

**FACTORS RELATED TO REDUCED ADHERENCE TO TB TREATMENT IN
KEETMANSHOOP NAMIBIA.**

by

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DEDICATION

This dissertation is dedicated to all TB patients in Keetmanshoop municipal area, for their great support and contributions they showed me during my study.

DECLARATION

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I declare that the above dissertation is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

AMOS CHINYAMA

15 September 2017

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Full names

Date



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ABSTRACT

The purpose of this study was to explore factors related to poor adherence to TB treatment in Keetmanshoop municipal area in Namibia. A qualitative, exploratory design was used to explore basic information about the study. Participants were using purposive sampling technique. The researcher-implemented triangulation, based on three different categories of participants, namely Field Promoters (preferred), DOT supporters (more preferred), and TB patients (most preferred). Participants were chosen in a ratio of preference. 1:2:3 respectively. The transcripts and audio tapes from interviews were analysed using the thematic content analysis. Five main themes emerged. In order of descending prominence, these themes included: factors leading to lack of adherence to TB treatment, support to enhance adherence to treatment, existing behaviours determining adherence, suggestions to promote adherence to treatment and practices to promote adherence to treatment.

Key concepts

Reduced adherence; influence; Treatment interrupter; Participants; adherence; TB treatment

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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The World Health Organization (WHO), in its global plan to stop tuberculosis (TB), reports that poor treatment compliance has resulted in development of a mycobacterium TB strains that do not respond to first line standard treatment. The evolution of several challenges emanating from treatment interruption has therefore caused a simple treatment to appear a mammoth task (WHO 2012c:24). The majority of TB policy guidelines in Southern Africa, do not spell much on challenges faced by patients who interrupt TB treatment.

Keetmanshoop municipality area is part of Kharas Region's capital town of Keetmanshoop, located in the Southern part of Namibia. In 2015, according to TB statistics in Namibia (2016: s 06), about 45% of TB patients on treatment had once or more interrupted their treatment. Circumstances or challenges surrounding the interruption of treatment seem to be merely trivial to many. Furthermore, in those records, there are no data recorded. The challenges faced by these interrupters have not been investigated either. Ideally, the current study consolidated and clarified patient challenges shaded more light on benefits of community based treatment strategy in TB Treatment

1.2 BACKGROUND

1.2.1 The source of the research problem

In Namibia, challenges of adherence to TB treatment are major setbacks faced by patients taking TB drugs. It is widely accepted nationally, that there is need to strengthen adherence support to sustain and consolidate existing efforts (Namibia 2015: s08). The Directorate of special Programmes within the Ministry of Health, proposed that expanding, enhancing and addressing challenges facing community based TB programmes remains the backbone of treatment compliance (Namibia 2015: s18). Health workers are often frustrated when participants interrupt their treatment and a closer look at their challenges appears trivial. This is because since TB programmes were initiated by the government, there are no guidelines

on how to manage factors related to reduced adherence to TB treatment in Namibia. Furthermore, records on TB Registers at two clinics in Keetmanshoop Municipality, out of 130 participants using these two health centres, 62 of them did interrupt treatment at one point. That means about 48% of these participants were once interrupters (Namibia 2016: c19).

According to Theron, Zijena, Chanda and Rachow (2015: 253) reported that in Southern Africa, twenty six percent (26%) of participants on TB treatment, followed up at two or six months had one or more times interrupted their treatment for different reasons. Keetmanshoop district hospital annual reports indicate that defaulter rate from 2011 to 2015 is 5%, which reflects that treatment interruption remains at 5% as well. A defaulter is a secondary candidate to interrupter as defined as TB participants who interrupted treatment for two consecutive months (Namibia 2012: s41).

According to a study done in Morocco in West Africa, Nabil, Katil, Mohammed and Chakib (2012:22) say that although TB treatment is primarily given free, a high number of TB patients voluntarily interrupt their treatment before the end of the course. Basically 83 per cent of these participants had at one time interrupted treatment for different reasons and were fully aware of the consequences of interruption. According to a study done in Nigeria, Adejumo, Daniel, and Otesanya (2016:389-398) also proved that a higher proportion of TB treatment interrupters are supervised by supporters as compared to those supervised by health workers, hence there is need to further review that situation.

Despite the multi-sectoral effort being done by health care providers, TB Treatment compliance has serious challenges amongst supporters, health care providers and TB participants themselves. The challenges were ranging from psychological and physical stress, stigma within the family as well as from the general community members, in social isolation of the participants and their family. Because of these several reasons, a significant number of participants interrupting treatment ended up defaulting treatment altogether (SADC Secretariat TB Report 2012: 15). The need for inquiry to isolate factors contributing to reduction in TB treatment compliance has prompted the researcher to pursue the study.

1.3 STATEMENT OF THE RESEARCH PROBLEM

The National Tuberculosis Program (NTP) in Namibia reports that one in every six TB participants has once interrupted treatment. In Keetmanshoop district, which is part of NTP statistics, TB data are showing an average interruption rate of 5% as well and there is limited literature that officially publishes factors that influence the participants to interrupt their TB treatment. According to Theron et al (2015:255), more than twenty per cent of patients on TB treatment had interrupted it for various reasons.

Currently Keetmanshoop Municipality has a team of TB health workers whose duty is to follow these TB treatment interrupters. Without known factors the health workers find it challenging to assist the patients with regard to treatment interruption. Adejuno et al (2016:391) found that most of the patients who interrupted the treatment were supervised by the health workers. It is the intention of this study to find the factors that influence the patients to interrupt their treatment even when they are supervised by the health workers.

1.4 AIM AND OBJECTIVES

1.4.1 Research purpose

The purpose of the study was to explore the determining factors with regard to reduced adherence to TB treatment in Keetmanshoop municipal area.

1.4.2 Research objectives

The objectives of the study are to

- ❖ identify and describe factors that influence TB patients to interrupted treatment in Keetmanshoop Municipal area.
- ❖ make recommendations for further investigation of these factors so that patients may be able to comply with their treatment.

1.4.3 Research question

One grand tour question was asked to explore the determining factors with regard to reduced adherence to TB treatment in Keetmanshoop Namibia. The question was: What are the reasons that make you interrupt your TB treatment. Follow up questions were used dependent on the participants' responses and in line with the objectives.

1.5 SIGNIFICANCE OF THE STUDY

The findings of this study contribute to practice and help the policy makers understand factors that influence the participants to interrupt TB treatment. The study adds to the limited literature about factors that influence the TB interrupters.

1.6 DEFINITION OF TERMS

1.6.1 Definition of key concepts

Adherence: World Health Organization (WHO 2003:3) defines adherence as the extent to which a person's behaviour – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider.

Influence: Influence is defined as the capacity to have an effect on the character, development, or behaviour of someone or something, or the effect itself (*Oxford Learner's Dictionary* 2010:769).

Participants: Burns and Groove (2011:84) define participants as persons recruited by the researcher to participate in a study because of their knowledge and experience related to the study.

Reduced adherence: Reduced adherences defined as decreased compliance to the programme or therapy (Namibia 2016: s24).

Treatment interrupter: Namibia (2016: s06) defines treatment interrupter as the patient who took anti-TB treatment for at least one month and discontinues it for less than eight consecutive weeks.

1.8 METHODOLOGY

1.8.1 Research paradigm

The qualitative paradigm was followed in the present study. According to McMillan and Schumacher (2014:28-31), qualitative research refers to a plan for intervention and systematic collection of data in form of words in a natural setting. Qualitative researchers stress the socially constructed nature of reality. In this study, qualitative method was used and it generated rich, detailed data that left the participants' perspectives intact and provided multiple contexts for understanding of factors influencing TB participants' interruption of treatment.

1.8.2 Research design

Research design is the overall plan for integrating the different components of the study in a coherent and logical way, thereby, therefore effectively addressing the research problem (McMillan & Schumacher 2014:44). An exploratory design is conducted about a research problem when there are few or no earlier studies to refer to or rely upon to predict an outcome. The focus is on gaining insights and familiarity for later investigation. The researcher will use qualitative exploratory design with the purpose of gaining basic information about factors influencing TB participants' interruption of treatment. The advantage of using exploratory design is to enable the researcher to identify themes, ideas, perspectives and beliefs, experienced by a TB participants causing to interrupt treatment (McMillan & Schumacher 2014:31).

1.9 SCOPE OF THE STUDY

The research was confined to Keetmanshoop District in an urban community selected in view of travelling cost. Participants will be purposively selected from the two clinics' TB registers, and that gave the identification of participants' supporters. Participants and their supporters were interviewed using the interview guide. In case of language barrier, the researcher used the interpreter such as local TB field Promoter as a research assistant. Based on the small sample the findings were not be generalized

1.10 STRUCTURE OF THE STUDY

The study explores the determining factors with regard to reduced adherence to TB treatment in Keetmanshoop municipal area. It also assists in designing interventions, which might improve adherence to TB treatment amongst patients on TB treatment.

Chapter 1 presents the orientation to the study

Chapter 2 covers the literature review

Chapter 3 describes the research design and methodology

Chapter 4 is the analysis, presentation and description of the research findings

Chapter 5 is conclusion and recommendations

1.11 CONCLUSION

Chapter 1 is the overall orientation of the study. It covered introduction to the study and background to the research problem. Statement of the research problem highlighted the rationale of the study, followed by the purpose, objective, and research questions. Significance, definitions of terms, research design and methodology and scope and limitations, also forms part of the orientation.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Active TB disease is usually treated for six months or more with anti TB medicines and patients' adherence to TB treatment is key to a successful therapy (Namibia 2016: s2). Records on TB Registers at two clinics in Keetmanshoop Municipality, out of 130 patients using these two health centres, 62 of them did interrupt treatment at some point. That means about 48% of these patients were once interrupters. In this view, it is clear TB treatment period is eminently long; hence, support for adherence to all spheres of TB treatment is critical to patients. (Namibia 2016c: 19)

2.2 TUBERCULOSIS

2.2.1 Physiology of tuberculosis

The bacterium *Mycobacterium Tuberculosis* produces an infectious communicable disease called tuberculosis. It mostly affects the lungs but may spread to other parts of the body. Once the bacteria are inside the lungs, they multiply and cause inflammation. If the immune system of the body is weak, it becomes active TB. This may precipitate common signs and symptoms, which include productive cough, dyspnoea, chest pain, night sweats, fever and haemoptysis. However, for people with stronger or normal immune system, TB bacteria may be inactive and remains dormant for life in their body. This is called latent TB (Tortora & Derrickson 2014:881). In some cases, patients who fail to adhere to TB treatment may develop resistant TB. This is called Multi-drug resistant TB (Namibia 2012: a35).

2.2.2 Approaches to adherence

Promoting adherence through a patient centred approach means easy access to treatment, choosing with the patient the most convenient time, place and assisting the patient with other social services contributing to adherence to his/her treatment. (Namibia 2016: s8).

2.2.2.1 Easy access

This notion explains the concept of accessibility as one of the major approaches to enhance adherence. Accessibility as a principle of Primary Health Care entails that patient should not struggle to reach where they get health services (Stanhope & Lancaster 2014:39). Other supporting studies indicated that 16% of non-adherence to treatment was because of time which patients spend travelling for their medication. Therefore, closer proximity to treatment indicated a positive adherence rate (Obwoye, Sang & Wakube 2016:92). Besides these problems, there are patients still developing drug resistant TB due to treatment interruption. In this view, the researcher suggested to investigate challenges faced with patients on TB treatment, therefore the study takes a closer look at why these patients refuse to take medication, or why patients cannot cope with prescribed regimen.

2.2.2.2 Convenience of time and place

Generally, patients are ordinary members of the community, and they have their own day-to-day living activities. A programme of Adherence to treatment should be an advantage to the patient through free from disturbing their daily activities. Treatment adherence should not be a burden of creating time and place, but it should fit in a patient normal daily schedule (Namibia 2012: s42). This makes treatment adherence convenient and balanced, because the patient knows better how to manage his/her own time and place

2.2.2.3 Social services

Generally, TB is a global threat; therefore, it needs collective efforts to control. Numerous recent studies have shown that a single intervention is not an effective solution. The delivery of social support services should be necessary in all TB treatment programmes. This enables welfare support to sustain adherence to TB treatment and hence contributes to improving quality of life of patients (WHO 2014:12). Patients suffer from TB for different reasons. Social support is much needed because patients may not be able to manage this problem alone. Government efforts, non-governmental organizations, community participation and family support are integral components to consider in interrupting TB treatment (Namibia 2012: s41-43).

2.2.3 Adherence to TB Treatment

In Namibia, the major goal of adherence to TB treatment is to cure all patients who are commenced on TB therapy. In order to achieve good adherence, health service providers have to embark on a more patient-centred approach (Namibia 2016:s8). According to the study done in Brazil south America, Viegas, Miranda, Haddad, Ceccato and Carvalho (2017:22-29) said that, a patient centred approach entails examining patient's external and internal environmental factors. The study also established that, it is patient's external and internal environmental is critical because the approach both direct and indirect, controls the TB patient's behaviour towards his/her treatment. In this view, adherence precedence becomes irregular because of change in their normal day-to-day living and survival activities. The study further explains that non-compliance with treatment in the first few months is also greater than in subsequent months; therefore, the goal of adherence has to be more focused towards the initial stages of treatment.

2.2.4 Components of adherence to TB treatment

2.2.4.1 Directly Observed Treatment (DOT)

DOT is the act of observing a TB patient swallowing his prescribed medicines. It includes continuous psychological and moral support to the patient in his/her endeavour to successfully complete TB treatment.(Namibia 2016:s 5).IT was also further explained that a DOT supervisor must watch the patient swallowing the right medicines, correct dosage, right time and for an appropriate duration (Namibia 2016:s 8).

Since 2005, applying DOTS to manage new cases of all forms of TB at global level, has achieved about 75% treatment success rate. WHO, its global target from 2005 to 2015 recommended 85%.In general, amongst low-income countries like Namibia, the 10% failure to reach recommended target was mostly determined by social inequality, poor adherence to treatment and development (WHO Global Report on MDG 2017. 41). However, despite efforts and identification of the general causes at global level, treatment interruption still exists and these gaps need to be further investigated.

2.2.4.2 *Knowing patients from onset*

In 2007, WHO bulleting volume 85 commented that poor adherence is a problem in the public health system. Therefore, it is a right for public health authorities to demand adherence if the patient is tested sputum positive. WHO established a viewpoint in that patients do not comply with their TB treatment because they do not know, do not care and do not understand the magnitude of the problem? The department of health also proposed that for spearheading adherence to treatment, it is important for a health worker to know the patient. This includes medical and social history, beliefs and attitudes about TB, sources social support, potential barriers to treatment adherence and life style of the patient (Namibia 2016:s 8). It is in this view that knowing the patient's background is a recommended basic component in TB community studies.

2.3 INTEGRATION OF ADHERENCE TO TREATMENT

According to the studies done in Sub-Saharan Africa, Ogundele, Moodley, Pillay and Seebregts (2016:669-681) say that the most sensitive purpose of integrating TB treatment adherence is understanding the factors that influence adherence behaviour. The study established that adherence behaviour is a complex phenomenon influenced by confluence of diverse personal, cultural and socioeconomic factors varying between communities in different regions.

In Namibia, integration of adherence starts when a patient fails to turn up for his/her treatment. The second day, the nurse may telephonically try to contact the patient. The DOT register is verified and the TB field promoter is informed to start tracing the patient. Soon after the patient is found, investigations begin immediately to establish the cause of poor adherence. (Namibia 2012: s5).As advocated internationally, the situation of tracing a TB interrupter should be done in a systematic, friendly and non-judgmental manner. The investigator is recommended to listen to the patient's reasons for missing a dose (WHO 2014.12). If all these interventions were properly followed and implemented, TB registers in Keetmanshoop could not have 48% interruption rate (SeeSection1.2.1), hence the researcher has identified gaps for further investigations.

2.3.1 General concept of adherence to TB Treatment

According to the study done in Equatorial Guinea, Fagundez, Perez-Freixo and Eyene (2016:01) say that incomplete adherence to TB treatment has been globally identified as one of the most serious remaining problems in global tuberculosis control. Low therapeutic compliance increases TB prevalence, implying an increase in TB mortality and the cost of TB control programmes. Adherence to treatment means following the prescribed effective course of treatment by taking all the prescribed medication for the entire duration (Namibia 2016: s 24).

TB is curable if patients take a complete and uninterrupted course of the appropriate medicine. It is the aim of the TB programme to ensure that successful treatment of all patients on treatment is achieved. In this view, promoting adherence through patient centered approach is more effective than spending resources on interrupter/defaulters tracing. (Namibia 2015: s 15). In other studies done in East Africa, non-adherence to TB treatment is caused by a negative attitude towards health staff, quantity of medication, alcohol consumption and busy occupational schedules (Obwoye et al 2016:92).

2.4 PERCEPTIONS

Perception is the process by which information about the world, received by the senses, is analysed and made meaningful (Oxford Dictionary of Nursing 2014, "context"). According to a study, which was conducted in Zambia, Cremers, Gerrets and Kapata (2016:06) said that, amongst 193 TB patients interviewed, 15% had no idea about the consequences of failing to adhere to TB treatment, and 52% believed that TB could be contracted by sharing cup or plate with a TB patient. This has led to the development of stigma. About 28% believed that it is witchcraft. Some claimed that the family is cursed, God or fallen angels are angry, hence the patient may end up interrupting treatment. Some reiterated that immoral behaviour like drinking alcohol, promiscuity, prostitution and smoking could cause TB. It also believed that when these patients get sick, they never associated their sickness with TB.

2.5 CONCLUSION.

This chapter elaborated the concept of TB in relation to adherence. The literature also touched on a brief physiology of tuberculosis. The idea of complying with treatment is not only about completing the course. The chapter discussed a comprehensive and holistic approach in enabling adherence to TB treatment. The discussion also touches on components and integration of adherence to TB treatment as accepted in Namibian context. Further investigation is eminent as suggested by several scholars, because the problem of poor adherence continues to surface (Namibia 2016c:19). There also different perceptions existing in the same community where the study was being conducted. The next chapter discusses the research design and methodology of the study.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

3.1 INTRODUCTION

According to McMillan and Schumacher (2014: 28-31), qualitative research refers to a plan for intervention and systematic collection of data in a natural setting, in the form of words. It is also research conducted using a range of methods that use qualifying words and descriptions to record and investigate aspects of social reality. (Bless, Higson-Smith & Sithole 2013:394) Qualitative researchers stress the socially constructed nature of reality. In this study, qualitative research was used because it can generate rich and detailed data. It leaves the participants' perspectives intact and provides multiple contexts in understanding various factors, which are related to, or which influence TB participants towards poor adherence to TB treatment.

3.2 RESEARCH DESIGN

Research design is the overall plan for integrating the different components of the study in a coherent and logical way, and therefore effectively addresses the research problem (McMillan & Schumacher 2014:44). Generally, research design provides answers to research questions (RSC2601 Only Study Guide 2013:124).

An exploratory design was used in this study because the problem of poor adherence to TB treatment has few studies to refer to or rely upon to predict an outcome. The focus was gaining insights and familiarity for later investigation (Bless et al 2013:391).

The researcher used qualitative exploratory design with the purpose of gaining basic information about factors, which are related, or influencing poor adherence to TB treatment. The advantage of using exploratory design enabled the researcher to identify themes, ideas, perspectives and beliefs, related, or influencing TB participants towards poor adherence to TB treatment (McMillan & Schumacher 2014:31).

3.3 RESEARCH METHOD

3.3.1 Sample

According to Brink et al (2012:131), a sample is part or fraction of a whole. It can be a subset of a larger set, selected by the researcher to participate in a study. It consists of a selected group of the elements or a defined population. In this study 15 HIV positive mothers, made a subset of all HIV positive mothers who opted for exclusive breastfeeding in postnatal ward at a particular hospital, Limpopo Province.

3.3.1.1 Target population

Target population is a set of individuals or objects having some common characteristics, which a researcher is interested in, and to which he or she would like to generalize the study results (Polit & Beck 2012:738,774). The researcher considered the entire set of individuals or elements, who were meeting the sampling criteria as target population.

According to Brink, Van der Walt and Van Resnburg (2016:131), target population is the setting of boundaries with regard to elements or participants the researcher wants to make generalization about. In this study, the target population was used to enhance the researcher to identify and define eligible participants. The researcher was also able to describe and stipulate the specific legibility from the entire group of TB patients and their related constituents in the entire Kharas Region.

3.3.1.2 Sampling

According to Polit and Beck (2012:275), sampling is the process of selecting cases to represent an entire population so that inferences about the population can be made. The researcher implemented data triangulation, based on the assumption that any bias inherent in a particular data source would be neutralized. That is if the data were used in conjunction with other sources (Polit & Beck 2012: 176). In this view, the researcher used purposive sampling technique.

Palinkas, Horwitz, Green, Wisdom, Duan and Hoagwood (2015:533-544) describes purposive sampling technique as identification and selection of information-rich cases

related to the phenomena of interest. These cases or individuals were readily available, willing to participate, able to communicate experiences and opinions in an articulate, expressive and reflective manner. The researcher included all the three different categories of participants namely Field Promoters, Treatment Supporters and TB Treatment Interrupters, in a ratio of 1: 2: 3 respectively. According to Hennink, Kaiser and Marconi (2016:591-608) in qualitative research purposive sampling, a minimum of 10 to 20 participants collectively, may be generally sufficient to reach data saturation. Therefore, a total of 24 participants were invited (see Table 3.1).

The sampling was done using the criteria shown in the table below. The researcher also considered at least 6 (six) participants in ratio of preference, from each part of the geographical area under study as indicated in the table below.

Table 3.1 Sampling

	Field Promoters	Treatment Supporters	TB Patients (20 to 60 years)	Participants
Ratio in order of preference (1:2:3)	Participants (Ratio: 1)	Participants (Ratio: 2)	Participants (Ratio: 3)	
Geographical Areas				
Noordhoek & Westdeen suburbs (Keetmanshoop town)	1	2	3	6
Kronlane Medium density suburb	1	2	3	6
Tseiblaagte High Density suburb	1	2	3	6
Eleni Informal settlement	1	2	3	6
Total	4	8	12	24

3.3.1.3 Ethical issues related to sampling

The term 'Ethics' refers to certain standards which a particular community or group of people agrees to regulate its behaviour (RSC2601 Only Study Guide 2013:109). According to Bless et al (2013: 28-34) every research study should conform to universal ethical principles of research for the benefit of the public. These principles include non-maleficence, beneficence, autonomy, justice, fidelity, participant's rights and dignity.

3.3.1.3.1 Non-maleficence

During selection and participation, both the researcher and participants were free from any form of harm by participating in the research project. This included intentional or unintentional harm (Polit & Beck 2012: 152). In this study, the researcher is a registered nurse and the participants are health service consumers. Therefore, by observing this principle, the researcher was obliged and able to sanctify and uphold the quality of life principle. That is non-inflicting harm on bio-psychosocial wellbeing of the TB participants.

Beneficence: was also considered to ensure that research findings are significant in promoting the welfare of the participant. (Brink et al 2016:35-36). In this study, TB participants will benefit because the study is all about improving their ability to adhere to treatment.

3.3.1.3.2 Autonomy and voluntariness

The participants were not coerced to participate in research, and individuals' actions and choices were considered to make a decision whether to participate in research or not. (RSC2601 Only Study Guide 2013:112). In this study, respect for individual thoughts and actions means the researcher allowed participants to make choices according to their convictions (Bless et al 2013:30). This means the researcher had to consider, their choices if they were not infringing others or overriding their wellbeing. Prior to the participation, the researcher gave individuals relevant, clear and sufficient information. (See Annexure E).

3.3.1.3.3 Justice

Justice refers to the right to fair selection and treatment before, during and after sampling (Brink et al 2016:35-36). The researcher did not discriminate against any human characteristic i.e. race, sex, disability, gender, social status and any others. In this study, justice is important because the researcher selected/ sampled participants based on study requirements and not on vulnerability.

3.3.1.3.4 Fidelity

The researcher will be faithful to keep promises/agreements during and after research. Engaging in deception and breaching confidentiality is ethical violation that infringes participants' rights (Pera & Van-Tonder 2014:38-40).

Respect for participant's right and dignity:

This study did not violate in any way the basic human and civil rights when participants were recruited (Bless et al 2013:31). Hence, the dignity and self-respect of participants were preserved by protecting human rights, understanding, and respecting the culture of participants.

3.3.1.4 Inclusion Criteria

A sample is a part or fraction of a whole, consisting of selected group of elements/ units of analysis from a defined population, thus selected by the researcher to participate in a research study (Brink et al 2016:132).

3.3.1.4.1 Inclusion Criterion 1: Field promoters

The first sample was made up of TB field promoters who were selected according to preference of ratio one (1) as indicated in the table above (see table 3.1). These field promoters included only those who work within specific areas of Keetmanshoop municipal area and involved in these TB treatment interrupters on a daily basis. They were included irrespective of age, race and sex or gender. They represented health workers and are the

ones tracing participants in case they develop poor adherence. They had some information because they are the 'go between' participants in the community and hospital/clinic.

3.3.1.4.2 Inclusion Criterion 2: Treatment supporters

The second sample was made up of the treatment supporters, who were selected according to preference of ratio two (2) as indicated in the table above (see Table 3.1). These treatment supporters were also included irrespective of age, race and sex. They directly observe participants during swallowing of tablets at their homestead. The gold standards for managing TB in Namibia explain that, every participant on TB treatment in every area like Keetmanshoop Municipal area must have a supporter at home (Namibia 2012: s 40-41). This is the supporter, which the researcher used. The researcher included this group because of their relationship with participant, and their contribution towards poor adherence, is direct hence an issue under spotlight by the researcher in this study.

3.3.1.4.3 Inclusion Criterion 3: TB Patients

The third sample was the most preferred participants, who were selected according to preference of ratio three (3) as indicated on table above (see Table 3.1). These patients were selected irrespective of gender, race or tribe. The participants considered were currently on TB treatment for at least more than a month and, within the age range of 20 to 60 years (productive age group). Gorityala, Mateti, Konuru and Srinivas (2015: 226-229) said that most TB treatment interrupters are within the age group 35 to 60, hence the researcher prioritized this age group. This participant must have interrupted treatment at least once or more according to the clinic records and interruption period should be less than eight weeks. The participants considered were only residents within Keetmanshoop municipal area.

3.3.1.5 Exclusion Criteria

Not all TB patients below 20 years and above 60 years were eligible. Participants not residing within Keetmanshoop municipal area that means TB patients residing outside the stipulated geographical research area. Amongst these patients, all those who interrupted their TB treatment for more than eight (8) weeks, meaning those TB patients who are categorized as

defaulters are excluded as well. Other participants excluded were DOT supporters not residing in Keetmanshoop municipal area, and not supporting the patients who are participating in research. TB field promoters not covering Keetmanshoop municipal area join the excluded group as well

3.3.2 Data Collection

According to WHO (2017), data collection is the ongoing systematic collection, analysis, and interpretation of health data necessary for designing, implementation and evaluating public health prevention programs. Study site is the overall location where a study is conducted (Polit & Beck, 2012:473). Data collection was done solely within site Keetmanshoop Municipal Area, in Karas Region in the Republic of Namibia. The study sites included areas covered with Keetmanshoop Clinic and Daan-Viljoen Clinic situated in Keetmanshoop Municipal Area. The patients were from Kronlane Medium density suburb, which is, located about 3km from Keetmanshoop Clinic. Tseiblaagte High Density suburb surrounds the clinic while Noordhoek, Westdeen suburbs and Eleni informal settlement is situated 4km Southern side of Keetmanshoop Clinic. Both clinics are within Keetmanshoop Municipality area (See Table 3.1).

These clinics operate five days a week from 08h00 to 17h00. The site was purposively selected because of its proximity and convenience for the researcher who works at the Health Training Centre, adjacent to the hospital within municipal area. In addition, the site was selected for accessibility purpose to the participants as people treated for TB come to the Clinic regularly for their treatment.

3.3.2.1 Data collection approach and method

In-depth interviews

Interview is a method of data collection in which an interviewer obtains responses from a participant through face-to-face, telephonic or electronic means (Brink et al. 2016:157). The interview guide was developed in English because it is the official language of Namibia. However, translation into vernacular was done by the research assistant, in order to clarify other terms, which were not clear. Kallio, Pietila, Johnson and Docent (2016:2954-2965)

describe the development of a semi-structured interview guide in four basic phases. These include identifying the prerequisites of using semi-structured questions, retrieving and using previous knowledge, formulating preliminary guide/piloting the guide and presenting the final interview guide.

One grand tour question was asked to explore the determining factors with regard to reduced adherence to TB treatment in Keetmanshoop Namibia. The question was: What are the reasons that make you interrupt your TB treatment. Follow up questions were used depending on the participants' responses and in line with the objectives. The researcher used face-to-face in-depth interviews, with audio recorder and a notebook during interviews. This was done to enhance review of the conversation, quoting, and enabling eye contact to assess feelings and review the conversation altogether. (Bell & Waters 2014:184). Notes were taken by the researcher to keep track of follow up questions in interview process. These interviews were conducted precisely at the local clinic on agreed and convenient time. The researcher managed to solicit rich, detailed material that was used to obtain detailed information (McMillan & Schumacher 2014:381). Participants managed to explain important events during TB treatment and common challenges they face during TB treatment were noted.

The third stage was formulating and pretesting the preliminary guide. The guide was tested on three patients in TB ward at Keetmanshoop State hospital. The second interview guide was tested on two locally available DOTS supporters and thirdly single field promoter. Pretesting of data collecting instrument is done to identify flaws, refine and assess time (Brink et al 2016:57). The researcher adjusted the guides by removing other unnecessary questions to save time. Adjustments were done as necessary.

3.3.2.2 Data collection process.

The researcher started by with familiarizing himself with the participants because he is a health worker within the same geographical area. He used statistical data from the TB registers at the two clinics as stipulated in Section 3.3.2 (see 3.3.2 Data collection). These registers were used as a source for purposive sampling and triangulation prior to data

collection. (See table 3.1). Inclusion criteria was then considered as stipulated above (see 3.3.1.4 Sample).

The researcher was dressed in casual wear, together with the research assistant and conducted several interviews at the clinic. This was done because participants may be reluctant to share personal information with the interviewer if there are differences in personal characteristics e.g. clothing, race, gender or language used. (RSC2601 Only Study Guide 2013:184). The research assistant managed the challenges of language barrier and other vernacular clarifications. Face-to-face in depth interviews were conducted using interview guide. Interview guides were in three different but related formats in view of triangulation. Semi- structured questions were drafted in the interview guide to assist the researcher focusing on the subject matter (see Annexure G).

The interviews started with preparing the mind-set, ice breaking/ rapport, that was explaining the overview of the interview, intended use of the data, issues of confidentiality, anonymity and permission to record interview while taking notes. This was done by reading forthwith the participant information sheet (See Annexure E). The participant was then requested to sign consent as indicated (See Annexure F). This is stipulated in 3.3.2.3 as Characteristics of the data collection instrument. Exact words were recoded and immediately coded for formulating themes.

Frequent briefings took place between the researcher and the supervisor. Maree (2016:123) explains that extensive probing and verification of phenomenon under scrutiny is important in the study. Therefore, field notes were sent to the participants to correct errors of facts. In this view, the researcher managed to allow participants to verify whether interpretation of what they had shared with the researcher was correct.

3.3.2.3 Ethical considerations related to data collection

When involving humans in research, the main ethical issues to be considered include voluntary participation, obtaining informed consent, risk reduction for participants, ensuring confidentiality and privacy of participants. Institutional ethical approval is also mandatory (Polit & Beck, 2012:152-160).

The researcher applied for ethical clearance from the Research Ethics Committee, Department of Health Studies (UNISA), and was issued an ethics approval note. (See Annexure B). Ethical clearance was also issued from Ministry of Health and Social Services Namibia, Office of the Permanent Secretary (See Annexure D).

The researcher had to do preparation of interview mind-set (section one of interview guide) and reading Participant information sheet. This was done so that the participant was able to participate voluntarily and independently without coercion. All participants were within the adult age range of 20 to 60years (see 3.3.1.4 Sample); therefore no guardian involvement was necessary. No participant was penalized for not participating, though fortunately all the participants were willing to participate.

Participants asked questions, and the research assistant gave clarification in the vernacular. Verbal and written informed consent was initiated from and to all those who participated in the study. The interview guide had no names, neither any hospital number nor identity number or date of birth to ensure anonymity. Interviews were conducted in privacy and a single participant was subjected to semi-structured questions at a time. This enhanced freedom of expression without victimization or labelling. The researcher also maintained an non-judgmental attitude towards participants.

However, some participants seemed to be giving information, which they thought the researcher wanted hear. This is referred to as the Hawthorne effect. This is because all the participants were aware that they have been selected to participate in the research. The other problem was participants also seemed to be over confident that their problems were about to be solved. In this case, the researcher had to go deeper for further probing to maintain internal validity of this enquiry

3.3.3 Data management

In this study the researcher analysed the data management was done according to Bazeley's (2015:63) seven steps to managing Qualitative Databases. In this qualitative study, the researcher managed and analysed the data guided by these steps:

Step1: The important information. The researcher kept the copies of the important information safe and confidential. Original copies of interview transcripts/ or field notes were considered having important information. Therefore, the researcher duplicated these documents as a backup plan in case originals went missing. Important words or phrases were marked/ highlighted conspicuously on interview scripts to mark key information. Field notes were used for follow questions or discussions on subsequent interviews. Audio files were also duplicated and recorded on a compact disc to back up important information.

Step2: The field notes. The researcher arranged the field notes in chronological manner and labelled the audio tapes in dates and time. Two files were created. One for the original field notes copies, which stays with the researcher, and the other duplicate copies for back up. The file for backup copies was kept in training centre strong room to prevent unauthorized access. These notes were labelled or tagged by letters, dates and time.

Step 3: Storing data. The researcher created unique names during storage of the audio tapes for easy retrieval. The unique names were letters, with corresponding dates and time in ascending order. These audio files were kept in a password protected computer file. They were also copied on a compact disc for back up, and the disc kept under lock and key. Retrieving particular data is easy by only typing the tagged letter against and/or date or time, the interview was conducted. Hard copies of field notes were kept in two lever arc files. Duplicate file was kept in the training centre strong room. The original copy was also kept under lock and key in researchers' office.

Step 4: Cataloguing.

In view of qualitative exploratory design, Bless at al (2013:351) said that, when a researcher wants to explore and/or describe a phenomenon, it is more appropriate to withdraw codes directly from the data. This enabled the researcher to ascertain that the analysis was directly relevant to the characteristics of the data. In this study, the researcher managed to identify meaning units prior examination of the data. Codes were formed and each code was then given an identification (cataloguing). Cataloguing was done in form of alphabetical letter on every code (see table 4.2).

Step 5: Labelling of interviews. The researcher labelled the interviews tapes in the manner that does not reveal the participants identity. Labelling was done in form of a table. Each interview was given a date and time it was conducted. The second label was the category of the participant choosing from the patient, DOT supporter or field promoter). Third label was the phase of interviews. In this study, they were three phases, which the third phase reached data saturation. Example of the table below explains the researcher’s method of labelling interviews.

Table 3.2: Method used labelling audio files

Date	Category of participant	Interview phase i, ii & iii	Duration of interview in minutes	KEY
This is the date and time the interview was conducted	There were three different categories of participants as stipulated in inclusion criteria	Data collection was done in three phases.	Recorder with a stop watch	P1—patient number one FP1—Field promoter number one DS1—DOT Supporter number one

Step 6: Checking missing data. The researcher frequently checked for any missing data for early detection and correction. During interviews, the researcher would repeat what the participant said. Verifying and recapturing everything discussed during data collection. The researcher was also comparing written field notes and the audio replay to ensure that everything was captured.

Step 7: Retrieval system. The researcher developed a system for easy retrieval of the files for reading and reviewing. The audio files were arranged in ascending by dates, identified by category of participant in the computer. Field notes copies could be easily accessed from the file.

3.3.4 Data analysis

The data analysis was conducted and the researcher used the eight (8) steps of Tech's inductive, descriptive open coding technique (Creswell 2014:198)

Step 1 – Reading through the data

The researcher got a sense of the whole by reading all the verbatim transcriptions carefully. This gave ideas about the data segments meaning. The meaning emerged during reading were written down and all ideas as they come to mind. The researcher carefully and repeatedly read the transcripts of all the participants and understood them.

An uninterrupted period to digest and think about the data was created. The researcher engaged in data analysis and wrote notes and impressions as they come to mind.

Step 2 – Reduction of the collected

The researcher scaled down the data collected to codes based on the existence or frequency of concepts used in the verbatim transcriptions. The researcher then listed all topics that emerged during the scaling down. The researcher grouped similar topics together, and those that did not have association were clustered separately. Notes were written on margins and the researcher started recording thoughts about the data on the margins of the paper where the verbatim transcripts appeared.

Step 3 – Asking questions about the meaning of the collected data

The researcher read the transcriptions again and analyse them. This time the researcher asked herself questions about the transcriptions of the interview, based on the codes (mental picture codes when reading through) which existed from the frequency of the concepts. The questions were "Which words describe it?" "What is this about?" and "What is the underlying meaning?"

Step 4 – Abbreviation of topics to codes

Codes were written next to the appropriate segments of the transcription. Differentiation of the codes by including all meaningful instances of a specific code's data was done. All these codes were written on the margins of the paper against the data they represent with a different pen colour as to the one in Step 3.

Step 5 – Development of themes and sub-themes

The researcher developed themes and sub-themes from coded data and the associated texts and reduced the total list by grouping topics that relate to one another to create meaning of the themes and sub-themes.

Step 6 – Compare the codes, topics and themes for duplication

The researcher in this step reworked from the beginning to check the work for duplication and to refine codes, topics and themes where necessary. Using the list of all codes, she checked for duplication. The researcher grouped similar codes and recoded others where necessary so that they fit in the description.

Step 7 – Initial grouping of all themes and sub-themes

The data belonging to each theme were assembled in one column and preliminary analysis was performed, which was followed by the meeting between the researcher and co-coder to reach consensus on themes and sub-themes that each one has come up with independently.

3.4 TRUSTWORTHINESS

Validity is a broad concept that tells us whether an item or instrument measures or describes what it is supposed to measure or describe. However, it is further understood that if the design of research can provide credible conclusion, it bears the constructs of validity (Bell & Waters 2014:121). Noble and Smith (2015:3) said that the validity of a study is determined by the precision in which the findings accurately reflect the data.

3.4.1 Credibility

According to Polit and Beck (2012:585) the credibility of a study refers to having a believable status or confidence in the truth of the data collected and interpretations of that data. The researcher identified legible participants and recorded the information, purpose, the core message. The general information was verified from other sources as well. Realistic and unfamiliar terms were clearly explained by the research assistant and participants as well. The researcher used purposive sampling; therefore, he managed to identify eligible participants who get it easier to understand the gravity of the study.

Prolonged engagement in the field

The researcher did at least three phases of engagements with participants. The first phase included all chosen participants and took most of the period earmarked for interviews. The second phase included half of the total participants. The researcher decided to engage those participants because new data were very limited in the first few interviews of second phase. The last engagement with participants was only a third of the total number. This was because there was no new data forthcoming. The Researcher's office contact number was also given to participants, in case they might need to discuss, further question or clarity needed, were and are still free to do so for the interest of the study. Data saturation level was reached; this meant that there was no new information emerging from the participant. Hence, the researcher had to choose fewer participants, whom he saw was having more exposure to the subject.

Persistent Observation

Persistent observation actually started during data collection. The researcher would carefully observe body language during interviews. This was done to mark the area of sensitivity or concerned issue. This would promptly motivate the researcher to probe more for clarity. The researcher would further observe continuously the field; the virtue was to enhance follow up questions and further discussion.

During audio replay, important words and phrases were written and scrutinized for further clarity. The researcher constantly re-checked participants' DOT register to examine if discussion done had any impact on their adherence behaviour.

3.4.2 Conformability

Conformability is defined by Maree (2016:125) as the degree of neutrality or the extent to which the findings of a study are shaped by the participants and not influenced by the researchers' bias, motivation or interest. As mentioned above, all steps and processes were documented in the research enquiry to maintain objectivity, and not necessarily reflect the researchers' interests. It is very possible that the researcher will have been tempted to see what he wants to see because of the relationship built with the participants. Therefore, the researcher used steps outlined for verifying legibility of the participant and peer evaluation. The researcher also included citations reproduced from tape recorders, recorded during

interviews. This enabled the researcher to convey clear messages of what the respondent was trying to say. This was done to avoid the researcher's own predetermined opinion of the subject.

However, the main threats to the conformability of this study were that, during sampling, random sampling was not used. Instead, the researcher used purposive sampling. This means the samples might not have been a true representation of the whole population (Morrone & Myer 2014:106). It is also in this view that, challenges may arise if the researcher wants to generalize the results to the general population in the area of interest. (Maree et al. 2016:197).

3.4.3 Dependability

Dependability refers to the provision of evidence such that if it were to be repeated with the same or similar participants in the same or similar context, its findings would be similar. The term thus refers to the stability of data over a time Brink et al (2012:172). One question was asked to all participants in a similar way to get the same response from the participants if it were to be repeated on the same participants. The researcher used probing in a way that it did not change the meaning of question.

Code-recode strategy

During the code-recode strategy, the researcher coded the same data twice by giving at least one or two weeks' gestation period between each coding. The results from the two coding were compared to see if the results were similar or different. This helped the researcher to understand deeply the patterns of the data; and improve the knowing of the participants narrations.

3.4.4 Transferability

Transferability refers to the ability to apply the findings in other contexts or to other participants. The researcher was not primarily interested in generating findings, but rather in defining observations within the specific context in which they occur (Brink et al 2012:173). The findings of this study cannot be generalised as the study was conducted in one setting meaning postnatal ward in a particular hospital, Namibia Province South Africa.

Purposive sampling

The researcher focused on key informants, who were particularly knowledgeable about the issue under investigation. Purposive sampling allows the researcher to decide on why she or he wants to use a specific category of informants in the study and it provides greater in-depth findings than other probability samplings methods

3.5 ETHICAL CONSIDERATIONS

The researcher obtained permission from the Namibia Department of Health Research Committee to conduct a study a particular clinic, Namibia Province. Permission was also obtained from the Chief Executive Officer and Nurse Manager of the particular hospital in Namibia Province to conduct the study in their institution maternity postnatal ward.

Informed consent

The following information was provided to participants: research topic, purpose, the benefit of the study and that participation in the study is voluntary, if the participant wanted to withdraw from participating even after giving informed consent, may do so without any coercion or penalty.

Privacy and confidentiality

The participant's right to both privacy and confidentiality were protected. The interviewer and interviewee were in a private room during data collection. No names or person's identification reflected on the records for data, only codes names used. Participants were informed that the findings of the study would not be published without their consent.

Autonomy

Autonomy means that every person has the right to self-determination. This implies that an individual has the right to decide whether to participate in the study, without the risk of penalty or prejudicial treatment (Brink et al 2012:35).

Participants were assured of freedom to refuse to participate in research study or if agreed they may withdraw from the research study without any penalty. The decision to participate in was voluntary (Brink et al 2012:35). This means participants had the right to refuse to participate or give information even after signing informed consent form.

Beneficence

The researcher secured the well-being of the participants who had the right to protection from discomfort and harm, be it psychological, spiritual, emotional, economic or legal (Brink et al 2012:35). Questions and probing were asked in a way that did not emotionally hurt the participants. Participants' culture was also respected by being non-judgemental towards them.

Justice

Fairness to all participants was practiced and promises were fulfilled e.g. the researcher adhered to agreed time for meeting as promised. The participant's names were not mentioned anywhere in the research project as promised. Anonymity ensured that allocating each participant with a code name and their identity remained anonymous, their responses and records are kept confidential. The information discussed during the study was not going to be accessed by any other person who is not part of the research project (Brink et al 2012: 36).

3.6 CONCLUSION

Chapter 3 described the researcher's preferred research methodology and design of this study. Qualitative exploratory design was used. In-depth face-to-face interviews, with a voice recorder and notebook for writing notes were also used. Non-probability sampling using purposive technique was used (see 1.8.1 & 1.8.2). Data were collected at the local clinics from the TB registers. Participants who were interviewed included, four (4) Field promoters, six (6) Treatment supporters and twelve (12) most preferred participants (patients) who interrupted their treatment. Data analysis is discussed in the next chapter.

CHAPTER 4

ANALYSIS, PRESENTATION AND DESCRIPTION OF THE FINDINGS

4.1 INTRODUCTION

Chapter 3 discussed methodology and this chapter, reports on results of analysed data and identified themes. During interviews data collection was done through audio and written scripts. Important components of interview scripts and audio were recorded. The researcher Consolidated tags of codes and linked a confluence of meaning to form theme clusters. The chapter wraps up by grouping themes and sub-themes from comparing codes, topics and themes to curb duplication.

4.2 DATA MANAGEMENT AND ANALYSIS

4.2.1 Data management

The researcher kept the copies of the important information safe and confidential. All copies of both audio and interview scripts were duplicated to create a backup, in case where originals got lost. Filed notes were kept as hard copies of interview scripts, and these were labelled or tagged by letters, dates and time. The researcher created unique names when storing the audio tapes for easy retrieval. These were letters, with corresponding dates and time in ascending order. These audio files are kept in a password protected computer file. The researcher labelled the interviews tapes in the manner that did not reveal the participant's identity. Labelling was done in form of a tables created by the researcher for convenience of data management and process.

The researcher designed a table for labelling both scripts and audio files. The table was used also for easy retrieval of information from identified file. The table had five columns. Column 1: are dates of interviews. Column 2: participant category, column 3: interview phase. Column 4: duration of interview and Column 5: participant identification. All columns correspond to each other.

Table 4.1: Labelling audio files

Column 1			Column 2	Column 3			Column 4			Column 5
Interview dates			Category of participant	Interview phase			Duration of interview in Minutes			KEY
i	ii	iii		i	ii	iii	i	ii	iii	
12/07	08/09		P1	✓	✓		50	37		P1—patient No;1
19/07			P2	✓			35			P2—patient No;2
28/07	15/09	03/10	P3	✓	✓	✓	55	40	26	P3—patient No;3
28/07			P4	✓			46			P4—patient No;4
04/08			P5	✓			45			P5—patient No;5
12/07	22/09	06/10	P6	✓	✓	✓	60	36	30	P6—patient No;6
11/08	29/09		P7	✓	✓		48	28		P7—patient No;7
18/08			P8	✓			28			P8—patient No;8
25/08			P9	✓			51			P9—patient No;9
25/08			P10	✓			38			P10—patient No;10
28/08	22/09		P11	✓	✓		50			P11—patient No;11
28/08	29/09	06/10	P12	✓	✓	✓	67	38	30	P12—patient No;12
12/07			DS1	✓			34			DS1—DOT Supporter No;1
19/07			DS2	✓			56			DS2—DOT Supporter No;2
28/07	08/09	06/10	DS3	✓	✓	✓	47	30	32	DS3—DOT Supporter No;3
04/08			DS4	✓	✓		36			DS4—DOT Supporter No;4
11/08	22/09	10/10	DS5	✓	✓	✓	45	36	21	DS5—DOT Supporter No;5
18/08			DS6	✓			51			DS6—DOT Supporter No;6
25/08			DS7	✓			39			DS7—DOT Supporter No;7
28/08	29/09		DS8	✓	✓		44	34		DS8—DOT Supporter No;8
12/07	12/09	03/10	FP1	✓	✓	✓	52	35	26	FP1—Field promoter No;1
28/07			FP2	✓			46			FP2—Field promoter No;2
11/08			FP3	✓			40			FP3—Field promoter No;3
25/08	12/09		FP4	✓	✓		48	20		FP4—Field promoter No;4

4.2.2 Data analysis

According to Bless et al (2013:338-339) noted that, unless one knows something about their world, our understanding of people is severely limited, hence in-depth interviews enables the researcher to explore experiences in context. In view of the chosen qualitative exploratory design, Bless et al (2013:351) said that, when a researcher wants to explore and/or describe a phenomenon, it is more appropriate to draw codes directly from the data. This enables the researcher to ascertain that the analysis is directly relevant to the characteristics of the data. In this study, Step one involved acquiring sense of each transcript and audio tape from available data manually. The study used the thematic data analysis. The data were transcribed and categorized into themes for the purpose of presentation using an adapted Colaizzi (1978) seven steps of analysis as cited in Bazeley (2013:65). Audio recordings were re-listened to on numerous occasions to increase accuracy of transcription.

In Step 2 and Step 3 the researcher extracted the significant statements pertaining to the phenomenon under study, as summarized fragments of participant's response from field notes/ interview transcript and audio re-play are recoded in first column of the table below. The second column indicates that the researcher formulated meanings from these significant statements. Each underlying meaning was emergent/open coded in one category as it reflected an exhaustive description. This is depicted in Table 4.3 below.

Step 4 & 5 Theme clusters and exhaustive description

Themes emerge when codes are combined into abstract phrases or terms (Grove, Gray & Burns 2015:89). The researcher grouped all formulated meanings into three participant categories that reflected a unique structure of sub-theme clusters. Thereafter, groups of clusters of themes that reflect a particular vision issue were incorporated together to form a distinctive construct of theme. Each formulated meaning fell only in one theme cluster that was distinguished in meaning from other structures. The findings of the study were integrated into an exhaustive description of the phenomenon. All emergent themes were defined into an exhaustive description. This is depicted in Table 4.2 below.

Table 4.2 Comparing codes, topics and themes for duplication

Cataloguing or tagging codes <i>(triangulated from 3 different categories of participants)</i>	Discourse analysis of Sub-theme clusters <i>(Consolidating tags of codes to link confluence of meaning).</i>	Theme Clusters
(A) Lack of commitment to adherence to treatment (B) Substance abuse (C) Personal Work commitment (D) Existence versus lack of support by employers and colleagues at work influence adherence (E) walking distance to clinic (F) Lack of access to the health care facilities (G) Existence versus lack of support by health professionals defines success of adherence (H) Painful injection (I) A request that Department of Health have to provide food and transport to TB patients pointed out (J) Limited information about TB treatment (K) Stigma and discrimination	E, P, R, F, K, S	Factors leading to lack of adherence to TB treatment
(L) Existing negative relationship between patients, relatives and community determine adherence (M) Existing belief. (N) Anti-social behaviour (O) Existence versus lack of consistent support towards adherence to treatment enhancement (P) Lengthy period for taking TB prescribed treatment (Q) Patients' negative attitudes towards DOTS supporters lead to lack of commitment in monitoring adherence (R) Number and frequency for TB treatment (S) friends of TB patients influence their adherence Request for 24hour service to promote accessibility to health care facilities outlined An explanation that field promoters must be supported with resources in order to promote adherence (W) Request for strategies to assist TB patients to stop substance abuse must be initiated	A, B, N, Q, K, M	TB Patients' existing behaviours which determines adherence to treatment
	O, L, D, G	Support for TB patients to enhance adherence to treatment
	I, U, V, B	Suggestions for promotion of adherence to TB treatment

<p>An explanation that family members collect treatment from health facility and monitor adherence</p> <p>The process of monitoring patients when taking treatment outlined</p> <p>An explanation that constant monitoring of TB patients is tiring due to long treatment course</p>	<p>X, O, Y</p>	<p>Practices to promote adherence to treatment</p>
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(Adapted from Maree et al 2016:119 and Brink et al 2016:194)

4.3 RESEARCH RESULTS

The fundamental structure of the phenomenon was described in Step 6. The researcher checked the findings for the redundant, misused or overestimated descriptions and then eliminated them from the overall structure. This is depicted in Table 4.3 below.

Table 4.3 Summary of observations made

Main Themes	Sub-themes
<p>4.3.1 Factors leading to lack of adherence to TB treatment</p>	<p>4.3.1.1. Different actors that lead to poor adherence to TB treatment outlined</p> <p>4.3.1.2. Long distance to the clinics blamed for poor adherence to TB treatment</p> <p>4.3.1.3. Lengthy period for taking TB prescribed treatment viewed as a difficult taxing by patients</p> <p>4.3.1.4. Number and frequency for TB treatment regarded as demanding resulting in lack of adherence</p> <p>4.3.1.5. Lack of access to the health care facilities influence poor adherence to TB treatment</p> <p>4.3.1.6. Existence of stigma and discrimination for TB patients by friends, relatives and community members</p> <p>4.3.1.7. An outline that friends of TB patients influence their adherence to treatment</p>
<p>4.3.2. Support for TB patients to enhance adherence to treatment</p>	<p>4.3.2.1. Existence versus lack of consistent support towards adherence to treatment enhancement</p> <p>4.3.2.2. Existing negative relationship between patients, relatives and community determine adherence</p> <p>4.3.2.3. Existence versus lack of support by employers and colleagues at work influence adherence</p> <p>4.3.2.4. Existence versus lack of support by health professionals defines success of adherence</p>
<p>4.3.3. TB Patients' existing behaviours</p>	<p>4.3.3.1. An explanation that abuse of substances lead lack of adherence to treatment</p>

which determines adherence to treatment	<p>4.3.3.2. An outline that existing beliefs by TB patients influence adherence</p> <p>4.3.3.3. Lack of commitment to adherence to treatment by TB patients outlined</p> <p>4.3.3.4. Patients' negative attitudes towards DOTS supporters lead to lack of commitment in monitoring adherence</p> <p>4.3.3.5. Existing self-stigmatization and discrimination lead to self-blame resulting in poor adherence</p> <p>4.3.3.6. Anti-social behaviour of TB patients influence adherence</p>
4.3.4. Suggestions for promotion of adherence to TB treatment	<p>4.3.4.1. Existence of treatment buddies viewed as a way to promote adherence</p> <p>4.3.4.2. A request that Department of Health have to provide food and transport to TB patients pointed out</p> <p>4.3.4.3. An explanation that field promoters must be supported with resources in order to promote adherence</p> <p>4.3.4.4. Request for 24hour service to promote accessibility to health care facilities outlined</p>
4.3.5 Practices to promote adherence to treatment	<p>4.3.5.1. An explanation that family members collect treatment from health facility and monitor adherence</p> <p>4.3.5.2. The process of monitoring patients when taking treatment outlined</p> <p>4.3.5.3. An explanation that constant monitoring of TB patients is tiring due to long treatment course</p>

Saturation of data

Data saturation was achieved related to major themes and some sub-themes. This is confirmed by identification of five themes and sub-themes. The verbatim quotes/excerpts from the transcriptions provided used in the data analysis.

Limitations to interviewing process

The study may have suffered Hawthorn effect that is when participants normally give the researcher what he wants to hear. This is because they know that they are being researched and the researcher is a stranger, hence they might have changed their reaction behaviour, feeling invasion of their privacy or personal opinions. Interviews were done at the clinic set up during participants own time, therefore respondents might have just randomly answered for them to finish and go. Language barrier might have affected the interview process negatively though the researcher used an assistant/ interpreter. This is because during

translations, some words might have been given wrong interpretation or different meaning by the translator.

4.3.1 Theme 1: Factors leading to lack of adherence to TB treatment

Participants cited several issues from this theme. Different factors that lead to poor adherence to TB treatment were identified during discussions with the participants. They cited six sub-themes. These included blaming long walking distance to the clinics, Lengthy period for taking prescribed TB treatment, number and frequency for TB treatment regarded as demanding resulting in lack of adherence, Lack of access to the health care facilities, stigma and discrimination for TB patients by friends, relatives and community members, and influence by friends of TB patients emerged as factors leading to lack of adherence to TB treatment.

Table 4.4 Factors leading to lack of adherence to TB treatment

SUB-THEMES
4.3.1.1. Long distance to the clinics blamed for poor adherence to TB treatment
4.3.1.2. Lengthy period for taking TB prescribed treatment viewed as a difficult taxing by patients
4.3.1.3. Number and frequency for TB treatment regarded as demanding resulting in lack of adherence
4.3.1.4. Lack of access to the health care facilities influence poor adherence to TB treatment
4.3.1.5. Existence of stigma and discrimination for TB patients by friends, relatives and community members
4.3.1.6. An outline that friends of TB patients influence their adherence to treatment

Sub-Theme 4.3.1.1 Long distance to the clinics blamed for poor adherence to TB treatment

Walking distance was reported to have a strong influence on poor adherence to treatment. During the interview, two participants from field promoter's category reported that patients on treatment might travel out of Keetmanshoop municipal area, visiting their relatives in surrounding farms. As a visitor, normally they may not travel with their DOT supporter to witness and encourage them. Furthermore, there is no public transport or cell phone, network hence they only use the farm owner's transport. The farm owner who is the employer only

comes back to town at his own schedule, which might delay the participant on treatment. Eventually the participant ends up interrupting

Another reason for missing doses by field promoters was that, most participant were not staying very close to the clinic. They do not have transport to come to the clinic hence they ended up absconding. This is very common with patients in Noordhoek and Elleni municipal areas situated about 4 kilometres from the clinic. This statement was supported by the participant who said:

“I get tired sometimes because every time you have to walk from home and come and sit and wait for someone to help you. The distance I am walking from home it’s too long although many say it’s short”.

These findings concur with those of a study done in Nigeria by Ibrahim, Hadejia, Nguku, Dankoli and Waziri (2014: 3464) that 95% of participants in the interview identified distant proximity and cost of transportation to the clinic. The focus group discussion identified both as a major factor towards poor adherence to TB treatment.

Sub-Theme 4.3.1.2 Lengthy period for taking TB prescribed treatment viewed as a difficult taxing by patients

Long waiting periods emerged as one of the factors contributing to poor adherence to TB medication. Both clinics practise comprehensive primary health care. In this case, every patient who visits the clinic goes through a compulsory channel to rule out other ailments. Participants pointed out that this process sometimes caused unnecessary delays. In view of this, TB patients tend to abscond because either they became hungry or they may chose not to come altogether.

Participants also complained about the duration of the course, citing why the health sector does not want to make it shorter. Three participants testified that the length of the course is so unbearable that sometimes they feel that the whole body is just full of medicine. They mentioned that absconding from daily dose sometimes is a relief from burden of pills. The first participant in category of DOT supporter mentioned that

“She is also complaining about the lengthy treatment regimen. She always mentioned that it has never been a difficult life as she experiences it now due to the burden of these tablets. She believes that it doesn’t matter if you can jump one day of this lengthy and tiring regimen.”

This was also supported by another participant in category of DOT supporters who also concurred by saying:

“Sometimes I get tired of this constant monitoring; the treatment course is too long really. Although the patient is my uncle and I feel for him, sometimes he is talking words I do not like. Imagine for such a long time you still need to continue supporting. I end up getting to the point that he must also do it for himself because he must get used”.

These findings were again supported by the study done by Ibrahim et al (2014: 3464), found that 95% of participants of that study had poor adherence due to challenges related to treatment duration.

Sub-Theme 4.3.1.3: Number and frequency for TB treatment regarded as demanding resulting in lack of adherence

Painful injection

Pain in any form is not generally bearable to humans. The study indicated that those patients on daily dose of streptomycin injection are experiencing difficult time to cope. One of the participants who is taking his injection at clinic daily indicated that:

“Sometimes I wish I was not born, this disease is giving me tough time. Each time I have to bear pain as treatment and I have no choice because I want to survive. Sometimes I would think to let it go but I still need life. Doctors at the hospital also informed me that I will die if I don’t come for my injection”.

In support of these findings, studies conducted by Remington, Rodriguez, Logan, Williamson and Treadaway (2013: 36-45) found that the demand for daily Injection pain contributed 78% towards poor adherence. Patients were becoming tired of bearing excruciating pain of injection as part of treatment

Sub-Theme 4.3.1.4: Lack of access to the health care facilities influence poor adherence to TB treatment

In this sub theme, the study findings revealed that some participants find it difficult to collect or get their pills at their own convenient time. Patients on treatment currently access their TB tablets at the convenience of health service operating times. Therefore, many participants were losing their dose if they happened to come during weekend or public holidays. This was revealed and supported by the participant who reiterated that:

“The other problem is that the dates you saw that he did not take his medication, that day the clinic was open only half day because a day after was a public holiday. I arrive at the clinic at around 15h00 afternoon. We had to return with my uncle, and there was nothing we could do. It also a challenge to collect his medication during the weekend. Unless otherwise I have to make arrangement with the sister, there is medicine supply during the weekend I don't know why”?

This was followed by a plea from the same participant who mentioned that:

“If it's possible, why the clinic can't operates the way it is flexible for us to use. Weekend and public holidays are very difficult to get treatment in case u could have been busy the whole day. Please inform the officials to make a pan to assist us during public holidays and weekends”.

The findings of this sub-theme were supported by a study conducted in Southern Ethiopia by Boru, Shimels and Bilal (2017: 527-533). They found that, although anti TB drugs were available free of charge, many patients were unable to adhere because of unavailability of the service in nearby health facilities. Poor access to clinic services tailored to patient convenience in turn resulted in non- adherence to treatment behaviour by many patients.

Sub-Theme 4.3.1.5: Existence of stigma and discrimination for TB patients by friends, relatives and community members

The findings of this study indicate that stigma is one of the commonest factors causing poor adherence to TB treatment. The most prominent participants who declared strong fear of discrimination and stigma of their status were the co-infected. This resulted in fear of openly

taking their medication when they come for their daily doses. These fears included calling them names in the location, labelling them during domestic disputes and fear of sharing things at home. One participant revealed that when they are taking alcohol together with his friends, some are teasing him when they are drunk. These occasions caused the participant to take too long to cope with his situation hence causing stress. This statement was supported by the following narration of the participant during interviews.

“I sometimes hate myself because i am feeling guilty of catching this disease. However, it was not my fault because I can’t point out exactly how i catch HIV. Mu family members are taking me as a promiscuous person, but i just behave like any other person. I can’t argue against a friend when we are drinking because they have something to find a cause for them to win an argument.”

These findings are similar to those of Obwoye et al (2016:98) that 43% of the participants agreed that social stigma was associated with non-adherence to TB treatment. The other study which supported the above statement were of Cremers et al (2016:98), that revealed 52% participants believed that TB can be contracted by sharing cup or plate with a TB patient. This led to the development of severe stigma and consequently poor adherence to TB treatment.

Sub-Theme 4.3.1.6: An outline that friends of TB patients influence their adherence to treatment

The study also indicated that, alcohol is being used by some participants as a hobby to enjoy life and forgetting TB medicine. This statement was supported by one male participant, who said that:

“They always tell me not to drink too much because I am used to take alcohol 24 hours, seven days a week and I only stop when beer makes me sick. It is then that I totally get carried away and forget that I must take my TB medication. I do not get any support from my friends on adherence to my treatment, instead its only alcohol friendship”.

There are similarities between the findings of this study and those of Peltzer and Louw (2014: 157-166) who found that, among hazardous or harmful alcohol users, there is a high rate of treatment interruption, default and treatment failure within public health clinics of South Africa. The Findings of this study also concur with those of Obwoye et al (2016:92) that their study revealed 58% of participants associated their drinking habit from peer pressure, mostly close friends.

Table 4.5 Support for TB patients to enhance adherence to treatment

SUB-THEMES
4.3.2.1. Existence versus lack of consistent support towards adherence to treatment enhancement
4.3.2.2. Existing negative relationship between patients, relatives and community determine adherence
4.3.2.3. Existence versus lack of support by employers and colleagues at work influence adherence
4.3.2.4. Existence versus lack of support by health professionals defines success of adherence

Sub-Theme 4.3.2.1: Existence versus lack of consistent support towards adherence to treatment enhancement

Hopelessness was revealed by two co-infected participants who were identified as worst interrupters between the two clinics in the area. The two participants could not consider the importance of taking medication, instead, it was better for them to end their life rather to continue suffer. They were on both Antiretroviral (HAART) and TB treatment continuation phase. They did not care about impending danger of developing resistant strain as they said they were informed by doctors. During interviews, both participants said that they were not employed on medical grounds, and one of them was surviving on a government grand. The other one is doing piece jobs. They are both heavy drinkers and smokers.

One of the participants concurred:

“These people they just give me medication and they don’t talk to me. If I raise a complain they say go to who, go to who, that is all. It is not that I invited this illness myself. The people who are giving medication and my family they do not care about me and I also do not care about their medication too. It seems since I was a child I am a bad case, the government must also give me money for my sickness. Why did they stop”?

The other participant was recently released from hospital and was still on government grand. He was also receiving injections of anti TB treatment. He reported that he does not see it worthwhile to continue treatment because he feels that life is just a trial for him. He is just taking treatment in order to get government grand otherwise he will just leave the treatment altogether. He mentioned that treatment only relieves his sickness for a while.

“Hmmm, my brother. It is good for you to give medication to someone because you are doing your job. Nevertheless, when you are taking these peels for a living, it kills me internally. I am tired and need to rest sooner or letter”.

These findings concur with those of studies done in India by Law, Piatek, Vincent, Oxlade and Menzies (2017:45-55), who found that 87% of developed multi-drug TB was from the public sector. The main reason being related to irregular adherence to treatment because of poor support. The study done in India by Talukdar, Basu, and Puneekar (2015:19-25), also concurred that, lack of social support networks, culture and lay beliefs immensely contributed to poor adherence to treatment mostly in urban community

Sub-Theme 4.3.2.2: Existing negative relationship between patients, relatives and community determine adherence

The study established that patients experience domestic issues, which cause them to interrupt their treatment. Like poor communication amongst family members with the patient, verbal abuse amongst themselves and fluctuating behaviour of mostly female family supporters were indicated by some participants. The other male participant indicated that his sister (his supporter) made him very angry hence; he saw it not necessary to take medication as retaliation against her. Generally, it appears that some families struggle to assist and

support adherence of their family members on TB treatment. This was indicated as well by one participant who said:

“ifl am at home, I don’t talk to those people. I just watch TV and go back to the hospital because whenever I try to talk something with my family it becomes a problem. They only see my problem but they do not see their problem. Therefore, I do not talk any more. Since I was a child, I am the bad case, always a bad case so I do not talk anymore. I rather keep quiet so how can they help me to take my medication if they hate me”.

Another participant also complained about poor family integration when it comes to her compliance to TB medication compliance. This was confirmed in the following statement:

The community of ours sometimes if you do not work for yourself, honestly you might die while they are just looking at you. To me it is like each men for himself and God for us all.

These findings were supported by the study conducted by Tola, Shojaeizadeh, Tol, Gamaroudi, Yekakaninejad and Klinkenberg (2016:1371) stated that TB patients who are on treatment tend to interrupt their treatment due to lack of family and community support. The study concluded that negative relationship resulted to poor psychological and financial support hence causing patients to poor treatment compliance.

Sub-Theme 4.3.2.3: Existence versus lack of support by employers and colleagues at work influence adherence

A male participant in the category of patients, mentioned employment commitments as a major factor contributing to his poor adherence. He revealed that he missed his medication because he had to abide by employment rules. Since he is not employed permanently, the employer will keep casual employees on grounds that they have minimum absenteeism from work, healthy, obey orders and never be a liability at all cost at workplace. A verbatim quotation from one male participant indicated that.

“I couldn’t get time to come take my medicine because I was busy at work. That day I was not here, I was at work and we had gone to Arueb 160km away. It was raining and the bakkie (car) we were using was stuck in the mud. We spend two days in the bush. I told my boss

about my medication, and to inform the sister at the clinic, and then he said you are on duty, you will get the medication when you come to town”.

One female participant from the category of patients also mentioned that: *“if there is too much works especially end of the month, your medication as an employee is not a priority, instead customer should be considered first”.*

Personal work and employment commitments were also supported by the study done in Alamata in Ethiopia. Tesfahuneygn, Medhin and Legesse (2015:503) said that poor adherence to TB, was mainly caused by inability to go to the health facility. Particularly failing to show upon the date of appointment was mostly due to either employment or personal work commitments.

Sub-Theme 4.3.2.4: Existence versus lack of support by health professionals defines success of adherence

Continuous counselling about treatment compliance may be of great value to TB patients themselves. Participants who included patients were not happy with very limited time they spend with health workers especially nurses. Two participants in this study indicated that they still have many questions about TB treatment but cannot get these health workers to discuss with them. One of the two participants also complained about his DOT supporter whom he believes also needs counselling because she is the one mostly stressing him and makes him hate TB treatment.

Generally, the study indicates that patients taking prolonged treatment need continuous counselling to enhance adherence. Some of the participants indicated that they see that nurses do not have enough time to indulge in continuous counselling. This was supported by several statements of this nature as indicated by one of these participants (DOT supporter).

“Patients who are taking long time treatment like TB; they may develop problems which needs continuous investigation and counselling. The patient may stay with his/her problems while on treatment. This is mostly common in patients with family problems. At the end, these

patients end up absconding from taking their daily doses. Nurses are short staffed hence most of the time they do not have time for counselling patients, and that's how I see it".

The other participant also believed that changing staff so often at a certain extent affected negatively their compliance to treatment. This notion was verbalised during interview by saying: *"Some nurses are rude and unfriendly that sometimes I think twice to come to clinic for my medication and also they often bring different faces of nursing staff. I need to get used to one nurse who knows me and I will be free to ask my problems which causes me not to take these pills every time, but now I am afraid, I don't know the nurse".*

The results of this study are supported by the findings of the study conducted by Adane, Alene, Koye and Zeleke (2013:40-35), that continuous counselling should be given to patients and their supporters to enhance adherence to treatment special attention. Similarly, a study in Kenya also concurred with the findings. Sang, Obwoye, Kangethe, Ayiro and Changeiywo (2017:329-334) says that, mainly poor compliance to TB medication, their study concluded that it is significantly caused by inadequate knowledge, ignorance on need for treatment compliance and sluggish intensification of adherence counselling by health care providers.

Table 4.6 Support for TB patients to enhance adherence to treatment

SUB-THEMES
4.3.3.1. An explanation that abuse of substances lead lack of adherence to treatment
4.3.3.2. An outline that existing beliefs by TB patients influence adherence
4.3.3.3. Lack of commitment to adherence to treatment by TB patients outlined
4.3.3.4. Patients' negative attitudes towards DOTS supporters lead to lack of commitment in monitoring adherence
4.3.3.5. Existing self-stigmatization and discrimination lead to self-blame resulting in poor adherence
4.3.3.6. Anti-social behaviour of TB patients influence adherence

Sub-Theme 4.3.3.1: An explanation that abuse of substances lead to lack of adherence to treatment

Alcohol consumption was pointed out as one of the main factors contributing to poor adherence to TB treatment. After review of interviews, about 17 participants, mentioned alcohol as a cause for non-adherence to treatment. This indicated that 70% of the total number of participants pointed that alcohol consumption is a contributing factor to poor adherence. During the interviews, two participants were actually very emotional. They mentioned that they use alcohol as a remedy to forget their social problems. When they forget social problems, they also forget treatment regimen.

In retrospect, the study revealed that substance abuse may cause a paradoxical epoch. Findings from one female DOT supporter who was monitoring an addicted participant revealed ironic findings. One participant was actually complying with treatment if they are intoxicated with drugs or alcohol, rather than normal state. This participant indicated that: *“If my son is intoxicated, he actually comply with treatment very well, but when he doesn’t gets his dagga, he totally refuse to take medication. I don’t know what to do, I love my son very much”*.

She added that: *“I wish he had no friends at all because his friends are the ones who taught him drugs. It is a pity you cannot control a child who o play with but it really it coasted me a big blow. He is completely against treatment if he don’t get drug”*.

Sub-Theme 4.3.3.2: An outline that existing beliefs by TB patience influence adherence

During interviews, one participant mentioned that she was personally discouraged from adhering to TB treatment because of witchcraft in her family. When she went to consult a traditional healer about her TB sickness, she was informed that all her sickness was due to bad luck upon her cursed by one relative. During interview, this statement was supported by the following exclamation from a participant:

“I honestly don’t want to believe that he is suffering from TB, instead, there is witching among family members”.

The findings were also supported by another participant in the category of DOT supporter, the participant confirmed by saying that:

The other thing is that sometimes she believe that, the reason why she got TB is more of evil spirit in the family. There is casing among family members so this thing of drug compliance

is secondary to her. She wants family to be exorcise from this problem rather concentrating too much on drug story.

This statement was supported by a study done in Kereyu District, Oromia Ethiopia. Sima, Belachew and Abebe: “witchcraft was reported as one of the major causes of TB by 53,6% of pastoralist than 23,5% of the sedentary group.”

Sub-Theme 4.3.3.3: Lack of commitment to adherence to treatment by TB patients outlined

In this study, some participants indicated they forget to take their medication due to various reasons. These include forgetting due to alcohol, stress from family dispute or grudges and sometimes-experiencing relief from pain and cough. Majority of participants actually mentioned alcohol as the main cause of forgetfulness to adhere to treatment. One female participant indicated that:

“When I am at home, I have too many responsibilities; hence it’s very common for me to forget to take my tablets. Besides I take alcohol and starts to feel better, feeling much better, then letter tend to forget and skip doses or even deciding not to take any medication altogether”.

Another participant reiterated that *“when I am at home and my aunt is away, I totally forget about medication because I am thinking about my life and my family who do not want to help me because I am not working. This situation gives me sleepless nights”.*

Similar findings were found in a study conducted in Northwest Ethiopia. The study revealed that there was 95% chances of non-adherence to anti TB treatment when patients had forgetfulness. This was more in continuation phases of chemotherapy. (Adaneet et al 2013: 40-35). In support of the findings of this study, Viney, Johnson, Tagaro, Fanai, and Sleigh (2014:467) says that 34% of participants in their study suffered poor treatment compliance because they thought TB was more of witchcraft rather than a bacteria.

Sub-Theme 4.3.3.4: Patients' negative attitudes towards DOTS supporters lead to lack of commitment in monitoring adherence

Participants revealed that they are committed to their work at home, and that they will not be able to prioritise DOTS. One female participant in the category of DOT supporter mentioned that, she has to ensure her clothing work is done first before attending TB issues. She wants her source of income first to be attended to before DOTS. Hence, she agreed that there is high possibility of poor monitoring if her work is demanding. This was supported by one participant who said:

“At times I can't come because people at home are asking me to help them with work at home before I come for my pills. The time I finish I do not want to go to clinic anymore hence I miss my dose. I am not working and sometimes people in our location may ask me to do a peace job also, after that then I am tired and I don't want to go to the clinic”.

In this regard, the findings of the study were also supported by the other participant in the category of field promoter who said, *“We always continue to encourage them to support our patients but there also some supporters who consume alcohol and end up forgetting to assist the patients at home. At times you may find both the patient and the DOT supporter are all taking alcohol, this becomes a challenge because if one or both are drunk. It becomes difficult for us to ensure the patient complies with the treatment”.*

In support of this sub-theme, Olukolade, Hassan, Ogbuji, Olujimi, Okwuonye, Kusimo, Okechukwu, Osho and Osinowo and Ladipo (2017:65-73) says that, TB patients may not be committed to taking their drugs and complete their treatment if left on their own or left with existing feud against DOT supporters.

Sub-Theme 4.3.3.5: Existing self-stigmatization and discrimination lead to self-blame resulting in poor adherence

The findings of this study in this regard indicate that some participants indulge in poor TB treatment compliance because of self-stigmatization. They blame themselves for having TB, hence was leading to low self-esteem and poor treatment compliance altogether. This was supported by one participant in the category of DOT supporter who said:

“My uncle is co-infected with HIV, so he is also taking antiretroviral. What I have discovered is that when he goes to relax with his friends, sometimes he comes back sad and stressed. When I ask him what could have gone wrong. He only explains that I sometimes hate myself because I am feeling guilty of catching this disease. However, it was not my fault because I cannot point out exactly how I catch HIV. My family members and friends are taking me as a promiscuous person, but I just behave like any other person. I cannot argue against a friend when we are drinking because they have something to find a cause for them to win an argument. He then become reluctant to swallow his tablets”

These findings were also supported by a study done in Zambia by Cremers, De Laat, Kapata, Gerrets and Grobusch (2015:1371) says that consequences of stigma prevailed among both children and adults, included low self-esteem, insults, ridicule, discrimination, social exclusion and decreased quality of life, eventually leading to difficulties with TB treatment compliance and adherence.

Sub-Theme 4.3.3.6: Anti-social behaviour of TB patients influence adherence

The results indicate that health worker- patient relationship is critical to enhance compliance to treatment. The study also established clearly that health workers who come to a new unit are not well oriented about their new working environment. These statements were also supported by the following comment from one participant:

“Some nurses are rude and unfriendly that sometimes I think twice to come to clinic for my medication and also they often bring different faces of nursing staff. I need to get used to one nurse who knows me and I will be free to ask my problems which causes me not to take these pills every time, but now I am afraid, I don't know the nurse”

These findings were supported by other studies done in other parts of Namibia and published in the Namibia's national TB Guideline. The studies indicated that Continuous rotation of staff within short period leads to poor nurse-patient relationship, hence result in patient's poor compliance to treatment (See 2.2.4.2). Also the study by Cremers et al (2015:1371)

says that anti-social behaviour like low self-esteem, insults, ridicule, discrimination, social exclusion and isolation resulted in difficulties with TB treatment compliance and adherence.

Table 4.7 Suggestions for promotion of adherence to TB treatment.

SUB-THEMES
4.3.4.1. Existence of treatment buddies viewed as a way to promote adherence
4.3.4.2. A request that Department of Health have to provide food and transport to TB patients pointed out
4.3.4.3. An explanation that field promoters must be supported with resources in order to promote adherence
4.3.4.4. Request for 24hour service to promote accessibility to health care facilities outlined

Sub-Theme 4.3.4.1: Existence of treatment friends viewed as a way to promote adherence

The study revealed that amongst some participants, in some instances friends were supportive than DOT supporters were.

“There are submerged into peer pressure hence end up taking drugs and alcohol which causes them to interrupt their treatment. However, not all their friends are negative. Sometimes during our domiciliary visits you may find out that the friend is more supportive than even the DOT supporter him/herself”.

The other participant in the category of field promoters mentioned that: *“From my point of view, their friends whom they grew up together with, they are caring for them. Sometimes their friends are calling us on behalf of the patients”.*

The other participant in the category of patients also supported that some of his friends were more supporting him to comply with treatment. This was confirmed when he mentioned that: *“There is one guy by the name Richard, that guy is very good. He always is giving me food. He brings me Top Score and cooking oil and sugar because he is helping me. He is working at SALINI”.*

These findings were also supported the study done in South Africa by Akeju, Wright and Maja (2017:259-267) said that four fifth, that is majority of friends to participants had a positive influence towards treatment adherence.

Sub-Theme 4.3.4.2: A request that Department of Health have to provide food and transport to TB patients pointed out

The study indicated that most of the participants need food to adhere to their treatment. From the interviews conducted, it was revealed that these participants have siblings; hence, they have the responsibility of feeding. Their source of food is only wages and salaries, which they reported to be low. Majority of them they have to see to it that they must feed their siblings first before themselves. Therefore, they complained that food shortage is one of their greatest contributing factor for poor adherence to treatment. One male participant complained that:

“I cannot take mealy-meal to make porridge from my sister, I told her that, these tablets are too strong and they make me to feel hungry. I must eat but she do not understand. She then say you don’t have a proper job so you can’t demand food of this house”.

These findings also concur with those of Boru, Shimels and Bilal (2016:527-533) that participants showed a strong belief that lack of food or inadequate food was associated with more severe side effects of drugs, and difficult to tolerate medication. The study also indicated that drugs could be harmful on an empty stomach and it was better not to swallow drugs at all if one had not eaten.

Sub-Theme 4.3.4.3: An explanation that field promoters must be supported with resources in order to promote adherence

The study revealed that harnessing treatment adherence could be achieved by close monitoring of patients and their supporters. This means reaching or visiting where they are and being with them and monitor them with both their DOT supporters. Health workers like nurses and field promoters need to conduct domiciliary visits to their patients in the community. The finding was supported by one participant in the category of DOT supporter who said, *“I hope you informed your superiors that we need transport to clinic or those field*

promoters may bring medicine at home at least two days per week. The walking distance is a challenge”

The second participant from category of Field promoters also indicated that:

“We have a problem of transport to reach our patients, especially a car or motorcycle to reach those who are far from the clinic. We have outreach but it does not go a specific place where the patient might be. Then when we have our own transport, we can achieve a lot to encounter TB treatment interruption”.

These findings were supported by other studies done in other parts of Namibia and published in the Namibia’s national TB Guideline. The studies indicated that treatment adherence should not be a burden of creating time and place, but it should fit in a patient’s normal daily schedule. (Namibia 2012s.42) This idea enhances taking health services to the people rather people to health services (see 2.2.2.2). The findings of this study were also supported in the spheres of anti-retroviral treatment adherence in HIV. Masquillier, Wouters, Mortelmans, van Wyk, Hausler and Van Damme (2016:25) said that health care workers visit a patient. There is a great potential to create involvement and provide support at household level. When listening to the history of the patient and witnessing day-to-day household dynamics, it has a huge impact on general adherence of a patient to treatment.

Sub-Theme 4.3.4.4: Request for 24-hour service to promote accessibility to health care facilities outlined

The findings of this study revealed that, some participants needed to consult health service providers anytime they are facing a problem with a potential of poor adherence to treatment. Participants in the category of field promoters believe that patients and their DOT supporters may need convenient consultation free of charge about their TB treatment issues. This was supported by a participant who indicated that:

“I think the government must give us phones or create a toll free centre where patients can call whenever they have a problem. This office should be having a toll free number so that patients, may call whenever they want to, for any problem they encounter. Otherwise, the clinics also need more nurses for all the patients to be helped in time. That’s all I can say for now”.

This was also supported by another participant who felt that poor communication is a common cause of poor adherence to treatment. She indicated that:

‘The other problem is that the dates you saw that he did not take his medication, that day the clinic was open only half day because a day after was a public holiday. I arrive at the clinic at around 15h00 afternoon. We had to return with my uncle there was nothing we could do. It also a challenge to collect his medication during the weekend. Unless otherwise I have to make arrangement with the sister, there is medicine supply during the weekend I don’t know why’?

According to Stanhope and Lancaster (2014:39), accessibility is a major principle of Primary Health Care, hence it entails that the patient should not struggle to reach where they get health services. (See 2.2.2.1) It is in this view that the findings of this study is supported and community based health care services are made possible. The findings of this study was also supported by a study conducted in Kenya by Koech and Nyamboga (2017:62-66) said that communication has an important role in improving treatment adherence amongst TB patients. It also helps health care providers to explain services and treatments to patients and encourage them to use those services consistently and effectively.

Table 4.8 Practices to promote adherence to treatment

SUB-THEMES
4.3.5.1. An explanation that family members collect treatment from health facility and monitor adherence
4.3.5.2. The process of monitoring patients when taking treatment outlined
4.3.5.3. An explanation that constant monitoring of TB patients is tiring due to long treatment course

Sub-Theme 4.3.5.1: An explanation that family members collect treatment from health facility and monitor adherence

The findings of this study revealed that the participants acknowledge the role of family members in treatment compliance. It became very clear that family support is an integral

component in adherence to TB treatment. They collect medication for patients and also can be DOT supporters. This was supported by one participant who mentioned that:

“Its not that she doesn’t want to take medication on her own, she is sending kids to go collect her medication and they don’t go. So if I am at work she end up not taking her medication and that’s how interruption is coming”.

The other participant also supported the findings of the study by saying:

“As a supporter I feel the medication must stay with her, not at the clinic’s want to give her myself because she is my sister. Even the family becomes concerned very much if my sister doesn’t take medication”.

These findings were also supported by a study in India, done by Samal and Dehury (2016:150-152) who observe that the importance of family contribution includes accompanying patient for taking medication, providing food, and monitor swallowing of TB tablets. Family also gives psychosocial support in order for a patient to adhere to his/her medication.

Sub-Theme 4.3.5.2: The process of monitoring patients when taking treatment outlined

The study reveals that participants in the category of patients were all having someone to monitor him or her. The study indicated that the process starts at the clinic when they are collecting medication, home where they stay, work they are working and or in the community where they spend most of their time with others.

The figure below shows identified people and places involved in the process of monitoring patients when taking treatment at four different places

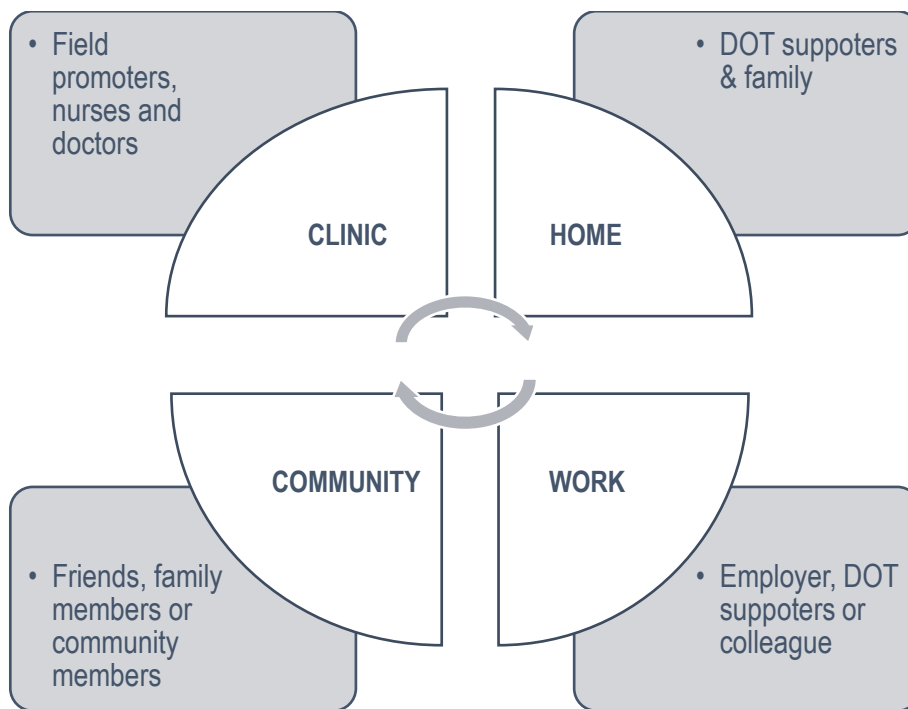


Figure 4.1 Identified people and places

The study revealed that at the **clinic**, the patient could be taking medication while being monitored by field promoters, nurses or doctors. They also use a register to ensure all patients reported for their daily doses. The study also revealed that field promoters are important in monitoring patients. This was supported by a participant in the category of field promoters who said, *“We give them health education and create a friendly environment. Building a good relationship with my patients is important. If I am open with them, they are also encouraged to adhere to their treatment. It is more of counselling when I am giving health education”*.

The study revealed that at **home**, they were being assisted by their DOT supporters who might be any close person to them. They directly observe participants during swallowing of tablets at their homestead. Every participants on TB treatment in

Keetmanshoop Municipal area must have a supporter at home (see 3.3.1.4.2).

The DOT supporter had to ensure that the patient first eat, after that pills are put in the mouth and swallowed with plenty of water. If the DOT supporter is suspicious, he/she verifies by

making the patient open his/her mouth to ensure pills are not hidden under the patient's tongue.

The study revealed that at work, participants are assisted by either the employer, workmate or any other person close to him or her. This was revealed by participant in the category of DOT supporter who said, *“At her work, she reports that they always support her with food to eat before taking her medication. Sometimes they are asking her if is taking her medication and they are encouraging her”*.

Participants also mentioned about getting good support at workplace enabling him to adhere to their medication. The participant said, *“There is one guy at work, that guy is good. He always say my friend you must go to take medication. If I tell the Boss, the boss he sometimes gives me money to buy food and somehow supports me very much. The boss always allows me. He always says finish your job and go take your medication at the clinic if we are not out of town that day”*.

The study also revealed that in the community, they spend time with their friends and relatives. They also get support to adhere to treatment in form of food, counselling at church, psychosocial support by members of the community. This was supported by a participant who said, *“From my point of view, their friends from the community, whom they grew up together with them are caring for them. Sometimes their friends are calling us on behalf of the patients. We also”*.

These findings were also supported by a study done by Samal and Dehury (2016:150-152). The study concluded that health workers, families at home or home based care volunteers and the community at large harness the holistic treatment lacunas to cure TB crisis in the global community.

Sub-Theme 4.3.5.3: An explanation that constant monitoring of TB patients is tiring due to long treatment course

The study revealed that supporters of TB sometimes found it difficult to bear the burden of constant monitoring. According to this study, it was because either they have other

commitments or the TB patient him//herself is difficult. They need more support through field promoters. This was supported by various participants. One said that:

“Sometimes I get tired of this constant monitoring; the treatment course is too long really. Although the patient is my uncle and I feel for him, sometimes he is talking words I do not like. Imagine for such a long time you still need to continue supporting. I end up getting to the point that he must also do it for himself because he must get used”

The other female participant also added that:

“She is also complaining about the lengthy treatment regimen. She always mentioned that it has never been a difficult life as she experience it now due to the burden of these tablets. She believes that it doesn’t matter if you can jump one day of this lengthy and tiring regimen”.

The study also showed that one participant actually mentioned that he is considering this regimen as treatment for a living, hence tiring and lengthy. He said, *“Hmmm, my brother. It is good for you to give medication to someone because you are doing your job. Nevertheless, when you are taking these pills for a living, it kills me internally. I am tired and need to rest sooner or letter”*

The burden of TB treatment has also been highlighted in several studies, which see it as contributing factor towards poor adherence to TB treatment. This was supported by a study done by Boru et al (2016:527-533) who said patients take medications under difficult circumstances and experience a wide range of interacting factors at all places they exist during treatment. In this view, it has resulted in non-adherence treatment taking behaviour by many patients.

4.4 CONCLUSION

In this chapter, several issues emerge from the interviews and critical points were noted. Participants generally highlighted different factors of concern leading to lack of adherence to TB treatment. Lack of support to enhance treatment compliance was also mentioned. Some participants considered to give their thoughtful suggestions and practices for promoting

adherence to TB treatment. There were few factors mentioned and identified as existing behaviours, which determines adherence to treatment.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The purpose of the study was to explore the determining factors with regard to reduced adherence to TB treatment in Keetmanshoop municipal area, Kharas Region, Namibia. This chapter discusses the general conclusions and recommendations of the study. Conclusions includes the summery and interpretations of the findings.

After the interviews were conducted, the study identified five major factors contributing to non-adherence to TB treatment. These factors included factors leading to lack of adherence to TB treatment, Support for TB patients to enhance adherence to treatment, existing behaviours, which determines adherence to treatment, suggestions for promotion of adherence to TB treatment and Practices to promote adherence to treatment. These factors are then summarized in this chapter. The chapter ends with an account of recommendations, limitations and contributions of the study. Concluding remarks seals the literature contents of the study.

5.2 DISCUSSION

The study concluded that there are five main themes that contribute to poor adherence towards TB treatment.

Theme 1: The distance patients walk to the clinic on a daily basis to get their daily dose. It was ideally a burden to them hence, they developed gradual apathy. Some also indicated that the TB regimen itself is quite cumbersome due to lengthy period of swallowing tablets and getting injections. In this theme, lack of flexibility during weekends and public holidays also emerged as taxing to their access to treatment. They need to have access to their treatment because their variety of activities of daily leaving sometimes does not allow

them to catch up with official clinic operating times. At certain extent, the study revealed that friends of patients sometimes experience negative peer pressure from friends. Some of their friends exposed them to alcohol and drugs causing them to either forget or devalue their TB treatment.

Theme2: Lack of support for TB patients to enhance adherence to treatment. Patient's experience inconsistency support from health service providers such as lack of counselling, bringing hopelessness especially to the co infected with HIV patients. Negative relationship between patient's relative and patients against community members also revealed a leading cause for poor adherence to treatment. Some family members created a feud between them and the patients because of various domestic issues, causing the TB patients to lose hope and leave treatment. Those patients who are employed also revealed that they experience challenges because some employers do not prioritise their TB tablets replenishments in time.

Theme 3: The need for constant support in order for them to adhere to their treatment.

The study indicated that most TB patients were involved in substance abuse, like alcohol and or drugs. Under influence of substance abuse, it was clear that complying with treatment became a challenge as such. Some patients and participants believed that suffering from TB was a sign of being cased or evil spirit in them. This caused them to focus more on exorcising evil spirit rather than complying with swallowing tablets. The study indicated that some patients generally lack commitment and developed negative attitudes to their DOT supporters. The study also revealed that self-stigmatization and discrimination has caused many patients to poor adherence. They blame themselves for having TB, and this led to low self-esteem and poor treatment compliance altogether. When they were coming for their daily doses, some experienced antisocial behaviour between them and the new staff members in the department. The results showed that new or poorly oriented health service providers have poor rapport with patients. This caused patients to hesitate to come for their daily doses, hence causing poor adherence to their treatment.

Theme 4: The need to pair patients with treatment buddies to enhance support and promote treatment adherence.

It also emerged that health providers have to come up with a strategy to pair food with treatment. The reason was that many patients do not comply with their TB treatment because they were too hungry to swallow tablets in an empty stomach. The other suggestion, which was revealed, was to support or provide TB field workers with cheap and convenient form of transport. This was believed to enhance accessibility to their patients and may bring tablets to them if they are too weak to come to the clinic.

Some suggested that the clinic might need to have standby staff members who can be conducted at any time for providing them with any necessary assistance, being it information giving or DOT support. The Ministry of Health and Social Services was challenged to strengthen campaigns against substance abuse during TB treatment. They believed it has a greater positive impact on TB treatment adherence if information is shared abundantly to everybody.

Theme 5: There is need to establish certain practices to promote adherence to treatment.

The study revealed that family members are an integral part of the patient's environment during TB treatment. They may need to collect medication from the clinic for the patient, counsel and give all necessary support to enhance treatment compliance. In general, family integration emerged as involving several psychosocial and physical factors to TB patient to enhance treatment adherence. Monitoring patient during treatment was also an important factor revealed during data collection.

The study revealed that the patient needed to be closely monitored at clinic, home, and work and in the community. The reason was to ensure that wherever the patient is, there is a possibility that he/she can be influence negatively to compromise adherence. To enhance patient's adherence to TB treatment, the study revealed that there is need to create cohesion amongst these four different environments, where patient exist (see figure 5.1).

It has emerged that there is need to promote change of behaviour towards a belief that TB treatment takes too long. Several initiatives should be put in place psychologically for patients to accept that treatment of TB has a longer duration. This was indicated that once

patients accept the duration, it reduces the fear of time line required till further research is done for shorter period.

5.3 RECOMENTATIONS

The study recommends the following.

Participants in category of patients

- ❖ Alcohol consumption awareness campaigns against alcohol and drug abuse should be the Ministry's priority. These can also be through public media forums like Televisions, newspapers and radios.
- ❖ Patients may need continuous counselling and health education while on TB treatment. The management of both clinics must create a separate room, to ensure that when patients come for their DOT, they are free to have timely discussions if they feel like.
- ❖ This will enhance patients to open up and discuss their treatment related freely without hurry as compared to general patients.
- ❖ Government may need to assist with a grant on individual basis to ensure nutritional support, health education may be necessary about diet to these patients and their family. Nongovernmental organisations can be conducted to assist as well as exploring family support system
- ❖ Health services should have sufficient human resource, or in service training of Field promoters to do counselling so they can assist nurses if they are short stuffed.
- ❖ TB treatment should be integrated into general health services. This can be achieved by introducing an Integrated Chronic Care System. Clients with prolonged treatment may be attended at this department. Nurses should avoid labelling their consultation rooms to avoid stigma. Other chronic patients like diabetes, hypertension, HIV/AIDS and TB should be seen there to reduce waiting time.
- ❖ Patients who experience problems of taking medication at their workplace should immediately report to the clinic. Hospital or Regional Health Team management should discuss these issues immediately with company owners.

Participants in category of DOT supporter

- ❖ Periodic home visits should be done to train and support these DOT supporters. This is because it emerged in the study that they sometimes stress patients instead of supporting them to comply with their treatment.
- ❖ Supporters should report at the clinic for problems emanating from home and causing patients to miss their daily doses.
- ❖ Both supporter and the client/ patient generally majority have cell phones. They should be taught how to use a cell phone alarm as a reminder to avoid forgetting.
- ❖ DOT supporters should be trained to identify basic symptoms of stress, hopelessness and drug addiction so that they can refer these clients immediately to the health facility.

Participants in category of Field promoters

- ❖ Field promoter may need toll free line network for TB patients only. The study indicated that sometimes if these patients visit their relatives in the farms, they are not reachable in terms of communication. Public network operators' need to be reminded of community contributions, rather donating blankets and food parks.
- ❖ Ministry of health and social services should establish a 24-hour call centre for chronic patients. This is where they can freely call in case they have an emergency at work or home, which cause them not to come for their daily dose.
- ❖ Ministry may consider giving them motor cycle at each clinic for following patients who visit farms and are not able to return for their treatment in time. Motorcycle is very cheap and convenient to run rather than a motor vehicle.
- ❖ Field promoters should embark on community education on reducing stigma and discrimination of TB patients.

Health care providers

- ❖ A public health concern should be the business of public office bearers and politicians. It is mandatory to enhance a collective effort and ensure that every organisation plays a part to exonerate communities from this global threat. Ministry of health may need to spearhead and advocate for this.
- ❖ If patients are finding it difficult to walk to the clinic, a mobile motorcycle may assist them some of the days to ensure they are assisted to get their medication.

- ❖ Customer care services' in service training should be periodically conducted to ensure that staff members are acquainted with latest information to implement.
- ❖ Emphasis is required on the importance of orientation and induction of new staff members to ensure that they do not cause unnecessary delays during service provision.
- ❖ In-service training of TB management guideline should be periodic to enhance competency in dealing with TB. It is also important to minimise rotation on TB management clinics to ensure nurse patient relationship is build.
- ❖ Provisions should be made for TB patients to be able to get their supply even during weekend in-order to maximise adherence to treatment.

Contributions of the study

The study has contributed the following to the commonwealth of knowledge about adherence:

- The study managed to identify the four main factors determining poor adherence to TB treatment in Keetmanshoop. Ministry of health may use these factors for planning purposes in reducing poor TB drug compliance.
- Exploration of these main factors was done to identify subthemes, which are avenues of solutions to problems. Local government and the community may use these sub themes as points of discussions in public health related community meetings. This is to enhance community participation in problem solving.
- Local government, that is Keetmanshoop Municipality, in conjunction with Ministry of Health may use this study findings to introduce mobile chronic medication pick up points, that are nearer to the people to avoid them walking stressful distance. This is to enhance accessibility.
- Ministry of Health and the Local government may use these study findings to address Intersectoral collaboration with other sectors like Non-governmental organisations, local private companies. Donations like income generating projects as employment strategy.

- Ministry of Health AND Social Services needs to strengthen tool free centres to enhance affordability and accessibility towards community members who are vulnerable to TB. Promoting health through fighting TB can be made easy when people can communicate often with their local health workers.
- The identified and explored main factors are subject for further research to ensure specific solutions are investigated by the research community

5.4 LIMITATIONS OF THE STUDY.

The study used purposive sampling technique. According to Brink et al (2016:141), the sampling technique has a high potential for sampling bias, samples used may not represent the whole population and there is limited generalization of the results to the entire Kharas Region.

The researcher is not conversant with vernacular; hence, some important information could have lapsed during data collection. The study was also confined in Keetmanshoop District in an urban community selected in view of travelling cost. Participants were purposively selected from the two clinics' TB registers, and that gave the identification of participants' supporter.

5.5 CONCLUSION

The researcher used TB registers from two clinics namely Keetmanshoop Clinic and Daan Viljoen Clinic. Both clinics are within Keetmanshoop municipality. It is also the same source used to describe the study's sampling frame (see inclusion criteria 3.3.1.4). Data used from the registers was from January 2016 to June 2017 in-order to capture some participants who were still on TB treatment. From this information, the study managed to identify and describe factors that influence TB patients to interrupt treatment in Keetmanshoop Municipal area. Recommendations for further investigation of these factors were outlined and patients are now able to use some of these recommendations to comply with their treatment.

Health workers and community members of Keetmanshoop are now able to implement suggestions and practices for promoting their patient's adherence to TB treatment. It is in this view that, using this study results helps both health service consumers and providers in expanding, enhancing and addressing challenges facing community based TB programmes within Keetmanshoop municipal area and Kharas Region in general.

REFERENCES

Adane, AA, Alene, KA, Koye, DN & Zeleke, BM. 2013. Non-Adherence to Anti-Tuberculosis Treatment and Determinant Factors among Patients with Tuberculosis in Northwest Ethiopia, *Journal .pone. 0078791. PLoSONE. 8(11)1371*

Akeju, OO, Wright, SCD & Maja, TM. 2017. Lived experience of patients on tuberculosis treatment in Tshwane, Gauteng province. *Journal of Health SA Gesondheid. University of Johannesburg. 22 (10):259-267*

Adejumo, OA, Daniel, OJ, & Otesanya, AF. 2016. *Determinants of health system delay at public and private DOTS facilities in Lagos, Nigeria*: National Centre for Biotechnology Information Journals, U.S National Library of Medicine. PubMed Commons. From: <https://www.ncbi.nlm.nih.gov/pubmed/27847006> (accessed 26 May 2017)

Bazeley, P. 2013. *Qualitative Data Analysis: Practical Strategies*. London: SAGE Publications Ltd.

Bell, J. (ed) & Waters, S. 2014. *Doing your research project: A guide for first-time researchers*. 6th edition. McGraw Hill. England

Bless, C, Higson-Smith, C, & Sithole S. 2013. *Fundamentals of social research methods: An African perspective*. 5th edition. Cape Town: Juta.

Boru, CG, Shimels, T and Bilal, AI. 2016. Factors contributing to non-adherence with treatment among TB patients in Sodo Woreda, Gurage Zone, Southern Ethiopia: A qualitative study. *Journal of infection and Public Health 10(5)527-533*

Botswana (Republic). Southern African Development Community (SADC). 2012. *Directorate of social and human development and special programmes on TB report*. Gaborone. From: www.sadc.unit (accessed 26 May 2017)

Brink, H, Van der Walt, C & Van Resnburg, G. 2016. *Fundamentals of research methodology for health care professionals*. Third edition. Cape Town. Juta

Cremers, AL, De Laat, MM, Kapata, N, Gerrets, R, Klipstein-Grobusch, K & Grobusch, MP. 2015. Assessing the Consequences of Stigma for Tuberculosis Patients in Urban Zambia. *Journal of PMC, US National Library of Medicine. National institute of Health. PLoSOne*10(3)1371

Cremers, AL, Gerrets, R, Kapata, N, Kabika, A & Birnie, E. 2016. Tuberculosis patients' pre-hospital delay and non-compliance with a longstanding DOT programme: a mixed methods study in urban Zambia. *Journal of Public Health* 16(10)1130-3779

Daftary, A, Padayatchi, N & O'Donnell, M. 2014. Preferential adherence to antiretroviral therapy over tuberculosis (TB) treatment: a qualitative study of drug-resistant TB/HIV co-infected patients in South Africa. *Health and Human Rights Journal (HHR)*. 9(9)1107-1116

Fagundez, G, Perez-Freixo, H & Eyene, J. 2016. Treatment Adherence of Tuberculosis Patients in Equatorial Guinea. *Journal.pone.0161995 PLoS One* 11 (9): From <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0161995&type=printable> (accessed 26 May 2017)

Gianella, C, Ugarte-Gil, C, Aylas, R, Castro, C & Lema, C. 2016. TB in Vulnerable Populations. The Case of an Indigenous Community in the Peruvian Amazon. *Health and Human Rights Journal (HHR)*. 18(1)55-68

Gorityala, SB, Mateti, UV, Konuru, V & Srinivas M. 2015. Assessment of treatment interruption among pulmonary tuberculosis participants in India: A cross-sectional study. *Journal of pharmaceutical bio-allied science* 7(3): 226-229

Grove, SK, Gray, JR & Burns N. 2015. *Understanding nursing research, Building an evidence-based practice*. 6th Edition. St Louis Missouri USA. Elsevier Sanders.

Hennink, MM, Kaiser, BN & Marconi VC. 2016. Code saturation versus meaning saturation in. *SAGE Journals: Qualitative Health Research*. 27(4) 591-608

Hofisi, C, Hofisi, M & Mango S. 2014. Critiquing Interviewing as a Data Collection Method. *Mediterranean Journal of Social Sciences*.5(16) 60-65

Ibrahim, ML, Hadejia, IS, Nguku, P, Dankoli, R & Waziri EN. 2014. Factors associated with interruption of treatment among Pulmonary Tuberculosis patients in Plateau State, Nigeria. *THE Pan African Medical Journal*. 17(78)3464

Kallio, H, Pietila, AM, Johnson, M & Docent, MK. 2016. Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *Journal of information practice and policy worldwide through research and scholarship*. JAN. 72(12):2954-2965

Koech, BA & Nyamboga, EN. 2017. The role of communication in the management of tuberculosis disease. *IOSR Journal Of Humanities And Social Science (IOSR-JHSS)Moi University, Kenya*. 22(5):62-66.

Law, S, Piatek, AS, Vincent, C, Oxlade, O & Menzies, D. 2017. Emergence of drug resistance in patients with tuberculosis cared for by the Indian health-care system: a dynamic modelling study. *Journal of Lancet public Health*. Articles 2(01)47-55

Masquillier, C, Wouters, E, Mortelmans, D, van Wyk, B, Hausler, H & Van Damme, W. 2016. HIV/AIDS Competent Households: Interaction between a Health-Enabling Environment and Community-Based Treatment Adherence Support for People Living with HIV/AIDS in South Africa. *Journal. PonePlosOne* 11(3): e0151379.

McMillan J, & Schumacher S. 2014. *Research in education evidence- based Inquiry*. 7th edition. Torondo USA: Pearson New International Edition

Mlilo, N, Sandy, C, Harries, AD & Kumar, AMV. 2013. Does the type of treatment supporter influence tuberculosis treatment outcomes in Zimbabwe? *Journal of Public Health Action. Health Solutions for the Poor. Journal of PMC, US National Library of Medicine. National institute of Health*. 3(2):146-148

Morrioni, C & Myer, L. 2014. Epidemiology. *A research manual for South Africa*, edited by E Rodney & G Joubert. Oxford University Press: 78-110. ABC Press Cape Town.

Nabil, T, Katia, S, Mohammed, B, & Chakib, N. 2012: The impact of knowledge and attitude on adherence to tuberculosis treatment: a case-control study in a Moroccan region. *Pan African Medical Journal*.12(52)396

Namibia. 2012. *National guidelines for the management of tuberculosis*.3rd edition. Windhoek: MoHSS

Namibia. 2015. Ministry of health and Social Services Directorate of special programmes. *Second term strategic plan for Tuberculosis and leprosy*. Windhoek: MoHSS

Namibia (Republic). Department of health. 2015-16. *Ministry of Health and Social Services TB statistics register*. Kharas Region: Dean Viljoen Clinic

Namibia (Republic). Department of health. 2015-16. *Ministry of Health and Social Services TB statistics register*. Kharas Region: Keetmanshoop Clinic

Namibia. 2016. Ministry of health and Social Services Directorate of special programmes. *National guidelines for community-based tuberculosis care, implementers*. Windhoek: MoHSS

Noble, H & Smith, J. 2015. Issues of validity and reliability in qualitative research. *Journal of Evidence-Based Nursing, Queens University Belfast, UK*. 8(2):34-35

Obwoye, RO, Sang, RA & Wakube AW. 2016. Factors associated to non-adherence in Tuberculosis treatment, Baringo County, Kenya. *International Journal of Scientific Research and Innovative Technology* ISSN. 3(2): 2313-3759.

Ogundele, OA, Moodley, D, Pillay, AW & Seebregts, C. 2016. An ontology for factors affecting tuberculosis treatment adherence behavior in sub-Saharan Africa. *Patient Preference and Adherence. Journal of Pub Meds, US National Library of Medicine* Vol 10(4):669-681.

Olukolade, R, Hassan, A, Ogbuji, Q, Olujimi, S, Okwuonye, L, Kusimo, O, Okechukwu, J, Osho, J, Osinowo, K & Ladipo, O. 2017. Role of treatment supporters beyond monitoring daily drug intake for TB-patients: Findings from a qualitative study in Nigeria. *Journal of Public Health and Epidemiolog. (ARFH)&(FCT), Abuja, Nigeria*.9(4):65-73

Oxford advanced learner's dictionary. 2010. Sv "context". 8th edition. Oxford: Oxford university press.

Palinkas, LA, Horwitz, SM, Green, CA, Wisdom, JP, Duan, N & Hoagwood, K. 2015. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Journal of PMC, US National Library of Medicine. National institute of Health*. 42(5):533-544

Peltzer, K & Louw, JS. 2014. Prevalence and factors associated with tuberculosis treatment outcome among hazardous or harmful alcohol users in public primary health care in South Africa. *Journal of PMC, US National Library of Medicine. National institute of Health. African Health Sciences*14 (1): 157–166

Pera, SA & van Tonder, S. 2014. Ethics in health care. 3rd edition. Cape Town Lansdown: Juta& Co. Ltd

Polit, DF & Beck, CT. 2012. *Nursing research: Generating and assessing evidence fornursing practice*. 9th edition. Philadelphia: J.B. Lippincott Company

Remington, G, Rodriguez, Y, Logan, D, Williamson, C & Treadaway, K. 2013. Facilitating Medication Adherence in Patients with Multiple Sclerosis, *International Journal of Multiple Sclerosis* 15(1): 36–45.

Samal, J & Dehury, RK. 2016. Role of families in tuberculosis care: A case study. *Muller Journal of medical science and research. International Union against Tuberculosis and Lung Disease (The Union), Pune, Maharashtra, India* 7(2):150-152

Sang, RKA, Obwoye, RO, Kangethe, S, Ayiro, LP & Changeiywo, JM. 2017. Patient Factors Which Contribute to Non-adherence to TB Treatment in Kericho and Nakuru Counties of Kenya. *Science Journal of Public Health*.5(4): 329-334

Sima, BT, Belachew, T, & Abebe, F (2017) Knowledge, attitude and perceived stigma towards tuberculosis among pastoralists; Do they differ from sedentary communities? A comparative cross-sectional study. *Journal Pone PLoS ONE* 12(7): 1371

Stanhope, M & Lancaster, J. 2014. *Foundations of nursing in the community. A community-oriented practice*. 4th edition. Elsevier Mosby

Talukdar, N, Basu, A & Puneekar, RM. 2015. An Ethnographic Study on the Factors Affecting Adherence to Directly Observed Treatment Short-Course in Typical Indian Settings. *Journal of Tuberculosis Research, Scientific Research Publishing Inc*.3(10)19-25

Tesfahuneygn, G, Medhin, G & Legesse, L. 2015. Adherence to Anti-tuberculosis treatment and treatment outcomes among tuberculosis patients in Alamata District, northeast Ethiopia. *Journal of PMC, US National Library of Medicine. National institute of Health*. 10(8):503

Theron, G, Zijenah, L, Chanda D & Rachow A. 2014. *Feasibility, accuracy, and clinical effect of point-of-care Xpert MTB/RIF testing for tuberculosis in primary-care settings in Africa: a multicentre, randomized, controlled trial*. *Lancet*. 383: 424-435

Tola, HH, Shojaeizadeh, D, Tol, A, Gamaroudi, G, Yekakaninejad, MS, & Klinkenberg, E. 2015. Psychological and Educational Intervention to Improve Tuberculosis Treatment Adherence in Ethiopia Based on Health Belief Model: A Cluster Randomized Control Trial. *Plos One* | Doi:10.1371/journal.pone.11(5):1371

Tortora, GJ & Derrickson, B. 2014. *Principles of Anatomy and Physiology*. 14th edition. John Wiley & Sons: USA.

Treiman, DJ, Lu, Y & Qi Y. 2013. New Approaches to Demographic Data Collection. *Journal of HHS Public Access. National Center for Biotechnology information, National Library of medicine* US. 44(3)56

University of South Africa. Department of Health Studies. 2011-13. *Research in the social sciences. Only study guide for RSC2601*. Pretoria

University of South Africa., Department of Health Studies, 2016; *Tutorial letter MPH 2 MNUALLL/301/0/2016*. Pretoria

Viegas, AM, Miranda, SS, Haddad, JP, Ceccato, MDG & Carvalho, WDS. 2017. Association of outcomes with comprehension, adherence and behavioural characteristics of tuberculosis patients using fixed-dose combination therapy in Contagem, Minas Gerais, Brazil. *Journal of PubMeds, US National Library of Medicine*. RevInst Med Trop Sao Paulo. 2017 Jun 1;59:e28. From <https://www.ncbi.nlm.nih.gov/pubmed/28591256>. (Accessed 02 June 2017)

WHO 2014. Companion Handbook to the Guidelines for the Programmatic Management of Drug-Resistant Tuberculosis. Geneva: World Health Organization. 2014. Patient-centered care, social support and adherence to treatment. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK247419/> (accessed 20 July 2017)

World health organization. 2012. *World health organization tuberculosis global report* Geneva: WHO Press.

World Health Organization/ Pan American Health Organization. 2017. Final Report on the Health Related Millennium Development Goals in the Region of the Americas. *PAHO HQ Library Cataloguing-in-Publication Data*. Washington, D.C.(NLM Classification: WA30) From http://iris.paho.org/xmlui/bitstream/handle/123456789/34118/9789275318788_sequence=5&isAllowed=y. (Accessed 02 June 2017)

