply with treatment (Munro et al., 2007b). Health workers therefore need skills not only in TB management and care, but also communication skills in order for them to be able to disseminate correct information to patients in an appropriate manner. A study done in South Africa concluded that lack of knowledge on the part of the health workers leads to irregularities in the management of TB services which in turn can lead to poor knowledge about adherence in the patients (Tsitangano, Pengpid & Peltzer, 2010).

Providing a more holistic care to TB patients is the key to curbing TB defaulting (Govender & Mash, 2009). The patient-provider relationship is thus vital in creating a therapeutic environment that encourages and supports treatment adherence.

5.2 Relationship between health worker and patient

5.2.1 Trust between health worker and patient

Trust is an important aspect of the relationship between health worker and patient. This study found that some defaulters preferred health workers that they were familiar with over new ones. This negatively influenced treatment adherence as these patients tended not to go for follow up treatment whenever there was a new health worker at the clinic. This is suggestive of lack of

trust between TB patients and health workers. A study by Sagbakken, Frich & Bjune (2008) has found similar results whereby the TB patients defaulted because they did not have trust in the new health workers at the health facility. The study therefore recommended that patients should be followed up by the same nurse as this would help health personnel to identify each patient's resources and constraints (Sagbakken, Frich & Bjune, 2008). In addition, this recommendation will make it easier to establish patient/health worker relations based on trust, and enhance adherence by means of follow-up talks throughout the treatment process as recommended by Sagbakken, Frich & Bjune (2008).

5.2.2 Health workers' attitudes

Another critical issue that emerged from the study was the attitudes of the health workers towards the TB patients. In this study, there were positive and negative experiences by the participants. It emerged that some health workers were said to be rude and did not provide patients with enough time to ask questions during the visits to the clinic. These findings are in line with the findings of a review by Munro et al., (2007a) and a study by Hasker et al., (2010) that indicated some reasons associated with defaulting included the poor attitude of the health workers such as scolding the patients for missing appointments and refusing to give patients more medications. Furthermore, Khan et al., (2005) found health workers to be unsympathetic towards TB patients and little information was given to patients on treatment, hence defaulting. The negative attitudes of health workers can consequently shun the patients from the clinic and compromise the quality of care that patients are entitled to receive.

5.3 Personal factors influencing TB patients' behavior

5.3.1 TB patients' negative attitudes toward treatment

The attitude of the TB patients has been found to have a negative influence on treatment defaulting (Munro et al., 2007a). The current study found some TB patients (especially those that are being re-treated for TB) to have defaulted treatment because they were tired of taking the medication or it was making them more sick. This negative attitude confirms the relevance of the theory of planned behavior that indicates that the intention to perform a certain action (in this case adherence to TB treatment) is influenced by the attitude (e.g. tired of taking medication)

toward the action (Armitage & Conner, 2001). Health workers can therefore use the theory of planned behavior in exploring the factors which influence the attitudes of the TB patients towards TB treatment and then addressing these factors by conducting awareness campaigns in the community to address these factors. A positive outcome has been demonstrated in a study done in Malaysia where intensive awareness campaigns in the form of health education were conducted by health workers and trained community volunteers (Naing et al., 2001).

5.3.2 Medication-related factors

Over the years, the number of tablets taken by TB patients has significantly decreased due to an introduction of combination of drugs compared to single doses. However, the TB patients in this study who were on ARVs in addition to their TB medication still found it difficult to complete treatment due to the combination of treatment. This finding is similar to the findings of a study by Munro et al., (2007a). These findings demonstrate the burden that ARVs have brought on TB management. Pill burden was also evident in a study done in Turkey among hypertensive patients who were on TB treatment (Uzun et al., 2009). In the latter study, patients found it difficult to complete treatment because of the multiple dosages that they had to take in a day (Uzun et al., 2009).

In the current study, it has emerged that the long duration of treatment impacted on treatment defaulting. This finding is in line with the findings of Dodor & Afenydu (2005) and Daniel, Oladapo & Alausa (2006) who found that the long duration of treatment was a heavy burden because it impacted negatively on the patients' duties to care for their children and provide income for their families. The patients spent a vast proportion of their time going to clinic thus reducing their productive time at work or at home.

5.3.3 Impact of alcohol abuse

Alcohol abuse is another factor in TB defaulting in the current study as some defaulters admitted to having defaulted treatment because of alcohol. Alcohol is considered a social problem which predisposes patients to malnutrition and increasing the chances of contracting TB (Ruck, 1997). It was found that TB patients who have a problem with alcoholism do not collect their treatment regularly and were found to default treatment more than the non-alcoholic patients (Jaiswal et al.,

2003). The use of alcohol when on treatment may have devastating effects on the user's mental stability by either forgetting to take the treatment or influencing the effectiveness of TB drugs (Cramm; Finkenflugel; Moller & Nieboer, (2010). Guillen et al., (2008) indicates that the use of alcohol is common among TB patients and this contributes to patients forgetting to take their treatment as prescribed and their follow up appointments. The latter finding therefore supports Ley's model of compliance which shows that mental instability negatively influence the recall of information provided by health workers (Ogden, 2000b).

5.4 Influence of stigma, discrimination and social support

TB diagnosis is believed to contribute to stigma among the TB patients. The stigmatising attitudes and behaviors by family and community members toward TB and its sufferers may lead to the individuals with TB hiding their disease and defaulting from treatment (Dodor, Neal & Kelly, 2008). In the current study, some of the participants interviewed admitted that they had not disclosed their TB status for fear of what other people might say. This result is suggestive of stigma within the community. This might be because TB is stigmatized and it is not like other health problems such as diabetes. This finding is in line with the findings from a study conducted in the Eastern Cape in South Africa, which cited that the majority (95%) of the respondents interviewed believed that TB patients tended to hide their TB status for fear of what others might say (Cramm et al., 2010). The issue of stigma and negative attitudes in the family and community setting raised in this study was supported by a study done in Ghana which found community stigma to be the major cause of TB treatment defaulting as it affected their health care seeking behaviour (Dodor, Neal & Kelly, 2008).

Moreover, discrimination in the form of rejection by family members has emerged from the current study. This is consistent with the findings of Karim, Chowdhury, Islam & Weiss (2007) who found discrimination of TB patients by the community such as exclusion from participation in certain cultural events in their respective communities. Social support from family, friends or the community is an important component of treatment adherence (Farmer, 2005; Shargie & Lindtjorn, 2007). Demissie & Kebede, (1994) found lack of family support to be one of the major causes of treatment defaulting similar to this study where lack of support because of stigma, especially patients who are co-infected with HIV and poor family dynamics were

reported. Participants' loneliness, which is also a lack of social support, as found in the current study, was evident in studies done by Jaiswal et al., (2003) and Shargie & Lindtjorn (2007), confirming that loneliness is a key factor that influences TB treatment defaulting. Participants who were lonely found it difficult to adhere to treatment, because they lacked support, motivation and encouragement.

Some participants in the current study however reported having received physical and financial support in coming to the clinic. Munro et al., (2007a) suggested that it is possible that a more family oriented approach to TB management could lead to improved social support and adherence. The use of TB clubs as shown in a study done in Ethiopia has been found to reduce social stigma of the disease, increase treatment adherence and reduce loneliness that can negatively impact on adherence (Getahun & Maher, 2000). TB patients in that study joined TB clubs in their communities where information on TB as a disease and medication related side effects was disseminated, reinforcement of treatment adherence and role play of disseminated information was encouraged (Getahun & Maher, 2000). This therefore improved the treatment success rate in that study. Thus, reducing stigma and discrimination through sustained and intensified information, education and communication campaigns within communities can be important in reducing treatment defaulting.

One health service related factor that can cause stigma is the integration of the TB and HIV departments as well as having this combined department separate from the main health centre. This situation was perceived by the TB patients in the current study as causing stigma because once they were seen entering the department, they feared they would be labeled as HIV positive. This finding is similar to the findings of a study conducted in South Africa where the TB patients default treatment because they did not want to be seen in the same queue as the people who were collecting ARVs (Cramm et al., 2010). This perception calls for a need to integrate ARV and TB treatment into the general health care services to avoid stigma as recommended by Dodor, Neal & Kelly (2008).

5.5 Cultural influences

Combined use of biomedical care and traditional medicine is common in most African countries as observed in this study (Govender & Marsh, 2009). In the current study, it emerged that certain cultural influence such as strong beliefs in traditional medicine has contributed to defaulting behavior. Some TB defaulters in the current study believed and were convinced that they were bewitched and admitted to having sought help from the traditional healers after visiting the clinic. This brings about a link between cultural factors and personal factors where the patients' cultural beliefs influenced the behavior of the patients by not taking their medication.

A study conducted in a district hospital in KwaZulu- Natal found similar results (Govender & Marsh, 2009). The majority of the defaulters from that study cited that they were cursed and could only be treated by traditional healers. Further more, Farah, Tverdal, Steen, Herdal, Branstsaeter & Bjune (2005) found that health workers' lack of understanding of patient's cultural background had an influence on treatment defaulting. This warrants the need for cooperation between western and traditional medicine in order for patients to adhere fully to treatment. This was demonstrated in a study done in Burkina Faso that found positive results on health seeking behavior and treatment outcome when traditional healers were given training on TB diagnosis and management (Sanou et al., 2004).

Moreover, the current study also found some TB patients to have defaulted treatment because of religious reasons. However, no scientific evidence was found to support or disagree with this finding. Therefore, more research needs to be done in this area to investigate TB patients religious beliefs with regards to TB defaulting.

5.6 Impact of unemployment

The socio-economic status of the TB patients is believed to have a great impact on their ability to complete treatment (Xu et al., 2009). According to Louw (1995) and Gelmanova et al. (2007), a high unemployment rate reflects a relationship with low socio-economic conditions and may indicate that unemployed patients tend to default treatment more often. Similarly, most of TB defaulters in the current study were unemployed, which led to the patients not adhering to their treatment.

Another way that unemployment impacts on treatment defaulting is that the TB patients in this study who were not employed, did not benefit from any financial grant as there is no social grant in place in Namibia to help the unemployed TB patients. This therefore resulted in lack of transport to the health facilities. This finding is similar to a study done in Bolivia where patients defaulted treatment due to lack of money for transport to health facilities (Greene, 2004). A system of social support is therefore advisable, such as a social grant to the unemployed TB patients and a mobile treatment approach which means that treatment is accessible within walking distance. Studies done in Brazil and Tomsk, Russia showed the value of social support among the unemployed TB patients and the positive impact of the mobile TB treatment (Kesharvee et al., (2008); Carreira et al., (2006).

Unaffordability of food due to unemployment was reported to have an influence on TB treatment defaulting in the current study. TB causes food insecurity indirectly in both patients and their families as illness impedes productivity in farming or other economic activities or because limited family resources are directed to health care (Partners in Health, 2008). Due to lack of adequate financial or social support such as social grants, poor people cannot acquire nutritious food to maintain a healthy status and thus will ultimately suffer from malnutrition (Bezuidenhout, 2004). Some TB defaulters in this study reported that they discontinued their treatment because they could not take their medication without food. This finding is corroborated by a study conducted in a rural setting of Tarai, Nepal, whereby patients on TB treatment who were living in poverty found it difficult to take treatment without food (Wares et al., 2003). Patients take treatment only when they have food as they are told not to take the treatment on an empty stomach (Ogden, 2000). Moreover, taking TB treatment without food could make the patients sick, causing them to default from treatment (Zvavamwe & Ehlers, 2008).

A South African study found that successful completion of treatment was attributed to the availability of food, which prevented the side effects that result from taking the medication on an empty stomach (Ross & Hugo, 1999). In the Windhoek district, there is the Penduka programme that provides daily meals to TB patients. However, this programme only provides meals to TB patients who are on the DOTS programme, therefore TB patients who are not on DOTS do not benefit from the programme. Expanding the programme by providing food parcels to all TB

patients and the introduction of social grants to all TB patients would therefore improve treatment adherence and significantly reduce defaulting as demonstrated in studies done in Zambia and South Africa (Kaona et al., 2004; Garner, Smith, Munro & Volmink, 2007)

5.7 Lack of support from employers

A study conducted by Greene (2004) highlighted that some patients defaulted treatment in order to retain their jobs. Similar findings were made in the current study where some of the employed TB defaulters defaulted treatment because of fear of losing their jobs. These participants were however faced with difficult choices of either seeking health care or disclosing their disease and jeopardizing their jobs and face poverty which would compromise their income and ability to provide for their families. For this reason some defaulters chose to hide their disease from their employers which is consistent with a South African study where patients also did not inform their employers that they had TB for fear of losing their jobs (Cramm et al., 2010). In addition, a study conducted in Ethiopia found employed TB patients to have defaulted treatment because of work-related problems such as inability to come to the clinic for treatment during working hours (Sagbakken, Frich & Bjune, 2008).This therefore warrants the need to involve employers in the TB treatment of their employees either as treatment supporters or to permit and encourage the TB employees to come for their follow- up visits.

5.8 Barriers to accessibility of treatment

Long distances to the clinic remains a crucial factor for TB defaulting. A study in Addis Ababa found that patients walked up to two hours to reach the nearest clinic for treatment (Demisse, Lindtjorn & Berhane, 2002). In the current study, similar concerns such as long distances to the clinic were raised. This demonstrates a link between health service factors and socio-economic factors as patients' defaulted treatment due to poor access to health facilities which is common in poor societies (JEET, 2008). This therefore warrants the need for decentralized access to health facilities or DOTS points and home base care services in the district to curb the problem of defaulting. A study by Govender & Marsh (2009) showed improvement in treatment accessibility and adherence after the introduction of community based mobile treatment.

Another barrier to access found in the current study was the inconvenient follow-up dates and opening times of the clinic. Studies conducted in Burkina Faso and South Africa found similar challenges where patients' defaulted TB treatment because of the inconvenient follow-up dates that were given by health workers (Sanou et al., 2004; Matebesi, 2004). Lack of involvement of patients in the planning and decision making processes of treatment by health workers can negatively influence the treatment behaviors, as found in the current study. Studies done in Ethiopia emphasized the importance of involving patients in the treatment planning and that treatment planning must be centered on the patient's needs (Sagbakken, Frich & Bjune, 2008). A patient-centered approach has also been emphasized by the WHO, as one of the foundations of primary health care services (WHO, 2008b). It is therefore imperative that patients are included in the planning and implementing process of the TB treatment plans which would then allow for treatment to be more accessible to them.

5.9 Conclusion

This chapter discussed the findings of the study with reference to the literature. The discussion indicates that no single factor contributed to treatment defaulting amongst TB patients in the selected health centre in Windhoek district and this concurred with the literature. An interrelationship between personal, socio- economic, community, family, religious and cultural as well as health services- related factors was evident and highlighted.

The next chapter concludes the study and makes recommendations for practice and further research.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

INTRODUCTION

In this chapter the research findings are summarised and presented. Based on these findings, conclusions are drawn on which recommendations for practice and further research are formulated to address the factors that contribute to TB defaulting in the Windhoek district.

6.1. SUMMARY OF FINDINGS

The study focused on TB defaulters at a health centre in the Windhoek district, Khomas region. A summary of interrelated factors that contribute to TB treatment defaulting amongst TB patients is presented.

6.1.1 Patient related factors

Lack of knowledge and information about treatment has been found to have negatively impacted on treatment adherence. Moreover, the study highlighted pill burden and long duration of treatment as reasons for defaulting treatment. The results of the study also found that some patients had negative perceptions about treatment and this has contributed to defaulting. In addition, alcohol abuse was found to have an influence on TB treatment in the current study.

6.1.2 Socio-economic factors

Unemployment was found to have influenced defaulting which was caused by lack of money for transport to the clinic and lack of food.

6.1.3 Community, family, religious and cultural factors

Stigmatising attitudes and behaviors by the family and community members toward TB patients were revealed to have led to defaulting. Further more, lack of family support found in this study has led to loneliness and lack of encouragement to continue with treatment among the TB patients. This therefore resulted in patients defaulting treatment. Moreover, poor employers' support was also shown to have influenced the defaulting behavior as some participants were

denied permission to go for their follow up treatment. In addition, cultural and religious beliefs have also been found to influence defaulting.

6.1.4 Health services factors

It is clearly highlighted from the study that the combining of the TB and ARV departments has contributed to treatment defaulting. In addition, the long distance to the health facility, overcrowding and inconvenient opening times and follow- up dates prevented patients from going to the clinic for their appointments. Moreover, the negative attitudes of the health workers and the poor relationship between health workers and TB patients have been found to have influenced defaulting.

6.2. CONCLUSION

Based on the research findings, various interrelated factors have been found to contribute to TB treatment defaulting at the selected health centre in the Windhoek district.

The study findings reveal lack of knowledge among TB patients on the treatment aspects as a major concern highlighting the link between personal factors and health services factors. This link has negative implications for the TB patients and in general the TB programme as it reflects on the quality of care provided to patients which promotes treatment defaulting.

Furthermore, the link between socio-economic and health service factors impacts negatively on the ability of the patients to access care. Moreover, lack of integration of TB and HIV care into the normal health services has created an opportunity for stigma from the society.

The situation therefore requires a holistic approach in the management of TB to be taken in addressing all these factors to ensure a better success rate and a reduction in defaulting rate. The researcher is of the opinion that the findings of this study will assist policy makers and authorities to develop innovative approaches to ensure treatment completion among TB patients.

6.3 RECOMMENDATIONS

The following recommendations can be made based on the findings of the study:

Intervention recommendations for practice

National TB programme

- The National TB programme should develop practical guidelines for implementing adherence strategies such as decentralizing of DOTS centers closer to the communities to reduce long distances travelled by patients.
- Integration of TB and HIV/AIDS into normal heath care services to curb stigma and discrimination at health facilities and in the community.

Health education

- Emphasis should be placed on health education of TB patients as well as the general community on TB as a disease, how it's transmitted, prevention of the condition, treatment and curability thereof as well as side effects and the importance of compliance.
- Development of culturally appropriate and acceptable information of information education communication (IEC) materials on TB for dissemination in the community e.g. pamphlets in local languages for the patients to take home.
- Involve TB patients in the planning and decision making process regarding treatment to meet the needs of the patients.
- Consider patients' values as well as moral and religious beliefs when developing compliance strategies.

Training

- Provision should be made to conduct continuous in-service training to health workers on adherence, professionalism and customer care.

Health workers

- Health workers must strive to create and maintain a therapeutic environment by being non-judgmental, respectful and empathetic toward patients in order to enhance the patient-provider relationship that is supportive of treatment adherence.

Nutrition programme

- The government should provide food parcels to all TB patients since many of them are unemployed and they need nutritious food to complete their treatment.

Provision of Social Grant

- The government should provide financial assistance in a form of social grant or incentives to all TB patients who are on treatment to assist in transport to health facilities and purchasing of basic needs such as food to prevent treatment defaulting.

Employer's involvement in TB care

- To protect the rights of people at the workplace and to access treatment without fear of disclosure, the development of workplace policy and programmes as stipulated in the National Policy on TB and HIV/AIDS of 2007 should be encouraged.

<u>Recommendations for further research</u>

The researcher recommends that further research be conducted into the:

- Impact of combining TB and ARV departments on stigma.
- Impact of religious beliefs on TB defaulting.
- Effectiveness of employers' support in TB management.

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APPENDICES

APPENDIX 1

Interview guide for TB patients (in-depth interviews)

1. Could you please tell me about your experience of being on TB treatment?

Prompt:

- How long have you been on treatment?
- How did you feel about it when you first started treatment?
- How do you feel about it now?
- What helps you to take your medication?
- What make it difficult for you to take your medication?

2. How are your family/other community members treating you now that you are on treatment

Prompt:

- Did you observe any difference in their behavior towards you?
- What do they think about TB?
- What do they think of people who have TB?

3. How do you experience coming for follow-up visits at the clinic?

Prompt:

- How do you feel about your follow-up visits?
- How do you experience the health care providers at the clinic?

- What encourages you to come for follow-up visits?
- What makes you feel like not coming for follow-up visits?

If working, will ask:

4. How does being on treatment affect your work?

Prompt:

- How do you feel about taking tablets everyday during working hours?
- What helps you take your tablets as prescribed when at work?
- What makes it difficult to take your tablets at work?
- Do your colleagues/people at work know that you are on TB treatment? If no, why not?

APPENDIX 2

Interview guide for nurses working at TB clinic (Key informants).

What is your experience like with TB patients?

What do you think encourage TB patients to come for follow-ups visits to the clinic?

What do you think prevent them from coming for follow-up visits to the clinic?

What do you think are the factors/things that influence TB patients from defaulting treatment?

Prompt:

- Distance to the clinic
- Negative attitudes toward treatment
- Excessive alcohol consumption
- Treatment side effects
- Poor family support
- Stigma from community
- Poverty
- No medications at health facilities
- Language barrier

APPENDIX 3

UNIVERSITY OF THE WESTERN CAPE

School of Public Health

Private Bag X17 ● **BELLVILLE** ● 7535 ● South Africa

Tel: 021- 959 2809, Fax: 021- 959 2872

Participant Information Sheet

Dear participants

Thank you for your willingness to listen and participate in this research project. The research is being conducted for a mini-thesis which is part of the requirement for a Masters degree in Public Health (MPH) that I am completing at the University of the Western Cape.

Title of the research

Factors that contribute to treatment defaulting amongst tuberculosis patients in Windhoek district, Namibia.

Purpose of the study

The purpose of this study is to obtain an understanding of the factors that contribute to defaulting among patients who are enrolled in the TB treatment programme at the Katutura health center in Windhoek district, Khomas region, Namibia. Recommendations to the Ministry of Health and will be made based on the findings of the study to inform the implementation of a revised TB programme in the Khomas district.

Who is the researcher?

The study is being conducted by, Ms Tuwilika Kakili, as a partial fulfillment of a Masters Degree in Public Health, at the University of the Western Cape, South Africa.

Description of the research

The study will include interviews with TB nurses who are working with TB patients at Katutura health center. Furthermore, interviews will be conducted with TB patients who will be asked about their experiences of being on TB treatment and the challenges that are influencing TB treatment completion. It will take about 45 minutes – 1 hour to complete. If you agree to be interviewed, please sign the consent form provided. By signing, it will be understood that you have consented to participate in the project, and that you consent to publication of the results of the project with the understanding that anonymity will be preserved.

Participation

Your participation is voluntary and there is no penalty if you do not participate. If you feel uncomfortable about certain questions during the interview you may refuse to answer these questions or you may withdraw from the study completely without providing any reason for your withdrawal. However, I will appreciate it very much if you participate. You will be given refreshments at the end of the interview as a token of my appreciation of your participation.

Benefits and cost from the study

There will be no direct benefits to you from this study. However, the results of this study will be used in making recommendations and inform the revised implementation of the TB programme in the Windhoek district. There are no costs for participation in this study other than the time that will be spent on interviewing you.

What will be done to ensure confidentiality?

This is an entirely anonymous and confidential interview, and so your responses will not be linked to you personally in any way. To ensure security, the audio recorded tapes will be kept in

a locked cupboard and key. Data will be stored electronically in a database on a secured server and access is restricted by password to the researcher.

Questions

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Tuwilika Kakili

E-mail: tkakili@yahoo.com

Cell: +264811246900

Telephone at work +264 61 2033245

Or my supervisor

Suraya Mohamed

University of the Western Cape

Private Bag X17, Belville 7535

Telephone: (021)959-2628

E-mail: **sumohamed@uwc.ac.za**

Head of Department: Dr Uta Lehmann

Email: ulehmann@uwc.ac.za

Telephone: 0219592809

Dean of the Faculty of Community and Health Sciences: Prof Ratie Mpofu

Email: rmpofu@uwc.ac.za

Telephone: 0219592631

University of the Western Cape

Private Bag X17

Bellville 7535

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.

APPENDIX 4

UNIVERSITY OF THE WESTERN CAPE

School of Public Health

Private Bag X17 ● **BELLVILLE** ● 7535 ● South Africa

Tel: 021- 959 2809, Fax: 021- 959 2872

CONSENT FORM

Title of Research Project: Factors that contribute to treatment defaulting amongst tuberculosis patients in Windhoek district, Namibia.

If you choose to participate in the study, your signed consent is required before you can proceed for the interview. By signing you have agreed to the following: the study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name……..

Participant's signature…….

Researcher's signature ……

Date……

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Study Coordinator's Name: Suraya Mohamed

Private Bag X17, Belville 7535

Telephone: (021)959-2628

APPENDIX 5

REPUBLIC OF NAMIBIA

Ministry of Health and Social Services

Private Bag 13198 **Ministerial Building** **Tel: (061) 2032562**
Windhoek **Harvey Street** **Fax: (061) 272286**
Namibia **Windhoek** **E-mail: hilmanangombe@yahoo.com**

Enquiries: Ms. H. Nangombe Ref.: 17/3/3/AP **Date: 04th March 2010**

OFFICE OF THE PERMANENT SECRETARY

Ms. T. Kakili
P. O. Box 50597
Windhoek
Namibia

Dear Ms. Kakili,

RE: Factors that contribute to treatment defaulting amongst tuberculosis patients in Windhoek District Namibia.

1. Reference is made to your application to conduct the above-mentioned study.

2. The proposal has been evaluated and found to have merit.

3. Kindly be informed that approval has been granted under the following conditions:

3.1 The data collected is only to be used for academic purpose;
3.2 A quarterly progress report is to be submitted to the Ministry's Research Unit;
3.3 Preliminary findings are to be submitted to the Ministry before the final report;
3.4 Final report to be submitted upon completion of the study;
3.5 Separate permission to be sought from the Ministry for the publication of the findings.

Yours sincerely,

MR. K. KAHUURE
PERMANENT SECRETARY

"Health for All"