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EXPERIENCES OF COMMUNITY HEALTH NURSES IN THE TUBERCULOSIS WORK ENVIRONMENT

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DECLARATION

Student number: 10656732

I declare that the thesis **"Experiences of community health nurses in the tuberculosis work environment"** is my original work and that it has not been submitted before for any degree or examination at any other institution.

All the sources that have been consulted or quoted are acknowledged by means of complete referencing in the text and in the attached reference list.

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GRANNY TSHABANE MARY MOTSWASELE **DATE**

DEDICATION

In loving memory of

- My late parents, Richard Mphotho and Nkolle Naniki Daisy Khatitsoe. You were the best parents ever.
- My late sisters, Mmaruba Conny Khatitsoe and Seolwane Aggy Moatshe. I will always cherish your memories

This work is also dedicated to the many people who inspired me to follow my dream:

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ABSTRACT

EXPERIENCES OF COMMUNITY HEALTH NURSES IN THE TB WORK ENVIRONMENT

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Introduction: South Africa has one of the world's worst Tuberculosis (TB) epidemics. Several interventions were instituted by the Department of Health to manage TB and, regrettably, people still die from the disease. The community Health nurses provide care to people diagnosed with TB in facilities that have low staffing ratios with increased workload and responsibilities.

Objective: This paper explores and describes the experiences of community health nurses working in a TB work environment.

Method: A qualitative, descriptive, phenomenological approach was used to investigate the experiences of community health nurses in the TB work environment. A purposive sampling was used and consisted of twenty nurses. Unstructured interviews were conducted at an urban clinic, a semi-urban clinic and a rural clinic to gather data. The researcher followed the steps of the Colaizzi process of data analysis.

Findings: Four themes were identified and discussed. These themes include fear of being infected with TB, control of infection, defaulting TB treatment, and screening services.
Themes were supported with literature during discussion.

Conclusion: The study concluded that the participants' fear of contracting TB was attributed to delayed diagnosis of TB patients, the patients' ignorance regarding TB transmission and community health nurses with chronic diseases and interacting with undiagnosed TB patients. Compromised TB infection control measures, such as failure to wear protective masks, was revealed by several participants. Recommendations for the Community Nursing Management and Nursing Education have been clearly described.

Keywords: TB, environment, phenomenology, experiences and community nurses.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ANNEXURES

LIST OF ABBREVIATIONS / ACRONYMS

Abbreviation/acronym	**Meaning**
NSP	National Strategic Plan
NTP	National Tuberculosis Program
TB	Tuberculosis
WHO	World Health Organization

CHAPTER 1: ORIENTATION TO THE STUDY

1.1 INTRODUCTION /BACKGROUND

Tuberculosis (TB) remains one of the most life-threatening conditions amongst many infectious diseases. It is the second leading cause of death globally (Mabunda & Bradley, 2011:93; Sulis, Roggi, Matteelli & Raviglione, 2014:1). Frick, Henry and Lessem (2016:10) assert that, besides TB being preventable, the disease continues to claim millions of lives. In 2013 an estimated nine million people were infected with TB while 1.5 million died from the disease (World Health Organization (WHO) Global Tuberculosis Report 2014:13). Dirlikov, Raviglione and Scano (2015:1) concur with WHO (2014:13) that effective diagnosis and treatment influenced a decline in TB incidence cases between 2000 and 2013. However, considering the fact that TB related deaths are preventable, the current TB mortality rate is of concern. Therefore, effective and affordable interventions by healthcare workers are vital to prevent further transmission of the disease and loss of lives.

South Africa has the highest estimated incidence and prevalence of TB among the twenty-two (22) countries with a high TB burden (Churchyard, Mametja, Mvusi, Ndjeka, Hesseling, Reid et al., 2014:244; WHO 2014:49). These twenty-two (22) countries account for 81% of global TB incidence cases. Low socioeconomic status and overcrowding provided a fertile ground for TB infection in countries with a high TB burden (Narasimhan, Wood, MacIntyre & Mathai, 2013:1). In South Africa the low socioeconomic status and the HIV epidemic influenced the increase of TB incidence cases (National Strategic Plan on Human Immunodeficiency Virus, Sexually Transmitted Infections and TB 2012-2016). To reduce transmission of TB effectively among healthcare workers and communities, the period of infectiousness should be kept to a minimum through early diagnosis and treatment; a view echoed by Lönnroth, Castro, Chakaya, Chauhan, Floyd, Raviglione et al., (2010:1820). Management of TB transmission through early detection is crucial to reduce the risk of healthcare workers contracting TB (Otwombe, Variava, Holmes, Chaisson & Martinson, 2013:1199).

Disappointingly the National Tuberculosis Program (NTP) that was established in 1994 failed to reduce the TB burden in South Africa that was crippling the health services and more people got infected with TB (Churchyard et al., 2014:245). To curb the TB epidemic

The South African Department of Health developed an Integrated National Strategic Plan (NSP) for HIV, STIs and TB in 2012-2016. The NSP aimed at reducing the TB prevalence and mortality by 2016. These targets would be achieved through effective TB diagnosis, treatment and prevention of transmission. Effective rapid diagnosis of TB would be achieved through the use of GeneXpert MTB/RIF, which is referred to as an automated diagnostic test which simultaneously detects TB and rifampicin resistance. It is used in patients suspected of having TB (Held, Laubscher, Zar & Dunn, 2014:1). Unlike the conventional culture testing that provides results in few weeks GeneXpert detects TB in two hours.

Early diagnoses and treatment increases the treatment success rate. In 2010 the WHO endorsed the use of GeneXpert for rapid and accurate detection of TB (Piatek, Van Cleeff, Alexander, Coggin, Rehr, Van Kampen et al., 2013:19). Unfortunately, non-availability of cartridges for the test remains an obstacle to achieving the goal of rapid TB diagnosis. Patients diagnosed with TB receive free treatment but adherence to the strict drug regimen is still a challenge, thus spreading the infection (Adane, Alene, Koye & Zeleke, 2013:2). Failure to prevent the spread of TB compromises available resources to control the disease (Peltzer, Naidoo, Matseke, Louw, Mchunu & Tutshana, 2012:89). Prevention of TB transmission among populations at risk, such as healthcare workers, should be optimized to ensure a healthy working environment (Loveday, Smith & Day 2013:144; Tudor, Mphahlele, Van der Walt & Farley, 2013:27).

Healthcare workers are at a continued risk of contracting the disease while providing care to patients with undetected TB (Engelbrecht, van Rensburg, Rau, Yassi, Spiegel, O'Hara et al., 2015:1). Inadequate TB infection control measures and individual susceptibility exacerbate the transmission of infection from patients to healthcare workers (Ukwaja, Alobu & Onu, 2013:1). Healthcare workers are afraid of contracting TB. If infected they deny symptoms experienced and delay diagnosis and treatment (Zelnick, Gibbs, Loveday, Padayatchi & O'donnell, 2013:396-398). The Infection Control Program must include screening of healthcare workers for latent TB, thus identifying the need for commencing treatment.

It is further noted that healthcare workers prefer to take treatment secretly so that they are not stigmatized and discriminated against by colleagues and the community (von Delft, Dramowski, Khoza, Kotze, Lenderer, Mosidi et al., 2015:148-149). It is therefore important that periodic screening of healthcare workers for latent TB should be done. Education on TB related stigma may encourage healthcare workers diagnosed with TB to disclose their status and receive support from colleagues.

Community health nurses diagnosed with TB are often concerned about being fatally ill and thus hospitalized for lengthy periods. While hospitalized they have to commence treatment with the possibility of side effects, such as deafness and psychosis, that can result in severe medical and psychological consequences (Kanjee, Catterick, Moll, Amico & Friedland, 2011: 333; Tudor et al., 2013:24). Healthcare workers form an extremely valuable national asset. The community health nurses provide care to people diagnosed with TB in facilities with low staff ratios, resulting in an increased workload and responsibilities exposing them to TB infection (Zelnick et al., 2013:1). They therefore develop psychological defense as coping mechanisms because they are rightfully afraid of being infected with TB (von Delft et al., 2015:148). The aim of this study was therefore to explore and describe the experiences of community health nurses in the TB work environment.

1.2 PROBLEM STATEMENT

Tuberculosis (TB) is a global and national health concern (WHO 2013). It affects all age groups such as individuals, families and communities, as well as the socio-economic standing of various regions which often lead to an increased mortality rate (Mori & Leung, 2010:1). These regions include among others America, the Western Pacific regions, the European regions and Africa. Although in regions such as America and the Western Pacific experience a decrease of 45% in the mortality rate between 1990 and 2013, TB continues to affect millions of people worldwide (Sulis et al., 2014:1-6; WHO, 2014:13). According to WHO (2014:36) an estimated 29% of global TB incidence cases are reported in African countries even though Africa has only 12% of the world population (Zumla, Petersen, Nyirenda & Chakaya, 2015:46). Furthermore, the authors indicated that,

contrary to the 2014 WHO statement, the TB incidence in Africa may be more than 29%. The assumptions are made that the poor laboratory and diagnostic equipment in Africa has influenced identification of the actual impact of TB incidence cases. The African countries are regarded as having a high TB incidence and involve Nigeria with an estimated 430 000 cases, Ethiopia with 160 000, Kenya with 69 000 and the Democratic Republic of Congo with 190 000 (WHO, 2014). Additionally, South Africa, as one of the African countries, has an estimated 520 000 TB cases (Churchyard et al., 2014:245).

TABLE 1.1 TB incidence rate by province and year

PROVINCE	2015	2014	2013	2012	2011
Eastern Cape	692	785	823	863	914
Free State	575	632	721	761	842
Gauteng	330	378	403	418	454
KZN	685	814	953	1060	1185
Limpopo	301	334	383	372	411
Mpumalanga	402	462	477	513	614
North West	528	631	658	705	817
Northern Cape	645	764	798	758	894
Western Cape	681	710	743	777	827

Kanabus, 2017:1

All the Provinces of South Africa have experienced the TB burden differently. The Eastern Cape, KwaZulu-Natal and the Western Cape are the provinces which have the highest incidence rates in South Africa with reported rates of 692, 685 and 681 per 100 000 people respectively (Kanabus, 2017:1) This high TB prevalence in South Africa places a financial burden on the overstretched health services to deal with the HIV/AIDS epidemic.

Therefore, adequate resources, proper program management and on-going evaluation of TB control programs are urgently needed to decrease the TB burden.

The impact of TB remains high in Africa despite the interventions in place to control the disease. Some world countries, such as Australia, Japan and New Zealand, ensure that TB patients have access to high quality diagnosis and treatment in line with WHO's Stop TB strategy (Glaziou, Falzon, Floyd & Raviglione, 2013:4). Countries in Sub-Saharan Africa also introduced the DOTS program to control the prevalence of TB. The DOTS strategy ensures that patients are encouraged to take treatment under direct and supportive supervision, ensuring that the right drugs are taken at the right time for the full duration of the treatment (Churchyard et al., 2014:1). During the DOTS program patients are motivated to comply with the strategy in order to prevent relapse and drug resistance.

1.3 SIGNIFICANCE OF THE STUDY

1.3.1 NURSING MANAGEMENT

The findings of the study will assist policy makers regarding policy formation and developing measures regarding the treatment of and dealing with TB patients. Control measures to ensure compliance to guidelines should be instituted. Guidelines could be developed for the management of healthcare workers diagnosed with TB to reduce the period of infectiousness in healthcare centers.

1.3.2 NURSING PRACTICE

The findings of the study will highlight the professional support for nurses working in the TB environment.

1.3.3 NURSING EDUCATION

The study outcome will form the basis of education and training for healthcare workers in the TB working environment in relation to the stigma attached to TB, personal risk, and confidentiality.

1.4 RESEARCH QUESTION

The following research question directed the study:

What are the experiences of community health nurses in the TB work environment?

1.5 OBJECTIVE OF THE STUDY

The objective of this study was to explore and describe the experiences of community health nurses in the TB work environment.

1.6 CONCEPT CLARIFICATION

1.6.1 TUBERCULOSIS

Tuberculosis is defined by Singh and Goyal (2013:1) as a chronic inflammatory disease caused by mycobacterium tuberculosis. For the purpose of the study TB is described as an infectious disease affecting the lungs.

1.6.2 EXPERIENCES

Experiences refer to the quality and value of all interactions, direct or indirect, clinical and non-clinical during the entire duration of working in a particular environment (Wolf, Niederhauser, Marshburn & La Vela 2014:9). For the purpose of this study, experiences refer to all interactions between the community health nurse and patients in the TB work environment.

1.6.3 COMMUNITY NURSES

Community nurses refers to nurses promoting, preserving and maintaining the health of a population in a community health field through the delivery of personal healthcare services to individuals, families and groups (Stanhope & Lancaster, 2013:15). In this study *community nurses* refers to registered nurses working in the TB environment.

1.6.4 WORK ENVIRONMENT

Work environment is defined as the organizational characteristics of a workplace that enables or constrains professional nursing practice (Kelly, Kutney-Lee, Lake & Aiken, 2013:483). In this study *work environment* refers to clinics where community health nurses provide health care services to patients diagnosed with TB.

1.7 RESEARCH METHODOLOGY

The researcher followed a qualitative descriptive phenomenological approach and focused on the experiences of community health nurses in the TB work environment. Phenomenology is defined by Streubert and Carpenter (2011:73) as a science with a purpose to describe a particular phenomenon, or the appearance of things, as experienced in life. Phenomenology is an inductive qualitative research of the 20th century traditions of Edmund Husserl and Martin Heidegger (Streubert & Carpenter, 2011:7; Gina, 2012:1). The study was conducted in selected clinics in the Gauteng Province. The researcher chose a qualitative approach in order to highlight the experiences of community nurses in the TB work environment. The study population consisted of all the community health nurses employed in selected clinics in the Tshwane sub-district, Gauteng. The participants were selected on the basis of their knowledge of the phenomenon under study, with the sole purpose of sharing the knowledge.

The researcher selected unstructured individual interviews as data collection method. Unstructured interviews provide participants with the opportunity to fully describe their experiences (Streubert & Carpenter 2011:35).

1.8 ETHICAL CONSIDERATIONS

Ethical consideration is defined as the protection of the rights of participants in a research study (Burns & Grove, 2011:111). Furthermore, Streubert and Carpenter (2011:61) explain ethical consideration as a principle to ensure participants are not harmed. Ethical considerations were adhered to in the following manner: the research proposal was submitted to the Research Ethics Committee, Faculty of Health Sciences at the University of Pretoria, for approval before commencing with the actual research. Permission to conduct the study was sought from the Gauteng Provincial department of Health and the management of selected clinics in the Tshwane sub-district, Gauteng. (Refer to Annexure C). In this study, ethical principles of beneficence, justice and respect for human dignity were adhered to.

1.8.1 Beneficence

Polit and Beck (2012:153) defines beneficence as an essential ethical principle that emphasizes the increasing of benefits for research participants and decreasing harm. The following dimensions were covered by the principle of beneficence: the right to freedom from harm and discomfort, as well as the right to protection from exploitation.

- **The right to freedom from harm**

The right to freedom from harm focuses on avoiding any physical or psychological harm to participants during the study (Polit & Beck, 2012:152). Furthermore, the author insisted that participants should not be subjected to unnecessary risks of harm or discomfort, their participation should be crucial to accomplishing scientifically and societally important objectives that could otherwise not be realized. In this study, the researcher was alert when probing for more clarity, bearing in mind participants might have to expose deep seated fears that could lead to psychological consequences. The researcher was prepared

to terminate the study if it became apparent that continuation would result in unwarranted anguish for the participants.

- **The right to protection from exploitation**

The right to protection from exploitation occurs when participants are placed in a disadvantaged position by the researcher when exposing them to a situation that the participants were not prepared for (Polit & Beck 2012:153). In this study the researcher adhered to the initial agreement of using only forty-five (45) to sixty (60) minutes of the participants‟ time for interviews to avoid exploitation of participants.

1.8.2 Justice

The principle of justice is about fair treatment and the right to privacy and anonymity (Streubert & Carpenter, 2011:65). According to Polit and Beck (2012:155) participants are not selected for study purposes because they are vulnerable. The right to fair treatment and the right to privacy were covered by the principle of justice.

- **The right to fair treatment**

The right to fair treatment means that prospective participants who decline to participate in the study, and participants who withdraw from the study, should be treated in a non-harmful manner. The researcher should show respect for the beliefs, habits and lifestyle of different cultures (Polit & Beck 2012:156). In this study the researcher ensured that no participant was discriminated against.

- **The right to privacy**

Researchers ensured that their study is not more intrusive than needs be and that participant's privacy is maintained (Polit & Beck 2012:156). In the current study the researcher kept all the information obtained from participants strictly confidential.

1.8.3 Respect for human dignity

Polit and Beck (2012:154) assert that respect for human dignity accentuates the right to self-determination and the right to full disclosure. The researcher, in this study, informed the participants about their right to decide whether to participate or not.

- **The right to self-determination**

The principle of self-determination means that the prospective participants have the right to voluntarily decide whether or not to participate in a study (Polit & Beck, 2012:154). The researcher in this study avoided any form of coercion. Participants were permitted to ask questions, decline to give information, even withdraw from the study if they so wished. Furthermore, participants who decided to withdraw from the study would not be subjected to any prejudice from the researcher.

- **The right to full disclosure**

Full disclosure means the researcher has fully described the nature of the study, the participant's right to refuse participation, the researcher's responsibilities and the likely risks and benefits that may be incurred (Polit & Beck, 2012:154:). In this study the researcher communicated the aim and objectives of the study to the participants as determination to fully disclose the nature of the study.

1.9 DATA ANALYSIS

Data collection and analysis were conducted simultaneously, with analysis being done after each interview. Field notes and interview transcripts were analyzed, and themes and sub- themes identified and controlled with literature. (For more detailed methodology, see Chapter 2).

1.10 ORGANISATION OF THE STUDY

The study is structured as follows:

Chapter 1: Orientation to the study

Chapter 2: Research design and methods

Chapter 3: Discussion of the results and literature control

Chapter 4: Overview of the study findings, recommendations, implications, limitations and conclusion.

1.11 CONCLUSION

In this study a phenomenological approach was followed to capture the experiences of community health nurses in the TB work environment. A review of the problem statement, aim, objective, research design and method was discussed and ethical considerations were observed. Data was collected by means of individual interviews. An in-depth discussion of research methodology will now be described in Chapter 2.

CHAPTER 2: RESEARCH DESIGNS AND METHODS

2.1 INTRODUCTION

This chapter presents an overview of phenomenology and an in-depth discussion of the research design and methods implemented to address the general and specific intents of the study. The research design was qualitative and the aim of the study to explore and describe the experiences of community health nurses in the tuberculosis work environment. The population, sampling method, data collection method, and the measures used to ensure trustworthiness, are discussed together with the data analysis.

2.2 OVERVIEW OF THE RESEARCH DESIGN AND METHODS

The research design and methods are discussed in the following section with details of the study process.

2.2.1. Interpretive paradigms

Parahoo (2014:33) defines a paradigm as a loose collection of logically related assumptions, concepts or propositions that influence thinking and research. Mertens and Ginsberg (2009:3153) support the definition by adding that a paradigm is a belief about the nature of knowledge, a methodology and criteria for validity. Polit and Beck (2012:11) further suggests that a paradigm is a worldview, a framework of beliefs, values and methods within which research takes place. Embarking on a journey to conduct a study starts with a researcher deciding on a topic, and a research method to be used, to pursue the research. A paradigm informs the decision to choose a research method, strategies of enquiry, how data will be collected, analyzed and interpreted (Creswell, 2014:5). In this study a constructivist paradigm will be employed.

The interpretivist/constructivist paradigm originated from the phenomenology philosophy of Edmund Husserl (Mertens & Ginsberg, 2009:26). The intention of the interpretivist is to

understand the “world” of human experience, the “lived” experience (Chilisa, 2012:33). The researcher tends to rely on participants’ views of the situation being studied (Creswell, 2014:8) and recognizes the impact of the research from their own background and experience. The interpretivist suggests that reality is socially constructed and shared intersubjective, while a pattern of meaning is developed. The researcher stresses the capturing of the dynamic, holistic and individual aspects of human life (Polit & Beck, 2012:12). Constructivist researchers develop a pattern of meaning throughout the research process, new questions emerge and further information is sought to confirm the description. The interpretive phenomenological paradigm was appropriate and relevant for this study since the community health nurses, as participants in the study, would provide a construct from their own experience in the TB environment.

2.2.2 Philosophical assumptions

Assumptions are the basic principles that are believed to be true without confirmation (Polit & Beck, 2012:12). Assumptions may influence understanding of reality. The following beliefs about knowing and reality are shared by the interpretivist: Ontology, epistemology and methodology.

2.2.2.1 Ontological assumptions

Ontology assumes that reality is constructed inter-subjectively through meanings and understandings developed socially, even across cultures (Polit & Beck, 2012:13). The community health nurses working in a TB environment have a unique understanding about the nature and characteristics of their work environment. These ideas are seldom consciously questioned since they appear to be obvious as a given.

It is anticipated in the ontological world view that the reality we know is created intersubjective through meanings and understandings developed communally and experientially [(Guba & Lincoln (1994) cited in Denzin & Lincoln (2011:103)]. The

clarifications of experiences were raised inter-subjectively and socially by means of dialogue between the researcher and the participants. Human nature is viewed as another facet of ontology.

The researcher, during communication with the participants, had to be aware constantly of the possible result of the inter-subjective effect on the study circumstances because that could have a negative effect on community health nurses as participants. In the current study the researcher had to ensure that she ignored her own experiences as much as possible and concentrate on the experiences of participants.

2.2.2.2 Epistemological assumptions

Epistemology of interpretivism assumes that knowledge consists of those constructs about which there is a consensus or which is about to be achieved (Guba & Lincoln, 2013:55). The assumption deals with how one can know and explain something. What qualifies as a social reality? Can social reality be studied in the same way as natural reality? (Siu & Comerasamy, 2013:33). The particular assumptions were used in the current study. The assumptions were found to be applicable and relevant to the description of the experiences of community health nurses in the TB work environment. The community health nurses in a TB work environment have knowledge about their social reality regarding their work situation.

2.2.2.3 Methodological assumptions

Methodology deals with the how the researcher may investigate the phenomenon of interest (Guba & Lincoln, 2013:137). The researcher decides on a qualitative descriptive phenomenological approach to explore and investigate experiences of community health nurses in the TB work environment. Varying interpretations can be refined through interaction between researcher and participants (Polit & Beck, 2012:13). In addition Creswell (2013:22) also recommends that phenomenological processes should be considered as the best option for data collection and data analysis in qualitative studies.

2.3 DESCRIPTIVE PHENOMENOLOGY

Phenomenology is defined by Streubert and Carpenter (2011:73) as a science with a purpose to describe a particular phenomenon, or the appearance of things, as lived experience. Phenomenology is an inductive qualitative research of the 20th century traditions of Edmund Husserl and Martin Heidegger (Streubert & Carpenter, 2011:7; Gina, 2012:1). The research method evolved through difference in opinion with the positivists. Contrary to the positivistic view that reality is ordered, rational and logical, phenomenologists emphasize through deeper understanding the meaning of people's daily experiences (Polit & Beck, 2012:495). A notion supported by Gina (2012:1), who further stated that understanding of the phenomenon which is consciously experienced by people themselves, is directed. Fundamentally phenomenology as a method is rigorous and critical investigation of a phenomenon (Streubert & Carpenter, 2011:78). According to de Vos, Delport, Fouché and Strydom (2011:30) a phenomenological study try to realize the people's views, perspectives and understanding of a particular situation. Phenomenological research further examines the particular experiences of unique individuals in a given situation, thus exploring not what is reality, but what it is preconceived to be (Holloway & Wheeler, 2010:3).

To understand the phenomenological essence of the phenomenon under study the researcher identified the descriptive phenomenological approach as the appropriate qualitative research design and method. Employing the descriptive phenomenological approach made it possible for the researcher to comprehend the experiences of community health nurses in the TB work environment, as it was articulated by the community health nurses themselves.

The researcher in this study chose phenomenology as a method and a philosophy to direct the study. The phenomenological research approach was most fitting to the aim of the study, which is "to explore and describe the experiences of community health nurses in the TB work environment". Phenomenology aims to gain deeper understanding of the significance of our daily experiences (Van Manen, 2016:9). The phenomenological

approach permitted community health nurses, through in-depth interviews, to provoke their own meaning of their experiences in the TB work environment. Van Manen (2016:9) further indicated that phenomenology aim to describe a person's lived experiences by sketching out its meaning.

Bogdan and Taylor (1975) (cited in Creswell & Poth, 2017:5) refer to the research design as an entire process of research; from conceptualizing a problem to writing research questions, the collection of data, analysis and interpretation, and report writing.

Spiegelberg (1975), as cited in Streubert and Carpenter (2011:81), defines descriptive phenomenology as a "direct exploration, analysis and description of particular phenomena, as free as possible from unexamined pre-suppositions, aiming at a maximum intuitive presentation". The phenomenological researcher attempts to reach true meanings by engaging in-depth into reality. Descriptive phenomenology stimulates people's perception of lived experiences while emphasizing the richness, breadth, and depth of those experiences. Spiegelberg (1975), as cited by Streubert and Carpenter (2011:81), identified bracketing, intuiting, analyzing and describing as the four-step process for descriptive phenomenology.

- **Bracketing**

Bracketing refers to a researcher's identification of entrusted interests, personal experiences, cultural factors, assumptions and instincts that could influence how he or she views the study data. For the sake of viewing data freshly, these associations are placed in "brackets" for the time being (Fischer 2009:583). The bracketing process is vital throughout the research process, especially during data analysis.

Bracketing requires the researcher to remain unbiased with respect to belief or disbelief in the actuality of the phenomenon (Streubert & Carpenter, 2011:77). In this study the researcher suspended any knowledge she might have about the community health nurses' experience in the TB work environment. Preconceived ideas may interfere with the

recovery of pure description of the experiences of community health nurses in the TB work environment.

- **Intuiting**

"Intuiting is a process of thinking through the data so that a true comprehensive or accurate interpretation of what is meant in a particular description is achieved" (Streubert & Carpenter, 2011:81). In intuiting researchers become absorbed in the phenomenon, looking at it afresh without layering it with what has been bracketed out. The phenomenological researcher remains open to the meaning attributed to the phenomenon by those who experienced it (Polit & Beck, 2011:731). Concentrating is very important here because the involvement is intense. During intuiting the researcher was able to understand the experiences of community health nurses in the TB work environment as described by community health nurses themselves.

- **Analyzing**

Analyzing refers to identifying the essence of the phenomenon under study based on the data obtained and on how the data is presented. Recurring themes and interrelationships were identified (Shosha, 2012:35) as the researcher listened to the community health nurses describing their experiences in the TB work environment.

- **Describing**.

Describing is defined as classifying all critical elements of essences common to the lived experience of community health nurses in the TB work environment (Streubert & Carpenter, 2011:83); in addition describing these essences in detail.

2.4 RESEARCH METHODS

Polit and Beck (2012:12), in support to the illustration by Creswell and Poth (2017), defines research methods as the expertise used to outline the study and to gather and analyze the collected data initiated in the research question. In the current study the data was collected

with the aim of exploring and describing the experiences of community health nurses in the TB work environment. The research methods will include: research setting and selection of participants:

2.4.1 Research setting

Research settings described as a location in which data collection takes place (Gray, Grove & Burns, 2013:37). The researcher was immersed in the real world of participants to understand the participant's experiences (Streubert & Carpenter, 2011:212). To understand the experiences of participants even better, the researcher became familiar with the setting.

The study was carried out in the Tshwane sub-District; this district falls under Gauteng Province in South Africa. The province is also affected by the TB epidemic. A study undertaken in the selected Gauteng clinics provided a wealth of information for an in-depth study. Three clinics were selected in an urban, a semi-urban and a semi-rural area, each clinic with about 34 community health nurses. Each clinic attends to approximately 100-120 TB patients on a monthly basis and each clinic is under the leadership of a facility manager.

2.4.2 Selection of participants

The researcher recognized prospective participants with assistance from the clinic manager and then arranged for permission from the Tshwane district pursue the study.

2.4.2.1 Population

The study population refers to all the elements (individuals or objects) that meet the prescribed criteria for inclusion in a given universe (Burns & Grove, 2011:290). According to (Polit & Beck, 2012:738) the research population is an entire set of individuals or objects having some common characteristics. For the purpose of this study the population

consisted of all the one hundred and two (102) community health nurses working in a TB environment in three selected clinics in the Tshwane sub-district, Gauteng, South Africa.

2.4.2.2 Sampling method

Sampling refers to a group of people selected to be representatives of a population as a whole (Offredy & Vickers, 2013:131). Purposive sampling design was used to select a sample for this study; that is, participants who were most beneficial to the study (Polit & Beck, 2012:517). Participants who are information-rich were selected; thus the researcher obtained in-depth information needed for the study (Burns & Grove, 2011:313). Furthermore, selection of participants was based on their particular knowledge of the phenomenon under study with the sole purpose of sharing the knowledge. An urban clinic. a semi-urban clinic and a rural clinic were purposefully identified as sampling sites.

2.4.2.3 Sample size

The sample consisted of 20 community health nurses (7 community health nurses from two clinics and 6 from the other selected clinic) who are working in a TB environment. The sample consisted of both male and female community health nurses who have worked in a TB environment for a minimum of one year or more. The sample size was controlled by saturation of information. The researcher conducted the study using the English language and community health nurses were comfortable to converse in English to avoid interpreter costs.

2.4.2.4 Inclusion criteria

Inclusion criteria refer to the characteristics participants must possess. In this study community health nurses, both male and female working in a TB environment in three selected clinics in the Tshwane sub-district for a minimum of one year or more, were invited to be participants in the study.

The participants have experienced the phenomenon, and were able to express what it is like to have lived that experience (Polit & Beck, 2012:523). The selected clinics were close to the researcher's area of work; thus travelling costs were affordable. The participants

were available to participate in the study to ensure completion of the study within the planned period.

2.5 DATA COLLECTION

Data collection is the systematic gathering of information relevant to the research problem using methods such as individual interviews and group discussions (Gray et al., 2013:46). In this study the researcher conducted unstructured individual interviews to collect data. Individual interviewing is a method of data collection where the researcher meets in person with the participant to ask questions (Polit & Beck, 2012:265). The researcher chose individual interviews as a method of data collection because it is a flexible technique to explore in greater depth of meaning than other techniques. The researcher was also able to use interpersonal skills, allowing for trust and participation resulting in the participants being co-operative and providing more information.

The interviews were conducted in a setting easily accessible to all participants and where they had privacy; they were not disturbed and could focus on the questions while providing relevant information (Burns & Grove, 2011:695). An interview schedule was used to guide the individual interviews and the main question was asked ["*what are your experiences as a community health nurse in the TB work environment* "]. Notes were collected during the interviews to be read later in conjunction with the transcribed notes. The interviews lasted for a period of 45-60 minutes.

2.5.1 Preparatory phase

The researcher requested permission from Tshwane district to use their clinics as research setting and also interview community health nurses in the selected clinics. Permission was granted (see Annexure B). The dates and time were agreed upon by the researcher and respective clinic managers.

2.5.1.1 Recruitment and access of participants

The effective recruitment of participants played a major role in the success of the study. Recruitment refers to identification, assessment and communication with potential study participants (Grove et al., 2013:374). In this study the researcher communicated the research topic and the process to be followed to the prospective participants to guide their decision in becoming participants. Gaining access to the research setting is important and has to be planned in order to establish rapport between the researcher and the participants (Polit & Beck, 2012:84; Streubert & Carpenter, 2011:37). In the current study the researcher developed interpersonal skills to the advantage of both the participants and the researcher. Furthermore, gaining access to the research site also facilitated a meeting with the facility manager who was instrumental in securing appointments with relevant participants (Streubert & Carpenter, 2011:37).

The participants identified a site suitable for individual interviews; a site where privacy was guaranteed and the participants were able to focus and provide relevant information (Burns & Grove, 2011:695).

The researcher gained access to the participants through initial contact with some community health nurses who later agreed to a date for individual interviews. Information leaflets containing the objective of the study, an informed consent form, all the details referring to the study process and the reason for collecting data at the clinics were handed to the participants on the days of the interviews, as advised by Polit and Beck (2012:184). The information leaflet also contained personal contact details of the researcher and the supervisor.

2.5.1.2 Pilot testing

A pilot study is a smaller version of the main study to be conducted. The purpose of a pilot study was to determine whether the methodology, sampling and analysis to be used in the main study were sufficient and applicable to answer the research question (Kim,

2011:190). Polit and Beck (2012:737) refer to a pilot study as a "trial run" done in preparation for the main study. The researcher conducted a pilot study using unstructured individual interviews to refine her interviewing skills and to test the research question using three (3) participants. The findings of the pilot study were not used in the main study. No challenges were encountered with the research question during the pilot study. The researcher used the outcomes of the pilot study to develop interview skills and identify any need to refine the research question (Streubert & Carpenter, 2011:90). The interview was conducted on the day when the participants were off duty to prevent service interruptions**.**

2.5.2 Interview phase

An interview is one of the qualitative data collection techniques. Interviews can be conducted face to face with the specific purpose of collecting information (Shekhar Singh 2014:80). According to Pitkiewicz and Smith (2014:10) interviews are the most popular method to elicit rich, comprehensive and first-person accounts of experiences. Interviews allow the researcher and participants to engage in a discussion; they also provide enough space and flexibility for original and unpredicted issues to arise, which the researcher may investigate in more detail with probing. For the purpose of this study the researcher used unstructured individual interviews to capture detailed information from participants.

Unstructured individual interviews are interactive in nature and are regarded as debatable because researchers cannot predict the outcome of the interview since they do not have a set of questions prepared in advance for the interview (Polit & Beck, 2012:536). On the day of the interview, a quiet room, conducive for an interview, was prepared. The researcher greeted the participant and allayed anxiety before commencing with the interview. A tape recorder was used to capture information during the interview and switched on with the permission of the participant

The researcher conducted unstructured individual interviews with twenty (20) participants who could relate their stories based on the main research question namely: [*to explore and describe the experiences of community health nurses in the TB work environment*]. The

participants were encouraged to talk freely and tell their story using their own words. The researcher used follow-up questions to facilitate clarification of experiences, thoughts and ideas, thereby assisting the participant to reveal their lived experiences (Dahlberg, Dahlberg & Nyström, 2008:192). During the interview the researcher stayed focused, listened attentively and collected as much relevant data as possible. Data collection continued until saturation was achieved.

- **Facilitation during the interviews**

Participants often do not respond to questions in full. This requires the researcher to listen attentively to participants and use probing to elicit further information. With probing, nondirective questions were used to encourage the participant to elaborate on aspects not mentioned, clarify what had been said, extract more information, and to address a question insufficiently answered (Polit & Beck, 2012:310).

In the current study the interview guide served as the basis for the researcher's probing mechanism. The researcher held back from interrupting the participant unnecessarily. A tape recorder was used to record data (with prior knowledge and permission of the participants). Confirmation of data saturation was concluded by the researcher and an independent coder. The interview lasted for 45 to 60 minutes. At the end of the interview all the participants were thanked**.**

The following facilitation skills were used during the individual interviews: probing, reflection, clarification, listening skill and paraphrasing.

2.5.2.1 Probing

The purpose of probing is to expand the response to a question, to increase the abundance of the data obtained, and to give an indication to the participant about the level of response that is preferred. It is a technique to persuade the participant to give more information about the issue under discussion (De Vos et al., 2011:345). In the current study the researcher followed up with questions about the participants‟ remarks in order to

gain more clarity and meaning. An example of a probing question used was: "*You said that it is risky to work in a TB environment—what did you mean by that statement?"*

According to Hanson and Brophy (2012:4) probing during an interview is done to encourage more in-depth responses. Furthermore, the participant may require more probing to access concealed knowledge about the experiences of community health nurses in the TB work environment.

2.5.2.2 Reflection

During reflection, the researcher repeats the participant's ideas, thoughts and feelings to check if this were well understood (De Vos et al., 2011:345). An example was: "So you are saying the nurses' attitude influences TB patients‟ defaulter rate". The authors further indicated that the reflective process has a structuring function and motivates the participant to give more information. The researcher also reflected on the feelings that participants experienced in the TB work environment.

2.5.2.3 Clarification

Clarification is a skill that is used to get clarity on unclear statements (De Vos et al., 2011:345). The researcher asked questions in order to gain clarity on the experiences of community health nurses in the TB work environment. An example was: "*You said on a two monthly basis sputum is collected from nurses to exclude TB; what about nurses that cannot produce sputum?"* In this study clarification provided a better understanding of the experiences of community nurses in the TB work environment.

2.5.2.4 Listening skills

The researcher is expected to possess good listening skills to be able to obtain quality information during an interview (De Vos et al., 2011:345). The researcher, in the current study, displayed interest in what the participants said by using responses such as "*and so",* and also by nodding her head. By using these listening skills, the facilitator was able to

maintain constant interaction with the participants and gained clarity about the factors identified by the participants.

2.5.2.5 Paraphrasing

Paraphrasing is a process in which the facilitator intensifies meaning by stating the participants' words in a different form but with the same meaning (De Vos et al., 2011:345). The participants used words such as *"chronic diseases"*, which had different meanings for different participants. For example, there researcher asked questions, such as: *"You indicated that there are staff members diagnosed with chronic diseases; which diseases were you referring to?"*

2.5.3 Phenomenological approaches undertaken during data collection

Phenomenological approaches to be followed when conducting interviews, as recommended by Streubert and Carpenter (2011: 34), are: reflexivity, grounding and humanization.

- **Reflexivity**

Reflexivity refers to self-reflection. The researcher should understand the degree to which his or her own values and beliefs may influence the findings and credibility of the study. In this study the researcher was constantly taking the position of a main research tool. Bias was avoided by the analysis of the researcher's experience, and the phenomenon was approached with an open mind.

- **Grounding**

Grounding refers to recognizing the life-world as the "place of origin of the research which is filled with complexity and contains tensions" (Holloway & Wheeler, 2010:220). In the current study, grounding took place in the form of the researcher bracketing her assumptions concerning the experiences of community health nurses in the TB work environment. Streubert and Carpenter (2011:77) assert that researchers should remain

neutral with regards to their knowledge of the phenomenon under study. The researcher bracketed her own beliefs and value systems without being pre-judgmental on what she heard and observed during data collection (Streubert & Carpenter, 2011: 77).

- **Humanization**

According to Holloway and Wheeler (2010:220) humanization and the language of experience, the body, time and space reflect the qualities of human experience. Since phenomenological research focuses on the life-world, lived experiences are often described by participants themselves. At the same time the researcher had to bracket her own prior assumptions gained through experience of literature and personal experience to "perceive" the phenomenon with an open mind.

2.6 DATA ANALYSIS

Polit and Beck (2012:725) defines data analysis as an orderly organization and synthesis of research data. Data analysis is a process of examining, categorizing, tabulating and recombining collected data from the research study (Gray et al., 2013:279). The aim of data analysis is to preserve the uniqueness of each participants lived experience, while allowing an understanding of the phenomenon under study. In this study the Colaizzi (1978) data analysis process, as cited in Streubert and Carpenter (2011:92), was used.

TABLE 2.1 Data analysis according to Colaizzi's seven steps

Colaizzi's steps of data analysis	**Data analysis in the current study**
1. The analysis of data starts with the researcher reading the written data from the transcripts several times.	- All the verbatim transcripts were read several times.

Colaizzi's steps of data analysis	**Data analysis in the current study**
2. Each protocol is read and significant statements are extracted.	Reading each protocol enabled the researcher to move back and forth between parts of the data so as to construct new understanding.
3. New meanings from the significant statements are acquired.	More understanding of the statements led to new meanings being attached to verbal statements made by participants.
4 Meanings are formulated for each significant statement from the transcripts and these formulated meanings are clustered into themes and sub-themes as suggested by Coliazzi	Four main themes and twelve sub-themes were formulated.
5. Findings are described an integrated so that they can give meaning.	New understanding was found in the merging of opinions when themes and sub-themes emerged.
6. Writing and re-writing themes and sub-themes are supported by quotes to further validate the findings	The script was categorized and re-assembled into one document
7. Further validation of the analyzed data to be done with participants to validate the findings.	Validation of the findings with participants. A suggestion by (Polit and Beck 2012:591) as an aspect of member checking, probing to ensure that participants'

Colaizzi's steps of data analysis	Data analysis in the current study
	interpretations were understood, was done.

The researcher read and re-read the records with the goal of obtaining a comprehensive idea about the entire content. Statements that are directly related to the phenomenon under study were identified, extracted and recorded separately for easy identification. Meanings were formulated from these statements, as well as grouped clusters of themes and sub-themes. The clusters of themes were referred back to the original statements for validation. The researcher avoided the temptation to ignore data or themes that did not fit. The results were integrated into a broad description of the phenomenon under study in an explicit statement of identification as possible. The researcher then validated the findings by returning to the participants to determine if the essence of the interview had been correctly captured (Streubert & Carpenter, 2011:67).

2.7 MEASURES TO ENSURE TRUSTWORTHINESS

Polit and Beck (2013:394) define trustworthiness as the degree of confidence researchers has in their data. According to Babbie & Mouton (2014:276) trustworthiness of data refers to how a researcher can convince her/his audience that the findings are correct and worth paying attention to. In this study the researcher used the Lincoln and Guba (1985) model to establish trustworthiness. The following strategies: credibility, transferability, dependability, conformability, and authenticity were applied to obtain the goal of trustworthiness (Polit & Beck, 2013:322).

2.7.1 Credibility

Credibility is described as the confidence in both the truth of the data and the researcher's interpretation of the data (Polit & Beck, 2012:585). The researcher ensured credibility of

the study through prolonged engagement in the field, member checking and triangulation (Streubert & Carpenter, 2011:316).

- **Prolonged engagement**

Lincoln and Guba (1985), cited in Polit and Beck (2012:589), describe prolonged engagement as the process of spending sufficient time with participants during collection of data. Dedicating sufficient time with the participants provides the researcher with ample, excellent time to understand the phenomenon. The researcher in this study spent time with the participants during individual interviews that lasted 45 to 60 minutes per session.

- **Member checking**

Member checking is explained by Polit and Beck (2012:593) as continuous confirmation of the accurateness of data, themes, interpretation and conclusions with members from whom data were originally collected. Mosadeghrad (2013:208) asserts that member checking refers to reporting preliminary results to participants and asking for comments on findings and interpretation. The researcher further incorporated these critiques into results. The Supervisors were informed about the themes and sub-themes that emerged, and thus the researcher had an opportunity to clarify her interpretations and examine any bias. The supervisors' proficiency in qualitative data analysis methods was critical in the review of the study.

- **Triangulation**

Polit and Beck (2012:745) describe triangulation as using multiple methods to collect and interpret data about a phenomenon to realize a truthful representation of reality. The multiple data collection method provides a method to assess the extent to which a reliable and comprehensible picture of the phenomenon emerges (Polit & Beck, 2012: 590). For the purpose of this study data triangulation was enhanced by conducting individual interviews, using field notes and the use of an audio tape recorder. Furthermore the

researcher used three different clinics that gave triangulation of place (Babbie & Mouton, 2015:277).

2.7.2 Transferability

Polit and Beck (2012:585) describe transferability as the extent to which research findings can be applicable in other settings or groups. In this study the researcher made available comprehensive descriptive information that will allow for evaluation, should the reader decide to apply the findings in another setting.

2.7.3 Dependability

Dependability is explained by Polit and Beck (2012:585) as the stability of data over time and under other conditions. According to Babbie and Mouton (2015:278), when determining dependability, an enquiry must provide its audience with evidence that, if the study was to be repeated with the same participants in the similar context, the findings would be similar. For the purpose of this study the researcher handed the interview notes and tape recordings to an independent subject for analysis. In addition the supervisor assisted with data sorting.

2.7.4 Confirmability

Confirmability refers to impartiality; that is the potential for similarity between two or more independent people about the data accuracy, relevance and meaning (Polit & Beck, 2012:585). The principle is viewed as the neutrality which is the freedom from bias in the research process. In this study non-biased data was ensured by the assistance of the independent coder who was given the transcribed data, original data, themes and subthemes from the research study and compared them with her own. Polit and Beck (2012:585) assert that, for confirmability to be achieved, the findings have to reveal the participants‟ voices and not the researcher's perspectives. Conducting individual interviews during which the participants‟ voices were recorded, and transcribing those recorded interviews verbatim, confirmed that the data collected originated from the participants themselves.

2.7.5 Authenticity

Polit and Beck (2012:585) explains authenticity as the extent to which researchers fairly and faithfully display a variety of realities. Authenticity becomes evident if findings express the nature of participant's lives as they are lived (Polit & Beck, 2012:585). In addition Streubert and Carpenter (2011:239) state that "authentic" means that an article provides honest reporting of a research topic since the "internal criticism of data is concerned with the truthfulness or authenticity of the content". The researcher and an external coder examined the condition of the tape recordings and interview notes; then carefully read the report. Data authenticity consisted of the audio-taped voice recordings of the participants during individual interviews and verbatim transcripts thereafter. The stated findings showed the true reflections of what emerged during the study.

2.8 CONCLUSION

In this chapter the research design and methodology were discussed in depth. The researcher indicated the manner in which data were collected and analyzed. The unstructured interviews focused on the experiences of community health nurses in the TB work environment. The necessary measures to ensure trustworthiness were maintained. The next chapter discusses findings and literature control.

CHAPTER 3: DISCUSSION OF RESULTS AND LITERATURE

3.1 INTRODUCTION

In the previous chapter the methodology for this study was fully discussed. This chapter will present and discuss the results that are confirmed with relevant and appropriate sources. The aim of the study was to explore and describe the experiences of community health nurses in the tuberculosis work environment. The findings from the data collected through individual interviews are presented and interpreted. The research question was: "*What are your experiences as a community health nurse in the TB work environment?"*

3.2 THE DEMOGRAPHIC PROFILE OF THE PARTICIPANTS (n=20)

The target population in this study was the community of health nurses working in a TB environment. The sample consisted of twenty (20) community health nurses working in the TB environment. The duration of each individual interview was 45-60 minutes. The information was obtained until saturation was reached.

Table 3.1 Demographic information of the sample

Criterion	Characteristics	Frequency	Percentage
Gender	Males Females	2 18	10% 90%
Ethnic group	Black	20	100%
Years of service	0-5 6-10 11-15 16-20 21-25	2 1 3 6 6	10 5 15 30 30

Criterion	Characteristics	Frequency	Percentage
	26-30	1	5
	31-35	1	5
Ages	26- 30	2	10%
	31- 35	5	25%
	36- 40	6	30%
	41- 45	3	15% 10
	46-50	2	5
	51-55	1	5
	56-60	1	

3.3 PROCESS OF DATA COLLECTION AND ANALYSIS

Data was collected in the three selected clinics in the Tshwane sub-district, Gauteng. Twenty (20) individual interviews were conducted with Community health nurses. Purposive sampling was used to select participants who had experience in the TB work environment. The interviews were audio recorded with the participant's permission.

The data analysis was guided by the seven steps of Colaizzi (1978) data analysis process as cited in Streubert and Carpenter (2011:79). Excerpts from the data were used as supporting evidence for identified themes and sub-themes. Each excerpt is followed by the clinic number and participant number in brackets, for example (Clinic 1 P 1). The following four main themes emerged:

- Fear of being infected with TB
- Infection control
- Poor adherence to TB treatment
- Screening services for TB.

3.4 RESULTS

The results were grouped into themes and sub-themes. Four themes and twelve subthemes emerged from the transcripts. The results were based on the experiences of participants as shared in their own voices. The excerpts were written in italics. Table 3.2 displays a summary of the main themes and sub-themes.

TABLE 3.2 Themes and sub-themes of experiences of community health nurses in a TB work environment.

3.4.1 Fear of being infected with TB	□ Delayed diagnosis of TB patients □ Lack of knowledge among TB patients □ Staff with chronic disease
3.4.2 Infection control	□ Protective masks □ Open window/door policy □ TB infected staff members
3.4.3 Poor adherence to TB treatment	□ Staff attitude □ Patient's attitude □ Socio-economic challenges
3.4.4 Screening services for TB	□ Patients □ Staff members □ Contacts

3.4.1 THEME 1: FEAR OF BEING INFECTED WITH TB

Tuberculosis is a known occupational hazard among healthcare workers. It is stated that healthcare workers have an increased risk of developing TB compared with the general population (Tudor, Van der Walt, Margot, Dorman, Pan, & Yenokyan, 2016:1). In this study

it became evident that community health nurses in the TB work environment were afraid of being infected with TB. The participants expressed their fear of being infected with TB. From their fear of being infected with TB, delayed diagnosis of TB patients, lack of knowledge among TB patients and staff with chronic diseases emerged as sub-themes. Theme 1 and sub-themes are shown in table 3.3.

Table 3.3: Theme and sub-themes on fear of being infected with TB

THEME 1	SUB-THEMES
3.4.1 Fear of being infected with TB	Delayed diagnosis of TB patients Lack of knowledge among TB patients Staff with chronic diseases

- **Delayed diagnosis of TB patients**

The participants alluded to the fact that they interact with TB positive patients unknowingly. The patient's TB status is only confirmed during subsequent consultation with the same patient. The community health nurses are aware that, in most cases, patients that come into their consulting rooms may not provide accurate history that could inform TB investigations, and therefore the patient may be misdiagnosed. The participants further noted that patients report to the clinic when they realize that the treatment they had received earlier was not effective. During the second visit the nurse identifies the need for TB investigation and relevant management. The following excerpts were extracted from the transcripts confirming delayed diagnosis of TB patients:

> "*Sometimes I think my life is in danger especially as patients are only identified as TB suspects in the consulting room after interacting with other patients and staff members in the waiting area."* [Clinic 3 P 15].

Another participant said:

> *"Healthcare workers are not protected from contracting TB. By the time you receive sputum results after two (2) to three (3) days, then you have already interacted closely with a TB patient unknowingly."* [Clinic 2 P 18].

One participant shared:

> *"I am exposed to TB because patients spend time with me in the acute consultation room and, only after receiving sputum results confirming the patient's TB status, only then the patient is sent to the TB room for treatment."* [Clinic 3 P 8].

Another participant added:

> "*It is risky to work in a TB environment. Some patients arrive at the clinic, not coughing, complaining of minor ailments but meanwhile they are TB positive and not on treatment. After several clinic visits a healthcare worker suspects TB infection, sputum is collected and results come back positive and treatment is commenced."* [Clinic 3 P 9].

The following was said by another participant:

> *"Working in a TB environment is risky because results are only made available after a healthcare worker had been in contact with an undiagnosed TB patient more than once."* [Clinic 2 P 14].

The participants articulated fear of being infected with TB. They further noted that undiagnosed TB patients interact with staff and other patients in the clinic. The TB status of such patients is only confirmed after two to three days upon receipt of sputum results. The participants revealed that the thought of having interacted with the patient who is now confirmed TB positive, arouses the fear of being infected with TB (Verkuijl & Middelkoop, 2016:5). Some participants believed their lives were in danger because they had interacted with undiagnosed TB patients in the waiting rooms. Furthermore, participants revealed that

they were exposed to TB infection in the acute consultation room, attending to undiagnosed TB patients. A feeling of not being protected from acquiring TB was expressed by participants during the study. These findings are similar to that of Sreeramareddy, Qin, Satyanarayana, Subbaraman and Pai (2014:1), who discovered that delayed diagnosis of TB could enhance the transmission of infection, worsen the disease and increase the risk of death. Von Delft et al. (2015:2) concurs that a delay in TB diagnosis and contact between patients and healthcare workers increase the potential for transmission of TB.

Findings revealed that there was concern about the process of objective data collection followed with the patients in the healthcare centers. The participants mentioned that patients are asked on arrival to sit around while waiting for their files, then they continue to the vital signs area, then wait to be called into the consultation room. The participants further indicated that throughout the process community health nurses were in contact with patients, even those with multidrug resistant TB. They furthermore indicated that in the consulting rooms, after history-taking, suspicious patients were identified and relevant investigations instituted. These findings are supported by von Delft et al. (2015:149) who assert that the bulk of TB transmission in healthcare centers occurs before a diagnosis can be made.

In the current study, the participants stated that one of the responsibilities of a cough officer is to remove patients that are coughing from the waiting room and direct them to the TB room. The participants indicated that triage by the cough officer ensures patients that are coughing are not be seen in the acute consultation rooms, decreasing exposure of nurses to undiagnosed TB patients. They further noted that it was unfortunate that a cough officer is not always available due to staff shortage, thus the objective of minimizing TB transmission in the healthcare center is defeated. In the TB room the patient is managed properly, relevant diagnostic tests are done and the patient is sent home with a return date for further management. The participants emphasized that undiagnosed TB patients interact with them in the consultation rooms, exposing healthcare workers to TB infection.

Verkuijl and Middelkoop (2016:62) affirmed that reduction of TB transmission could be achieved by ensuring rapid diagnosis of patients with TB. This finding was also supported by Kuyinu, Mohammed, Adeyeye, Odugbemi, Goodman and Odusanya (2016:2), who agree that the risk of TB infection and disease is increased by the interaction between patients with active TB and healthcare workers in healthcare centers.

- **Lack of knowledge among TB patients**

The issue of TB patients' lack of knowledge about the disease was revealed by participants, emphasizing that even though patients were taught about cough etiquette, they sometimes fail to practice what they were taught. This behavior may thus expose community health nurses to TB at the clinic. Some patients, who defaulted with treatment after being diagnosed with multidrug- resistant TB, do return to the clinic. However, the patients do not divulge their TB status as it would suggest immediate referral to the TB room for investigation and further management. The patients interact with nurses and other patients, exposing them to TB infection. The TB status is only revealed in the acute consultation room during history-taking.

The following quotes verify the findings:

A participant said:

> "*The patient does not inform family about his TB status, neither does he practice cough etiquette. The used tissues are thrown anywhere, not disposed of properly. The TB patient is not knowledgeable about how TB is transmitted from one person to the other. The patient is only worried about being "diagnosed with HIV" if his TB status is known by family."* [Clinic 3 P 8].

Another one stated that:

> *"Some patients, though coughing, refuse to wear a mask, stating that wearing a mask while other patients do not wear masks is pure discrimination. Thus,*

exposing nurses interacting with them to TB infection, in case they are TB positive." [Clinic1 P 4].

One participant commented that:

"*Patient arrive in the clinic labor ward, ready for delivery. The patient does not know the importance of informing the healthcare worker about her TB status and that she did not take treatment during pregnancy. She only informs the healthcare worker that she is TB positive during postnatal care."* [Clinic 3 P 16].

A participant mentioned that:

Some patients arriving at the clinic and are coughing, feel uncomfortable when asked to wear a mask citing they do not understand the reason for wearing a mask" [Clinic 2 P 7].

It became apparent that refusal to wear masks is a sign of lack of knowledge among patients. The participants indicated that TB patients' unwillingness to practice cough etiquette and refusal to wear a protective mask during interaction with healthcare workers, increases the danger of transmission of TB infection.

The findings are in line with the findings of Gonzales-Angulo, Geldenhuys, Van As, Buckerfield, Shea and Mahomed (2013:717), who discovered that there is limited knowledge about TB transmission and prevention among patients. The authors further stated that TB patients who come across TB services for the first time, and patients who have already commenced TB treatment, often lack knowledge about TB infection. According to Biya, Gidado, Abraham, Waziri, Nguku and Nsubuga (2014:3) it is of a concern that TB patients are not aware that the infection can be transmitted by means of close person-to person contact with TB patients. Lack of knowledge among TB patients about the mode of transmission presents a significant challenge affecting efforts to decrease the TB transmission to community health nurses. The participants communicated that ignorance among TB patients about the mode of TB transmission needs attention as

an urgent measure to improve aspects of TB infection control interventions. It was revealed by the participants that patients fail to understand the reason for wearing a protective mask. One participant in the study stated that a patient did not want to wear a protective mask because it was different from the mask worn by healthcare workers. Furthermore, as stated by the participant, the TB patient felt he should be very infectious for the healthcare provider to even wear a protective mask.

In the current study the findings further brought to light that TB patients have an impression that using a protective mask is a sign of discrimination not of prevention of TB transmission. The inference here is that patients are unable to appreciate the importance of TB infection control measures due to lack of knowledge about the disease. In support of these findings, Bulage, Sekandi, Kigenyi and Mupere (2014:9) found that patients received insufficient information about TB from healthcare workers and were not aware of the possibility of transmitting the infection to others. In further support of the findings, a study conducted in Ethiopia revealed that TB patients, who knows little about the disease, will not refrain from transmitting the TB infection to others (Tolossa, Medhin and Legesse, 2014:1). The study recommendations included that health education should be aimed at achieving a noteworthy change in the knowledge about TB. Health education about TB should be included in TB control programs.

It was articulated by one participant that patients lack knowledge about TB. The moment they are diagnosed with TB, they think it is obvious they are HIV positive. This thought evokes some distress in a patient. It was stated by the community health nurses as participants that the patients choose not to commence with treatment as they are afraid of being labeled as HIV positive. It came to light that the same TB patients will be coming to the healthcare center when they are not feeling well, thus exposing healthcare workers to TB infection.

The study findings were clear that TB patients lack knowledge about the disease. The participants shared that some patients do not reveal that they are TB positive and not taking treatment because TB is associated with HIV. It was further stated that patients wait

with other patients in the queues, spreading the infection among healthcare workers and other patients. The findings were supported by Kumwenda, Hart, Chocó, Chipungu and Shand (2016:2), who indicated that associations made between TB and HIV due to lack of knowledge among patients delay seeking treatment for symptoms suggestive of TB. Some patients are afraid to reveal their TB status because they believe society will conclude that they are HIV positive, as confirmed by some participants.

The current study further revealed that TB patients' behavior increased transmission of the infection. The participants pointed out that patients just cough while sitting close to healthcare workers, not even covering the mouth. In support of this finding, Gizaw, Alemu and Kibret (2015:2) highlighted that interaction between undiagnosed patients with TB and community health nurses leads to prolonged exposure that will increase TB transmission. Tudor, Mphahlele, Van Der Walt and Farley (2013:5) discovered that healthcare workers are concerned about TB patients' behavior, such as failure to practice proper cough etiquette. The participants assert that, since TB infection is airborne, coughing patients who do not cover the mouth increase the possibility of TB transmission from patient to healthcare worker. This affirms the notion that patients lack knowledge of how TB is transmitted.

- **Staff with chronic disease**

The participants cited a concern about being infected with TB as a chronic disease because they suffer from other chronic diseases. They are compliant about taking medication but some chronic diseases compromise a person's immune system, thus making them vulnerable to infection. The participants expressed their concerns in relation to suffering from chronic disease:

> *"A staff member, who was on treatment for diabetes mellitus contracted TB. She was placed on treatment but regrettably she passed on. The nurse was asked to prove beyond doubt that she contracted the disease at work".* [Clinic 1 P 4].

A participant stated:

> "*Sometimes the healthcare worker is not aware that she is HIV positive. Some nurses refuse to test for HIV; thus one can easily interact with undiagnosed TB patients while her immune system is compromised."* [Clinic 3 P 10].

Another participant said:

> *"It is risky, especially when you are a woman, if you are pregnant or HIV positive, as with a chronic disease, on treatment, your immune system is compromised."* [Clinic 3 P 8].

One participant's words made it clear that healthcare workers with chronic disease have fear of being infected with TB:

"I attend to TB patients and have fear of being infected with TB because I have a chronic disease; thus I am aware that my immune system is compromised." [Clinic 2 P 6].

An important factor related to staff members with chronic diseases being prone to infections was shared by participants. They further alluded that one staff member was diagnosed with diabetes mellitus while on treatment and contracted TB but unfortunately passed on. Kumar, Gupta, Nagaraja, Nair, Satyanarayana & Zachariah (2013:2) report that diabetes mellitus is a risk factor for the development of active TB. Furthermore the authors attest that diabetes reduces positive TB treatment outcomes by increasing the risk of recurrent disease after treatment was successfully completed.

The participants said that TB is one of the opportunistic diseases faced by people living with chronic diseases such as diabetes mellitus. The participants further noted that healthcare workers diagnosed with diabetes mellitus are at a high risk of acquiring TB from patients with TB. It was evident from the findings that participants felt strongly that healthcare workers with chronic diseases such as HIV are more susceptible to TB. The implication is that HIV exposes a person to many infections, one of which is TB. Tudor, Van der Walt, Margot, Dorman, Pan and Yenokyan (2016:259) argued that the risk of contracting TB is greater in individuals living with HIV. The participants shared that

healthcare workers living with HIV interact with undiagnosed TB patients in the consulting rooms. The compromised immune system of the healthcare worker increases the risk of contracting TB from the patient. The TB transmission is intensified by the undiagnosed TB patient coughing but not practicing cough etiquette.

3.4.2 THEME 2: INFECTION CONTROL

Infection control emerged as the second theme. Inadequate infection control measures influence the risk of transmission among TB patients and nurses. Access to information on TB influences the nurses' behavior and attitudes towards TB infection. In addition compliance with TB infection control measures is crucial to halt the disease. The participants stated that, even though they were aware of the importance of compliance with infection control measures, they sometimes compromised such measures. See Table 3.4 for summary of theme and sub-themes on infection control.

Table 3.4: Infection control

THEME 2	SUB-THEMES
3.4.2 Infection control	Protective masks
	Open window/ door policy
	TB infected staff members

- **Protective masks**

Protective masks are necessary for protecting individuals against airborne infections. Airborne infections pose a threat to healthcare workers whenever they are together in consultation rooms with patients coughing up the TB bacilli. In this study, the participants indicated that they do not wear protective masks because they are uncomfortable to wear. The participants relied on their skills to identify a patient who is a TB suspect, meaning, they know when to wear a protective mask. The following quotes indicate that participants are compromising infection control measures by not wearing protective masks:

"*Clinic management expect us to wear an N95 mask but we do not comply, we only wear a protective mask when consulting a patient that is coughing."* [(Clinic 3 P 10].

In addition, another participant said:

> "*In the TB room I am expected to wear a protective mask. I do not wear a mask because it is uncomfortable, I feel like I am suffocating when wearing a mask; I cannot breathe properly."* [Clinic 3 P 11].

A participant supported the statement by saying:

> *"I do not wear a protective mask; it creates a "wall" between the patient and me. It gives an impression that the patient has a bad odour, thus the relationship between the patient and me suffers resulting in the patient not being forthcoming during history taking.*" [Clinic 2 P 18].

The participants stated that they are unable to use protective masks consistently because the available masks are uncomfortable to wear. Furthermore, the participants do not wear protective masks because they give the impression that their patients have a bad odour, and that negatively influences the relationship between the patient and the nurse. Verkuijl et al. (2016:233) agrees after pursuing an investigation in relation to the occupational TB prevention through Infection control strategies. The authors concluded that, healthcare workers were aware of the increased risk of acquiring TB infection due to failure to wear protective masks regularly. Community health nurses as participants mentioned that discomfort is a reason for non-compliance regarding the use of protective masks.

In support of the findings of the current study Waheed, Khan, Fatima, Yaqoob, Mirza & Qadeer (2017:5) assert that adherence to the use of protective masks was sub-optimal due to the discomfort experienced by healthcare workers when wearing the mask. The participants further confirmed wearing a protective mask was very uncomfortable as it made them feel as if they were suffocating. It was said by some participants that the discomfort was worse in summer. Participants further said the masks disturb

communication between nurses and patients, and also that patients may perceive nurses as lacking empathy.

Some participants stated that, even though they were aware of the importance of wearing a protective mask when attending to patients, the practice is sometimes not realistic in the maternity section of the clinic. Sometimes patients arrive in the unit ready to deliver the baby leaving no time for the healthcare worker to wear a mask. Furthermore, participants indicated that after delivery TB screening is done and if the patient is TB positive, the healthcare worker only then realizes the extent of TB infection exposure.

The participants indicated that they found wearing a protective mask a challenging process. They were aware of the significance of wearing a mask but the mask creates a "wall" between the HCW and the patient. Furthermore, the participants stated that wearing a mask negatively influenced communication with patients. Ineffective communication between the healthcare worker and the patient impacts on the successful history-taking; the healthcare worker may fail to collect relevant information from the patient. Similarly, Brower, Coelho, Mosse, Brondi, Winterton, van Leth (2014:9) agreed that the use of a protective mask had an isolating or depersonalizing effect. The authors added that the use of protective masks reduced the healthcare worker's ability to provide compassionate care to the patient.

- **Open window/door policy**

Participants agreed that one of the infection control measures mostly adhered to is the open window/door policy. They said directing airflow and circulation minimized transmission of TB. Some participants‟ verbatim quotes regarding the open window/door policy were:

> "*To minimize transmission of TB from patients to nurses we practice open door/window policy to accelerate free flow of air."* [Clinic 3 P 9].

Another participant added that:

> *"As a means of protection against TB, I practice open door/window policy to speed up cross ventilation, thus minimizing transmission of TB from patients to nurses."* [Clinic 3 P 11].

Another participant voiced her opinion saying:

> *"To protect myself against TB, the moment the patient starts coughing I open the door and windows"* [Clinic 3 P 13].

The participants mentioned that among infection control measures available the open door/window policy was mostly practiced. They emphasized that the policy is even practiced during winter months to ensure consistency in minimizing transmission of TB. Brower, Coelho, Dores Mosse & van Leth (2015:48) conducted a study on the implementation of TB infection prevention in Mozambique and found that natural ventilation has good potential to reduce airborne transmission. Brower et al. (2015:48) further added that opening doors and windows is one of the easy ways to implement infection control measures to reduce TB transmission in healthcare facilities.

The general use of open doors and windows to prevent TB transmission surfaced strongly in participants' remarks. Participants stated that the doors and windows are opened to speed up cross ventilation, thus reducing transmission of TB from patients to healthcare workers. It concurs with the findings by Tenna, Stenehjem, Margoles, Kacha and Blumberg (2013:6) that by maximizing natural ventilation by opening doors and windows patient and healthcare worker exposure to airborne TB may be decreased.

According to the findings, participants practiced open door/window policy to accelerate free air flow as a means of protection against TB infection. The practice was further emphasized by one participant who said she wears a protective mask when consulting a patient who coughs, and immediately throws it away when the patient leaves the consulting room. The participant further emphasized that she mostly relies on open

door/window policy as protection against TB transmission. Yuen, Amanullah, Dhamadhikari, Nardell, Seddon, Vasilyeva et al. (2015:2341) agree, but add that opening doors and windows in healthcare facilities to decrease TB transmission is an infection control measure that is easy to implement. The participants acknowledge the need to minimize TB transmission in the healthcare facility. Open door/window policy has been the easiest to be implemented as an infection control measure to decrease transmission of airborne infections.

- **TB infected staff members**

The participants confirmed that people with undiagnosed and untreated TB arrive in the health center on a regular basis and this increased the risk of TB transmission. Furthermore, the participants expressed lack of protection from TB infection as a concern especially because they are exposed to TB infection while at work. One said:

> "*A colleague sent sputum for investigation and the results were positive. I do not know if she contracted TB at work or somewhere else.*" [Clinic 1 P 3].

As indicated in the verbatim quote, the participant said:

> "*I contracted TB after being in contact with four (4) MDR patients. Lack of space and unavailability of N95 masks are the reasons I got infected with TB.*"[Clinic 1 P 4].

Furthermore, the participant stated that:

> "*Coincidentally another colleague also contracted TB but unfortunately she passed on."* [Clinic 1 P 4].

In support of the finding, another participant said:

> *"A staff member was diagnosed with TB. She blamed the clinic for contracting TB. She failed to prove beyond doubt that she contracted the disease at work"* [Clinic 3 P 9].

Another participant indicated that:

> *"A colleague was diagnosed with TB. She did not present with any symptoms of TB. She received treatment and completed the course."* [Clinic 3 P 10].

The findings of the current study revealed that staff members are diagnosed with TB but unfortunately it is difficult to prove that they were infected at work. Some participants highlighted the need for compensation when a nurse became infected with TB as stipulated in the Compensation for Occupational Injuries and Diseases Amendment Act (Act 130 of 1997). Furthermore, it became evident that nurses diagnosed with TB do not receive support from management. Psychological support was viewed as being of more value than compensation. The study conducted by Adams, Ehrlich, Baatjies, van Zyl-Smit, Said-Hartley, Dawson, et al. (2015:8) discovered healthcare workers were likely to become infected with TB. The authors further pointed out that the yearly rate of TB infections in South Africa is very high due to occupational exposure.

The findings of this study also reflected that healthcare workers are infected with TB but unfortunately they are not able to prove beyond doubt that they contracted TB at work. A participant aptly verbalized that a healthcare worker contracted TB after being in contact with four (4) multidrug resistant patients. The community health nurse was convinced that this was sufficient evidence that TB was contracted at work; an opinion declined by clinic management. Nienhaus, Schablon, Preisser, Ringshausen and Diel (2014:9) reported healthcare workers with a TB patient contact run a risk of TB infection, and therefore contracting the disease. In addition, Niehaus et al. (2014:9) assert that TB in a healthcare worker can only be accepted as occupational disease if an increased work-related risk of infection can be established and if there is no risk of TB infection outside work.

Claassens, Van Schalkwyk, du Toit, Roest, Lombard, Enarson, et al. (2013:5) found that the TB incidence rate is more among healthcare workers than in the general population. Furthermore, occupational TB among healthcare workers in South Africa is a concern. The inference was therefore made that healthcare workers are more likely to become infected

with TB. The study findings highlighted that a healthcare worker without TB symptoms was diagnosed with TB during screening. In addition, another healthcare worker who was infected with TB received treatment and was re-infected again. These findings further affirm the high risk of TB transmission among healthcare workers due to occupational exposure.

Therefore, implementation of infection control measures is the responsibility of all healthcare workers. Wearing protective masks and open door/window policies are some of the measures participants agreed on.

3.4.3 THEME 3 POOR ADHERENCE TO TB TREATMENT

Default from TB treatment refers to any interruption of TB treatment for at least two (2) months following commencement (Moyo, Furin, Hughes, Daniels, Snyman, Muller, et al. (2015:1) The participants agreed that TB patients' failure to comply with treatment was common practice. Poor adherence to prescribed TB treatment emerged as Theme 3. From this theme three sub-themes were identified: staff attitude, patients‟ attitude and socio-economic challenges.

Table 3.5 TB treatment defaulters

THEME 3	SUB-THEMES
3.4.3 Poor adherence to TB treatment	Staff attitude
	Patient's attitude
	Socio-economic challenges

- **Staff attitude**

The Oxford English Dictionary (2010:103) defines an attitude as a settled way of thinking or feeling about something; furthermore, an attitude influences an individual's choice of action and response to challenges. Some participants stated that the negative attitude of

nurses had an influence on the TB treatment defaulter rate. These nurses do not treat TB patients with empathy, and they are unable to mention their challenges in relation to poor adherence to TB medication. The following was expressed:

"Staff members shout at TB patients, then the patients choose to stay away from the clinic, defaulting on TB treatment." [Clinic 3 P 15].

"The attitude of staff members towards TB patients may lead to patients staying at home rather than reporting at the clinic for TB treatment." [Clinic 2 P18].

"Nurses' attitude towards TB patients influences TB patient defaulter rate. The thought of being shouted at by the nurse discourages patients to come for treatment at the clinic." [Clinic 2 P19].

Furthermore, the finding was supported as follows:

"Some nurses would shout at TB patients, especially during lunch break. Meanwhile the same patient used his lunch hour to come for TB treatment. Patients are told by nurses that "the TB is yours not mine"." [Clinic 3 P11].

The participants shared that TB patients experience the attitudes of some healthcare workers as unhelpful and demeaning. The participants indicated that patients did not appreciate the disrespect shown to them by healthcare workers. The participants noted that the patients were treated rudely, for example: they would be shouted at for coming to the clinic during lunch hour while the patient had only his lunch hour to do so. The attitude of healthcare workers towards patients has an impact on patients" compliance to treatment.

Similarly, Mlatsheni and Peter (2015:13) concur with the finding that TB patients did not go back to the clinic for fear of being shouted at. The authors of this study stated that TB

patients believe that healthcare workers are disrespectful and do not want to provide patient care. It was also revealed that patients, after being diagnosed with TB, are faced with a lengthy treatment course; thus they expect empathy and support from healthcare workers. Any negative attitude displayed by healthcare workers towards TB patients can destroy the willingness to adhere to treatment.

The participants in the study revealed that TB patients need compassion and a positive attitude. They expect healthcare workers to stop and listen to reasons for defaulting TB treatment and instill hope because they feel hopeless. Cele, Knight, Dlungwane, Webb, and Tint (2016:1) agree with the finding that health barriers increase the defaulter rate. The authors state that unfriendliness of healthcare workers adds to the health obstacles that increases treatment defaulters. In the current study participants alluded to the fact that TB patients would rather stay away from the clinic and default on treatment rather than face the rudeness of healthcare workers.

A study conducted in South Ethiopia further affirms the impact of negative attitudes of healthcare workers towards TB treatment compliance (Woimo, Aimer, Bati & Gesesew, 2017:4). According to Woimo, et al. (2014:4) healthcare workers' attitude is ranked as one of the significant barriers of anti-TB adherence among patients. Another finding from the participants of this study raises concern about the attitude of healthcare workers that influences TB patients either to comply with or default on treatment. If the patient arrives later than was expected, the healthcare worker would shout at the patient in front of other patients, saying "the TB is yours, not mine; it is yours". The participants added that healthcare workers ignore the fact that these TB patients are vulnerable, sensitive and fragile because they are sick.

- **Patients' attitude**

Findings revealed by the participants that TB treatment is very effective if it is taken as prescribed. In two weeks' time, the patient may weigh as much as he weighed before contracting TB. However, some patients stop treatment as soon as they feel better.

The following quotes verify this finding:

> "*Patients usually stop taking treatment the moment they feel better. They now believe the TB bacterium is killed, meaning they are healed from TB."* [Clinic 1 P 5].

One participant expressed this:

> "*After taking the treatment for two weeks, the patient usually feels much better and agrees with the family to relocate to another area without requesting a referral letter from the clinic."* [Clinic 2 P 6].

Another participant added by saying:

> *"Patients stop taking TB treatment once they feel better; they think they are cured."* [Clinic 1 P 1].

A participant elaborated on the finding:

> *"Two weeks after commencing TB treatment patients feel better; they think they are cured of TB."* [Clinic 3 P 12].

The findings of the current study indicated that TB patients stop taking treatment the moment they feel better. The participants further noted that patients have an impression that feeling better means they are cured of TB; thus they stop taking treatment. This finding reaffirms what Slama, Tachfouti, Obtel and Nejjari (2013:689) who discovered that the main reason for defaulting on TB treatment is the feeling of being healed. The participants in the current study described the condition of patients before commencing TB treatment. According to community health nurses, patients present with night sweats, feeling lethargic, weight loss and poor appetite. Generally, they feel very sick. The

commencement of TB treatment reverses most of the symptoms, some patients regaining their initial weight, thus confirming recovery from the TB infection. Similar to the current study findings, Tola, Shojaeizadeh and Garmaroudi (2015:6), in their study conducted in Ethiopia, found that TB treatment is effective, patients feel better within two weeks and symptoms are resolved. Mlatsheni et al. (2015:12) further supported these findings, asserting that patients do not adhere to TB treatment because they feel better.

It became evident in the findings that some TB patients interrupt TB treatment because, if they are seen by other patients that they are on treatment, they fear that they will be labeled HIV positive.

- **Socio-economic challenges**

According to participants, TB patients reported several reasons for poor adherence to TB treatment. Verbatim quotes identified during transcription, confirmed this finding

> *"Patients state that they did not come to the clinic for TB treatment because of lack of transport money."* [Clinic 1 P 1].

And

> "*Patients move around a lot searching for a suitable place to stay, thus defaulting on TB treatment"* [Clinic 1 P 2].

Another participant shared that:

> *"Poverty also plays a role regarding patients defaulting on TB treatment. Patients cannot drink TB medication on an empty stomach; thus, when patients cannot afford to buy food they stop taking treatment."* [Clinic 3 P 15].

The participants in this study stated that patients prefer to consult at clinics far from home and are confronted with transport challenges. The participants further commented that patients are unable to report at the clinic to collect TB medicine, the reason being unavailability of transport money. This assertion is in line with the finding of Herrero, Ramos and Arrossi (2015:295) that the burden of transport costs explains one reason for defaulting treatment. The authors declare patients with difficulties regarding transport costs present almost three (3) times higher risks of non-adherence to TB treatment. The patients move around, changing their address during a treatment period. This practice leads to defaulting on TB treatment (Ali and Prins, 2016:5). This finding was also expressed by participants in the study. According to the participants, patients move around a lot searching for a suitable place to stay. They even move between Provinces. Since the movement is in most cases sudden and unplanned, patients are unable to request transfer letters from the healthcare center thus interrupting their TB treatment.

Tola et al. (2015:6) state that some patients are unable to buy food due to financial constraints. In the absence of food patients do not take their treatment. The author states that lack of food influences adherence to TB treatment. In this study the participants confirmed that poverty plays a role regarding patients' defaulting on their TB treatment. They further noted that patients cannot take TB medication on an empty stomach; thus they stop drinking their TB medication. Some patients are embarrassed to quote unavailability of food as reasons for not taking TB medicine; thus healthcare workers are not able to help.

Several factors are associated with poor adherence to TB treatment, namely low income of patients, staff attitude and patients‟ attitude (Cele at al., 2016:41). Furthermore the authors shared that TB patients, experiencing financial challenges, cannot afford to travel to healthcare centers to collect treatment on a regular basis. In the absence of food, patients would not be able to take treatment even if the clinic provides treatment to the patients. The negative attitudes of both staff and patients impact on adherence to TB treatment (Chang & Cataldo, 2014:170).

3.4.4 THEME 4 SCREENING SERVICES FOR TB

Theme 4 emerged as screening services. Three sub-themes were identified namely patients, TB contacts and staff members (Table 3.6). TB screening refers to the organized identification of people with suspected TB in a pre-set target group by using tests, examinations or other procedures that can be applied rapidly. Among those with suspected TB, the diagnosis needs to be recognized through the application of diagnostic tests and clinical assessment with high combined specificity (Lönnroth, Corbett, Golub, Godfrey-Fausett, Uplekar, & Weil, 2013:290).

Healthcare workers and people living with TB patients are at an increased risk of active TB compared to the general population. To alleviate this hazard, more efforts need to be directed towards TB transmission. More rapid diagnosis and less delay in the treatment contribute to a low TB related mortality (Pan, Chen, Wang, Sheng, Lin & Chang, 2015:1).

TABLE 3.6 THEME AND SUB-THEMES ON SCREENING SERVICES

THEME 4	SUB-THEMES
3.4.3 Screening services for TB	Patients
	Staff members
	TB contacts

- **Patients**

Participants verbalized that screening leads to early diagnosis and early treatment to prevent transmission and reduce disease and TB mortality. Participants confirmed this finding:

> *"The 90/90/90 strategy on TB refers to 90% of the vulnerable must be screened for TB positive patients must be started on TB treatment and 90% treatment success should be attained."* [Clinic 3 P 10].

Another participant further supported the finding:

> *"Patients are screened for TB at the vital area but proper screening for TB takes place in the consulting room."* [Clinic 2 P18].

One participant voiced the fact that:

> *"Each and every patient that comes into the clinic, even an acute patient complaining of headache or minor ailment, is screened for TB."* [Clinic 2 P 6].

These quotes expressed how participants ensured that all the patients arriving at the clinic are screened for TB. According to participants every patient at the clinic, irrespective of the health concern on the day, is screened for TB. The participants further acknowledged the 90/90/90 strategy which aims at 90% of TB treatment success. The studies conducted by Pai, Denkinger, Kik, Rangaka, Zweling & Oxlade (2014:3) indicate the aim of patient screening for latent TB infection is to identify individuals who are at risk for the development of active TB. Such individuals would benefit mostly from treatment of latent TB infection. According to these authors, treating latent TB infection significantly reduces the risk of developing the disease, and it is an important TB control approach.

The current participants mentioned that patients coming to the healthcare center were screened for TB at the vital signs area and further screening is done in the consulting room. Participants agreed that, with screening for TB, there would be early detection of active TB, early commencement of treatment, thus prevention of TB transmission; consequently a decrease in TB related deaths. Lönnroth et al. (2015:942) also agreed with the findings. The authors further stated that early detection of active TB through screening has a potential to stop the on-going TB outbreaks.

The study findings revealed the 90/90/90 strategy on TB is practiced at the healthcare centers. The strategy refers to 90% of the vulnerable must be screened for TB, 90% of the TB positive patients must be started on TB treatment followed by 90% treatment success. In support of this finding Suthar, Zachariah and Harries (2016:2) assert that achieving the

90/90/90 targets for TB will assist in accelerating progress towards the reduction of TB mortality. The authors added that the easiest, most effective means to reduce TB transmission in healthcare centers was the screening of suspicious patients. The South African Department of Health is currently conducting a survey (2017 TB Prevalence Survey) with the aim to improve on the prevention and management of TB prevalence in South Africa. The department has strengthened TB case finding using screening initiatives at health facilities and at community level, especially among high risk groups. Early diagnosis and treatment is considered as an approach that contributes to the reduction of the TB epidemic and a crucial intervention for TB control (D'Ambrosio, Dara, Tadolini, Centis, Sotgiu, Van Der Werf et al., 204:1411).

- **Staff members**

The participants alluded to the notion that, due to their work environment, they were at risk of being infected with TB. They emphasized the importance of regular screening for TB. The participants‟ experience in support of the finding was indicated as follows:

"*Staff members are screened for TB every two months. The resident doctor does a physical examination of all staff members and sputum is collected for TB investigation. Those staff members that cannot produce sputum are sent for chest X-rays.*" [Clinic 1 P 2].

Another participant stated that:

> *"Six monthly sputum is collected from all staff members to test for TB testing."* [Clinic 3 P 8].

The same view was shared by another participant, saying:

> *"Three monthly screenings are undertaken of staff members TB. If there is any loss of weight the staff members are asked if that is intentional or not. "* [Clinic 3 P 10].

These statements emphasize that healthcare workers are regularly screened for TB. Some healthcare centers screen nurses three monthly, while some do the screening after every six months. Participants concurred that, if a nurse is unable to produce sputum for TB investigation, a chest X-ray is done. It is ensured that all the nurses are screened for TB.

The findings of this study highlighted that participants acknowledged the risk of being infected with TB as they are exposed to the TB patients. Consequently healthcare workers are regularly screened for TB. If diagnosis is positive, treatment is commenced immediately to prevent TB related deaths. Napoli, Ferreth, Ninno, Orioli, Marani & Sarlo (2017:2) state that the prevention of TB transmission in healthcare centers is vital; that TB screening is aimed at early identification of TB patients, and that it is a major step in occupational health infection control. WHO guidelines recommend a systematic testing of HCWs.

Tudor et al. (2014:1) conducted a study in South Africa and affirmed that TB has long been considered a work-related hazard for healthcare workers. The authors added it is estimated that the risk of active TB disease is greater in healthcare workers than in the general population. Tudor et al. (2014:7) further provides evidence that the rate of TB transmission in healthcare centers is due to the presence of patients suspected of TB. The findings of the current study also indicate that healthcare workers are screened regularly to identify and treat those diagnosed with TB.

- **TB contacts**

People living in the same household with a TB patient are referred to as TB contacts (Zellweger, Sotgiu, Block, Dore, Altet & Blunschi, 2015:1177). The participants agreed that household contacts of TB patients have a high risk of developing TB. According to participants, it is vital that contacts are traced and screened for TB to reduce its spread. Verbatim quotes that confirm this finding were identified in transcripts. A participant stated that:

> *"If a baby is not gaining weight, we do a skin test to exclude TB and also screen the people that stay with the baby to investigate for TB"* [Clinic 3 P 12].

A concept confirmed by another participant saying:

> *"All the under five years" old children staying with a TB patients are screened for TB before they even present with TB symptoms"* [Clinic 2 P 20].

Another participant also indicated that*:*

> *"Babies that do not gain weight according to the Road to Health chart are screened for TB, and also contact people are screened for TB"* [Clinic 2 P 18].

The above quotes reflect the persistence of community nurses to curb the TB infection from spreading by identifying TB contacts, investigate further and provide treatment. According to participants babies who do not gain weight in relation to the Road to Health chart, and people in the same household, are screened for TB. The participants stated that all the under five children staying with TB patients are screened for TB before they even show any TB symptoms. Tuberculosis complications, such as death, can be prevented through early TB diagnosis and treatment.

Tuberculosis screening of close contacts of TB patients is a universal standard. Household- based contact tracing can identify undetected active TB cases and encourage them to commence treatment (Zelner, Murray, Mercedes, Becerra & Galea, 2014:853).The authors are of the opinion that a precise benefit of household-based contact tracing is in decreasing the burden of pediatric TB. As indicated in the current findings, all the under five years old children staying with a TB patient are screened for TB before they even present with symptoms. Children found to have latent TB infection are started on preventive therapy. Tuberculosis screening of children under the age of five was further emphasized by other participants.

Suthar et al. (2016:1150) support the participants by asserting that, while TB screening remains the basis of TB diagnosis, it is not adequate on its own. Active screening of high risk groups, such as the household child contacts aged under five, can increase the number of people diagnosed and treated. Additional findings in the current study were that children who do not gain weight, are screened for TB together with family members.

Triasih, Robertson, Duke and Graham (2015:12) support these findings. According to the authors studies have recognized that infants and young children infected with TB following contact with TB patients are at high risk of developing active TB. Furthermore it was stated that severe disseminated forms of TB, associated with high disease prevalence and mortality, cannot be excluded. The participants verbalized the fact that the patient sometimes does not reveal the fact that a family member is TB positive, protecting family against association with HIV. Findings of the current study further revealed that the tracing and screening of TB contacts will assist in curbing the spread of TB among communities.

3.5 Field notes

These are analytic as they interpret the events which unfold during data collection (Polit & Beck, 2012:548). Field notes represent what the researcher detected and recorded so that the data are understood better. Researchers are expected to record all their impressions about what emerged during the interview, such as what they have seen, heard or experienced, and what they think about the process of the interview (Streubert and Carpenter, 2011:42).

In the current study the researcher captured the participants' changes in position, expressions and their mood which could not be captured by the voice recorder. Field notes consist of observational notes, methodological and personal notes (Polit and Beck, 2012:548-549).

3.5.1 Observational Notes

These are notes about what the researcher has observed and include documentation of objective actions during the conversation (Polit and Beck, 2012: 548). During the interview some participants were openly showing how they were affected by their experiences, which they said had contributed towards them being afraid of acquiring TB. Their upright posture displayed their determination to continue providing care to TB patients despite the possibility of being infected with the disease. One participant displayed feelings of sadness when she shared that she was diagnosed with TB, took treatment and completed the course.

3.5.2 Personal notes

Personal notes refer to the researcher's feelings that she experienced during her field work as well as her emotions and the challenges encountered and reflected on during her research interviews (Polit and Beck, 2012:549). The researcher listened attentively to community health nurses and felt they were faced with challenges that threatened their health. The observations left her emotionally upset, especially when she realized that, if a nurse contracted TB, her HIV status would be questioned. One participant stated that when she contracted TB, management informed her that she was infected by her family members. The nurse then encouraged her family to test for TB; none of them tested positive. The other nurse that contracted TB passed on, hence the researcher felt sad but took control of her emotions, deliberately set her own feelings aside and continued to display a neutral and professional attitude. The participant was referred to the Employee Wellness department at the health center for counseling.

3.5.3 Methodological notes

Methodological notes are written memos of the observations made about the approaches used to collect data and why the approaches were used (Polit & Beck, 2012:549). During the individual interviews one of the participants expressed perceptions of her colleagues rather that her own. Individual interviews were considered applicable for the research as it elicited in-depth information about experiences of community health nurses in the TB work

environment. The researcher conducted individual interviews to capture the lived experiences of community health nurses working in an infected TB environment.

3.6 Conclusion

The findings of the study and literature control were presented and discussed in this chapter. It was revealed that healthcare workers are confronted with challenges that threaten their well-being. These include coming into contact with undiagnosed TB patients. Some patients do not practice cough etiquette, increasing the danger of transmitting TB. Another concern was the TB treatment defaulter rate among patients. The attitude of some healthcare workers in the clinics towards patients was said to be overbearing and abusive, impacting on the defaulter rate. The next chapter presents the findings, recommendations, implications, limitations and conclusion of the study.

CHAPTER 4: OVERVIEW OF THE STUDY FINDINGS, RECOMMENDATIONS, IMPLICATIONS, LIMITATIONS AND CONCLUSION

4.1 INTRODUCTION

The purpose of this study was to explore and describe the experiences of community health nurses in the TB work environment. In the previous chapter the findings and literature control of the study were discussed. This chapter presents an overview of the study findings and its implications. Recommendations are proposed and the limitations of the study are addressed, followed by a conclusion to the study. The discussion is guided by the findings mentioned in chapter 3.

4.2 OVERVIEW AND SUMMARY OF THE FINDINGS

The following objective guided the study:

- To explore and describe the experiences of community health nurses in the TB work environment.

A descriptive phenomenological design was used as a research method to achieve this objective. The following themes emerged from the interviews conducted with the community nurses:

- Fear of being infected with TB
- Control of infection
- Defaulting TB treatment
- Screening services for TB

4.2.1 Summary of findings

The themes mentioned here reflect the meaning and interpretations of working in the TB environment as experienced by community nurses.

4.2.1.1 Theme 1: Fear of being infected with TB

The study discovered that most of the participants were afraid of being infected with TB at work. The participants stated that the undiagnosed TB patients come into contact with healthcare workers on arrival into the healthcare center. The healthcare workers monitor patients of vital signs and collect history before a diagnosis can be made. Patients sit very close to healthcare workers during such procedures thus exposing nurses to TB infections from undiagnosed TB patients. Most important participants felt that their lives were in danger since they were daily exposed to TB infection from undiagnosed TB patients who spend a considerable time in the consulting rooms.

The participants stated that the process followed by the patient from arrival at the health center up to the consulting room exacerbate the problem of exposing nurses to TB infection. Undiagnosed TB patients wait in the queue for some time until they are called into the consulting rooms to be examined. During this process patients, some of whom have multidrug resistant TB, intermingle with healthcare workers, thus increasing the probability for TB transmission. The participants emphasized that the absence of a cough officer who could identify patients that are coughing immediately on arrival at the healthcare center and directing them to the TB room is of essence. It was said that patients that are coughing were better investigated and managed in the TB room, minimizing the spread of TB infection in the clinic, and was regarded as one of the efficient tuberculosis control strategies.

The participating community health nurses confirmed that they educate patients about the importance of cough etiquette to minimize TB transmission. It became apparent that patients are not willing to practice cough etiquette. They would cough when sitting close to the healthcare worker. Some patients even refused to wear the protective mask regarding

it as a form of discrimination. The participants indicated that the patients' behavior exposed healthcare workers to TB infection, furthermore defeating the objective of prevention of TB transmission in health centers.

The participants cited a concern about their colleagues with chronic diseases, such as diabetes mellitus and HIV, working in the TB environment being susceptible to TB infection. The participants further indicated that diabetes mellitus and HIV lowers the immune system, thus enhancing exposure to infections. According Restrepo and Schlesinger (2013:1) diabetes is a known risk for developing active TB; therefore working in the TB environment will adversely affect healthcare workers with chronic diseases. An example was mentioned of a colleague who lost her life after acquiring TB. The healthcare worker did not present with symptoms and it was only diagnosed during the regular community health nurses‟ TB screening.

4.2.1.2 Theme 2: Infection control

The findings in the study shows that participants are aware of the risks of TB infection for healthcare workers. They noted that the risks could not be escaped from completely, but could be reduced by employing effective TB infection control interventions such as using protective masks. It was added that the increased tendency of failing to observe infection control measures at times created a burden for community health nurses. Such concerns are embedded in the knowledge that the patient they earlier attended to, was TB positive and infection control measures had not been adhered to at the time. The participants expressed knowledge that adequate infection control measures play a crucial role in reduction of TB transmission. It was apparent in the study that healthcare workers are aware of the exposure to TB infection when failing to wear protective masks.

The participants highlighted that patients who cough and arrive at the healthcare center may be spreading TB bacilli through droplet infection. If such patients were not identified early and referred appropriately, they will spread the droplet infection to all individuals they interact with, most being the healthcare workers. It seemed that most of the participants

did not wear protective masks attributing their behavior to the discomfort associated with the mask. The participants were adamant that the protective masks are uncomfortable to wear. They further stated that they are unable to breathe well when wearing a mask. The findings of the current study revealed that the participants hold a perspective that they are skilled enough to identify a patient suspicious of having TB, and thus they know when to wear a protective mask.

The participants emphasized that a relationship between patients and community nurses is indicative of good “therapeutic cooperation”. A therapeutic alliance is strengthened by trust, empathy and positive regard. It was revealed that the patients are able to provide correct information if they identify compassion in nurses. Prompt and relevant management of TB patients is informed by proper history by healthcare workers. According to the participants, wearing the protective masks jeopardize a conducive relationship by creating a “wall” between the healthcare worker and the patient. The community health nurses admitted that the use of protective masks is one of the effective TB infection control measures. They further shared that protective masks disrupts communication between nurses and patients, thus they do not wear masks so that they can communicate effectively with patients.

The open door/window policy emerged as an effective infection control intervention that most participants adhered to. The participants emphasized the fact that, with open door/window practice, air flows freely and, when accelerated, there is a reduction of TB transmission in the healthcare center. It became evident during the study that an open door/window policy was mostly practiced. One participant aptly stated that, after having been with a patient suspected of being infected with TB, she quickly removes the mask and rely on the open door/window practice to minimize the possibility of being infected herself.

4.2.1.3 Theme 3: Poor adherence to TB treatment

On the aspect of defaulting TB treatment, the participants indicated that healthcare workers' attitudes were cited as reasons why patients do not come back to the healthcare center for TB treatment. Furthermore, the participants stated that TB patients viewed healthcare workers as unaccommodating and belittling. The attitude of healthcare workers towards TB patients has a negative impact on the patient's compliance to TB treatment. Participants also brought up the plight of TB patients who use their lunch break to go for TB treatment, only to be shouted at for arriving at the healthcare center during lunchtime. In some instances the participants said patients are told "the TB is yours, it is not mine" because the patient had turned up at the clinic during lunchtime. The participants further noted that patients chose to stay away from the healthcare center rather than face the wrath of healthcare workers. The grim reality is that, when patients stay home without TB treatment, being afraid of healthcare workers, it adds to the major hindrances in TB management and becomes a challenge for TB control. The participants asserted that patients, after being diagnosed with TB, felt hopeless and scared that they would be dying soon. They further noted that they needed assurance and support from the healthcare workers. The participants noted that the TB treatment regimen is quite lengthy; thus the patients require all the support from healthcare workers, regarded as people who clearly understand the implications of being diagnosed with TB. Patients depend on nurses for motivation to ensure TB treatment is completed.

The overall life circumstances of most TB patients, as explained by participants, is unbearable as many had financial constraints. The participants commented that some patients did not have proper houses so they move around searching for houses. Sometimes they even move to other provinces in case they can get a proper house. It was further heard that patients are unable to request transfer letters from the clinic so that they can continue with the TB treatment since the move is sudden and not planned. TB patients may find themselves in a new area without treatment or transfer letter and sometimes no healthcare center close to where they stay. The patients then fail to adhere to the treatment regimen and they are lost to the follow up procedure.

The findings revealed that the attitude of TB patients towards treatment compliance had a negative impact on all efforts exerted for TB prevention and control. According to participants, patients usually feel better after being on treatment for two weeks. TB patients interpret feeling better, weight gain and abated symptoms as being cured of TB; thus there is no need to continue taking treatment. In this study community nurses indicated that, when patients feel better, they stop taking treatment and were lost to being followed up. The patients, who felt so sick before commencing treatment, now feeling better, do not realize the need to keep on taking treatment. Assumptions are that they feel healed of the disease, thus they can stop taking treatment, adding to the barriers for disease control.

The participants pointed out that a lack of transport costs is associated with TB treatment non-adherence. Revealed by participants, some patients collect treatment at healthcare centers far from their homes, thus they incur transport costs. It was further specified by participants that the socio-economic circumstances of many patients make it impossible to afford such transport and then patients default on TB treatment. In some instances, the participants said, patients did not have food; thus they are unable to take TB medication. In time that leads to non-adherence to TB treatment.

4.2.1.4 Theme 4: Screening services for TB

The participants shared that people who are exposed to TB patients have an increased risk of acquiring the infection. Therefore, TB screening in community health nurses is a beneficial prevention strategy. The participants noted in the study that an important factor in realizing a decrease in transmission of TB, is that everyone who reports to the healthcare center for whatever medical complain should be screened for TB. The community health nurses, as participants, indicated that a screening tool has been developed to ease the process of screening, and healthcare workers uses the tool to ensure TB suspects are not missed.

The participants found that patients identified as TB suspect are referred to the TB room for further management. In addition to the screening tool, participants stated clearly that proper history- taking should be done to ensure TB suspects are identified. From the remarks made by the participants, some people justify night sweats, claiming they usually use many blankets and the weight loss is intentional. The participants highlighted that failure to probe more, ensuring the patient understands the intentions of the healthcare worker to diagnose TB, can lead to TB suspects being missed. Therefore inadequate history-taking can lead to loss of TB suspects.

In the opinion of participants, regular screening is a positive aspect in the early identification of TB among healthcare workers. It emerged in the study that participants believed that they were exposed to TB infection at work and that it posed a risk of acquiring the disease; thus regular TB screening is vital. Once identified as being infected with TB, the participants expressed the importance of early commencement of treatment, which usually yielded good results.

The participants were in agreement that people staying in the same house with TB patients also have a risk of being infected with the disease. The study revealed that some patients did not divulge their TB status to family members, afraid of being “diagnosed” with HIV by the family. Unaware of the particular family member’s TB status, it resulted in the family not instituting precautionary measures to lower the possibility of transmission of TB infection. The participants specified that actions that the family could employed to decrease the spread of TB are opening windows to facilitate free airflow, and cough etiquette to minimize the spread of TB. Failure to practice preventative measures exposes contacts to TB infection.

The participants assert that, in order to minimize TB prevalence and TB deaths, contacts of TB patients should be screened for TB. Furthermore the participants brought up the fact that early detection would guide early treatment and good outcomes. The participants emphasized that babies staying with TB patients are provided with prophylaxis to protect

them from developing active TB, which can be fatal due to their underdeveloped immune system. The prophylaxis is commenced immediately on identifying babies as TB contacts without showing signs of TB symptoms.

4.3 RECOMMENDATIONS

Based on the above discussions the following ideas serve as possible topics for future research.

4.3.1 NURSING MANAGEMENT

The findings of this study were based on information freely shared by community health nurses during individual interviews. It is recommended that the experiences of community health nurses while performing their duties in a TB work environment be taken into consideration. Community health nurses should be protected from acquiring TB at work.

The participants agreed that all stakeholders should come on board with the aim of reducing TB transmission in healthcare centers. The following recommendations are based on the findings of the study.

- Nursing management should have a support system in place for referral of community nurses who have tested positive for TB. Some participants experienced extreme psychological trauma when diagnosed with TB. The participants were informed by management to prove beyond doubt that they were infected at work. A colleague was diagnosed with TB and she died, a state of affairs viewed by participants as very stressful.
- Nursing management should recruit more nurses to address issues such as the unavailability of courtesy manager who can educate patients regarding TB. A courtesy manager will also identify patients that are coughing and direct them to the TB room immediately for appropriate management.
- Community nurses should be involved when management decide on types of protective masks. Most of the participants stated they did not wear protective masks because the masks are uncomfortable.

- Nurses acquiring TB at work should be considered for compensation.

4.3.2 NURSING EDUCATION

- Nursing education institutions should provide regular updates to all community health nurses about the latest infection control measures to prevent TB transmission from patients to nurses.
- There should be continued mass education for society on how to decrease TB transmission at all levels. Furthermore, this education awareness should focus on issues such as the importance of adherence and completion of TB treatment, even when a patient feels better.
- There should be a new approach on educating the public because, when a person is diagnosed with TB, the public assumes that the person is HIV positive.

4.3.3 COMMUNITY NURSING PRACTICE

- Community health nurses should be encouraged to use protective mask at all times when attending to patients in a TB environment. All patients arriving at the healthcare center should be treated as TB suspects until proven otherwise.
- There should be workshops or in-service education and training focusing on how to improve the attitudes of the community health nurses dealing with TB patient
- Patients rely on nurses for support and knowledge about infection and treatment, even how TB is transmitted.
- Community health nurses, as the users of the protective masks, should be part and parcel of the process of testing protective masks before masks are bought to ensure the masks are user-friendly. Nurses will then be obliged to use them.

4.4 FURTHER RESEARCH

The findings of the study indicate that further research needs to be conducted in other provinces to explore the experience of community health nurses in the TB work environment.

4.5 IMPLICATIONS

The study findings revealed possibilities of community health nurses being infected with TB at work. Addressing these possibilities may decrease transmission of TB from patients to community health nurses. The nurses will be able to continue providing quality care to patients if they are not infected with TB.

4.6 LIMITATIONS OF THE STUDY

The researcher followed a qualitative descriptive phenomenological approach and focused on the experiences of twenty (20) community health nurses in a TB work environment. The study was conducted in one province only (Gauteng) and the possibility of the findings being different if conducted in other provinces and a more rural setting are not disputed. Although the findings provided lived experiences of community health nurses in the TB work environment, they could be different in a wider area or population because it was done in Gauteng only.

4.7 CONTRIBUTION TO THE BODY OF KNOWLEDGE OF NURSING

The study findings may contribute to the body of knowledge on TB regarding patient education of how TB is transmitted from infected persons to people who are not TB positive. TB treatment involves much interaction between nurses and patients; thus the attitude of nurses towards patients remains a significant factor in influencing adherence to treatment. Ending of the delay in the diagnosis of TB patients will intensify appropriate TB control activities, such as isolation, and the use of protective masks in patient consulting rooms.

4.8 FINAL CONCLUSION

The purpose of the study was to explore and describe the experiences of community health nurses in the TB work environment. The study was qualitative in nature and applied phenomenology principles to gather and analyze data. Various experiences focused on fears of being infected with TB, infection control, poor adherence to TB treatment, and screening services. The participants' fear of contracting TB was attributed to delayed diagnosis of TB patients, patient ignorance regarding TB transmission, and community health nurses with chronic diseases interacting with undiagnosed TB patients. Compromised TB infection control measures, such as failure to wear protective masks, were revealed by several participants. Patients' adherence to TB treatment was also highlighted and reasons for poor treatment adherence, such as socio-economic challenges, were advanced as reasons.

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5. LIST OF ANNEXURES

5.1 Annexure A Approval form Ethics committee

5.2 Annexure B Approval from Tshwane district

5.3 Annexure C Participant leaflet and consent form

5.4 Annexure D Interview guide

5.5 Annexure E Individual interview

ANNEXURE A: APPROVAL FROM ETHICS COMMITTEE ANNEXURE B:

The Research Ethics Committee, Faculty Health Sciences, University of Pretoria complies with ICH-GCP guidelines and has US Federal wide Assurance.
- FWA 00002567, Approved dd 22 May 2002 and Expires 20 Oct 2016.
- IRB 0000 2235 IORG0001762 Approved dd 22/04/2014 and Expires 22/04/2017.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Health Sciences Research Ethics Committee

21/04/2016

Approval Certificate
New Application

Ethics Reference No.: 132/2016

Title: EXPERIENCES OF COMMUNITY HEALTH NURSES IN THE TUBERCULOSIS WORK ENVIRONMENT

Dear Granny Motswasele

The **New Application** as supported by documents specified in your cover letter dated 29/03/2016 for your research received on the 8/04/2016, was approved by the Faculty of Health Sciences Research Ethics Committee on its quorate meeting of 20/04/2016.

Please note the following about your ethics approval:
- Ethics Approval is valid for 1 year
- Please remember to use your protocol number (**132/2016**) on any documents or correspondence with the Research Ethics Committee regarding your research.
- Please note that the Research Ethics Committee may ask further questions, seek additional information, require further modification, or monitor the conduct of your research.

Ethics approval is subject to the following:
- The ethics approval is conditional on the receipt of 6 monthly written Progress Reports, and
- The ethics approval is conditional on the research being conducted as stipulated by the details of all documents submitted to the Committee. In the event that a further need arises to change who the investigators are, the methods or any other aspect, such changes must be submitted as an Amendment for approval by the Committee.

We wish you the best with your research.

Yours sincerely

Professor Werdie (CW) Van Staden
MBChB MMed(Psych) MD FCPsych FTCL UPLM
Chairperson: Faculty of Health Sciences Research Ethics Committee

The Faculty of Health Sciences Research Ethics Committee complies with the SA National Act 61 of 2003 as it pertains to health research and the United States Code of Federal Regulations Title 45 and 46. This committee abides by the ethical norms and principles for research, established by the Declaration of Helsinki, the South African Medical Research Council Guidelines as well as the Guidelines for Ethical Research: Principles Structures and Processes 2004 (Department of Health).

APPROVAL FROM TSHWANE DISTRICT

Kuyasheshwa! Gauteng Working Better

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

427 Hilda Street, 4th floor, The Fields Building, Hatfield Pretoria 0001 South Africa. Tel: +27 12 451 9036
Enquiries: Dr. Molapane Chueu-Shabangu
e-mail: Molapane.Shabangu@gauteng.gov.za

TSHWANE RESEARCH COMMITTEE

CLEARANCE CERTIFICATE

Meeting: N/A

PROJECT NUMBER: 17/2016

Title: Experiences of Community health Nurses in the Tuberculosis work environment.

Researcher: Ms Granny Tshabane Mary Motswasele

Supervisor: Prof. M.D. Peu

Co-Supervisor: Dr. S. S. Moloko-Phiri

Department: Nursing science, University of Pretoria

DECISION OF THE COMMITTEE

Approved

NB: THIS OFFICE REQUESTED A FULL REPORT ON THE OUTCOME OF THE RESEARCH DONE

Date: 23/05/2016

.....
Dr. Molapane Chueu-Shabangu
Chairperson Tshwane Research Committee
Tshwane Health District

.....
Mr. Pitsi Mothomone
Chief Director: Tshwane District Health
Tshwane District

NOTE: Resubmission of the protocol by researcher(s) is required if there is departure from the protocol procedures as approved by the committee.

ANNEXURE C: PARTICIPANT LEAFLET AND CONSENT FOR

TITLE OF STUDY**: EXPERIENCES OF COMMUNITY NURSES IN THE TB WORK ENVIRONMENT.**

Dear Participant,

1. INTRODUCTION

1. **INTRODUCTION**

The researcher invites you to participate in a research study. This information leaflet will assist you to decide if you want to participate in this study. Before you decide to take part you should fully understand what is involved. Should this leaflet fail to provide all the needed clarification in relation to the study, feel free to ask the researcher for further information.

2.THE NATURE AND PURPOSE OF THIS STUDY

The aim of this study is to find out from community health nurses their experiences of working in the TB environment. You as a community health nurse is a very important source of information on experiences in the TB work environment.

The

3. EXPLANATION OF PROCEDURES TO BE FOLLOWED

This study involves unstructured interviews which will last for at least 45 minutes. The researcher will ask you some questions about your experiences in the TB work environment. The interview will be recorded with your permission, notes will be taken; also just review the answers and ask more questions as the need to clarify arises. Participation is voluntary. If you decide to withdraw from the study at any time, you can do so without any explanation.

4. RISK AND DISCOMFORT INVOLVED

There are no risks in participating in the study.

5. POSSIBLE BENEFITS OF THE STUDY

Although you will not benefit directly from the study, the results of the study will enable us to understand experiences of community nurses in the TB work environment.

6. WHAT ARE YOUR RIGHTS AS A PARTICIPANT?

Your participation in this study is entirely voluntary. You can refuse to participate or stop at any time during the study without giving any reason. Your withdrawal will not affect you in any way.

7. HAS THE STUDY RECEIVED ETHICAL APPROVAL?

This study has received written approval from the Research Ethics Committee of the Faculty of Health Sciences at the University of Pretoria, telephone numbers 012 3541677 / 012 3541330 .The Tshwane research committee also gave approval for the study to be conducted. Copies of the letters are available if you wish to have one.

8. INFORMATION AND CONTACT PERSON

The contact persons for the study Ms. GTM Motswasele and Prof MD Peu. If you have any questions about the study please contact them at the following telephone numbers: Ms. Motswasele: 012 319 6341/072 214 3938; alternatively you may contact my supervisor at telephone numbers: Prof MD Peu: 012 354 2133

9. COMPENSATION

Your participation is voluntary. No compensation will be given for your participation.

10. CONFIDENTIALITY

All information that you give will be kept strictly confidential. Once we have analyzed the information no one will be able to identify you. Research reports and articles in scientific journals will not include any information that may identify you or your clinic.

CONSENT TO PARTICIPATE IN THE STUDY

I confirm that the person asking my consent to take part in this study has told me about nature, process, risks, discomforts and benefits of the study. I have also received, read and understood the above written information (information leaflet and informed consent) regarding the study. I am aware that the results of the study, including personal details, will be anonymously processed into research reports. I am participating willingly. I have had time to ask questions and have no objection to participate in the study. I understand that there is no penalty should I wish to discontinue with the study.

Participant's name: _____(Please print)

Participant's signature: _____ Date _____

Investigator's name _____ (Please print)

Investigator's signature _____ Date _____

Witness's Name _____ (Please print)

Witness's signature _____Date_____

ANNEXURE D: INTERVIEW GUIDE

Main question

What are your experiences as a community health nurse working in the TB environment?

Probing questions

1. Has working in the TB environment ever bothered you?

2. If yes, tell me more about it

3. If no, explain to me, how have you coped with working in the TB environment?

ANNEXURE E: INDIVIDUAL INTERVIEW

CLINICS 3 PARTICIPANT 10

Researcher: Good morning Sister

Participant: Morning

Researcher: My name is Granny Motswasele, a master's degree student from the University of Pretoria. I am accompanied by Mrs. Xaba as a co-coder, and she will be taking field notes during the interview. Are you ready, can we start?

Participant: Yes, we can start

Researcher: What are your experiences as a community health nurse working in the TB environment?

Participant: I have realized that, our healthcare system is still far from achieving one of the Millennium goals of combating HIV/Aids and TB. Patients diagnosed with TB are started on treatment but adherence to treatment is very poor. Patients fail to comply with the treatment schedule even when they received information from the clinic about importance of adhering to treatment. The very same patients came back to the clinic being very sick. It is not fair for healthcare providers; it feels we are not progressing with the reduction of TB infection.

Researcher: Please continue

Participant: I think many patients do not understand TB. The moment they are diagnosed with TB, they think it is obvious they are HIV positive. You find that patients are not willing to commence with TB treatment because they are afraid to be labeled HIV positive.

Researcher : Please explain to me: When patients arrive at the clinic, what happens?

Participant: All patients enter the clinic through the main door, all wait in the waiting area. By the way at the time we do not know who has TB; who does not have TB. If the cough officer is on duty, any patient that is coughing will be removed from the waiting area and directed to the TB room for management. In the absence of the cough officer, the patient that is coughing will spend time in the waiting area until he/she is seen in the consulting room.

Researcher: Are you saying a patient that is coughing will wait with other patients?

Participant: Oh yes, if the cough officer is not available to triage, the patient will follow the queue like everyone else. You can imagine if that patient has TB that the nurses and other patients will be exposed to the infection.

Researcher: What happens when the patient arrives in the consulting room?

Participant: The patients will be screened for TB in the consulting room. Patient is asked if there is any weight loss, loss of appetite, night sweats and coughing. Some

patients will justify symptoms for example, weight loss as intentional and night sweats due to using many blankets. If, as a nurse you do not probe more, a TB suspect may be missed.

Researcher: After what you just shared with me, are you protected from contracting TB?

Participant: “eish” then a paused for a long time.

Researcher: Are you still OK?

Participant: Yes. We rely on the open door/window policy; we do not have UV lights in all the consultation rooms. Management expects us to always wear N95 mask for protection against TB, but we do not comply because the masks are so uncomfortable. We comply with the open door/window policy, which is the least we can do to protect ourselves from acquiring TB.

Researcher: Are you aware of any staff member who contracted TB?

Participant: Yes, one of our colleagues was diagnosed with TB during routine screening. She did not present with any symptoms. Routinely we as staff members screen for TB after every three months. She was commenced on treatment.

Researcher: Was the staff member given support?

Participant: As colleagues we did our best, but management was not so supportive; she was told that unless she can prove beyond any doubt that she acquired the disease at work, she must just take treatment and continue

working. The nurse commenced treatment until she completed the course. I felt management could have dealt with the matter better; at least discuss compensation.

Researcher: Earlier you stated that patients do not adhere to TB treatment; can you please elaborate more?

Participant Patients are afraid to be labeled HIV positive, and they also stop taking treatment as soon as they feel better. TB treatment, if taken as prescribed, is very effective. In two weeks a patient experiences improvement, gain weight and strength. That is then interpreted that TB is cured. It does not matter that patients are informed about adherence to treatment until the course is completed; the moment they feel better they stop treatment. Lately people move around looking for a better place to stay, meaning residence is changed very frequently. This behavior makes it impossible to follow up on TB patients, so as to encourage adherence to treatment.

Researcher: Are there any identified risks at work?

Participant: Yes, oh yes, there are lots of risks. A patient may come into the consulting room without any TB symptoms and during screening for TB the patient tells you he has been coughing mildly for a day or two. The patient may be given treatment according to the complaint. After a few weeks the patient may come back feeling sick and on investigation the patient is diagnosed with TB. As a nurse you wonder if you did not acquire the infection because the same patient spent considerable time in the consulting room. One feels so scared and even experience false TB symptoms that only disappear after being cleared through TB investigation.

Researcher: OK

Participant: You can imagine the fear when the patient is diagnosed with MDR. But once the nurse is cleared of TB one forgets and continue interacting with undiagnosed TB patients.

Researcher: Is there any more information you want to share with me?

Participant: Yes, students arrive at the clinic for family planning services. Even though the policy at the clinic is to screen everyone arriving at the clinic irrespective the complaint, the students are rarely screened because they are in a hurry and appear healthy. Only when they are sick, they get screened for TB, in some instances results confirm they are TB positive. ”Shooo” a person can just recall the several instances of interaction when the student came for family planning services.

Researcher: How are you coping working in the TB environment?

Participant: As much as I am afraid of contracting TB, I love working in the TB environment. The only problem is feeling emotionally consumed when a TB patient passes on only because he did not adhere to treatment.

Researcher: Thank you for sharing your experience of working in a TB environment.

Participant: It is only a pleasure.