# IMPACT OF PULMONARY TUBERCULOSIS AND HIV/AIDS CO-INFECTION IN SELF-MANAGEMENT AMONG ADULT PATIENTS AT THE PRIMARY HEALTH CARE FACILITIES IN BOJANALA DISTRICT OF NORTH-WEST PROVINCE


**By**

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## DECLARATION

I, Nematahe Munei Nillivence, hereby declare that the dissertation entitled "**Impact *of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province"*** submitted by me, has not been submitted before for a degree at this or any other university, that it is my own work in design and in execution, and that all reference material contained therein has been fittingly acknowledged.

Signature:  Date: 5/04/ 2023

## DEDICATION

I am dedicating this study to my late grandmother, Tshimangadzo, my late grandfather Kuvhanganani, my mother Ntuweleni and my father Shandukani for always believing in me, their words of encouragement and making me value education as much as I do.

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## ABSTRACT

HIV/AIDS and PTB co-infection rate among adult patients at Bojanala in North-West province is very high (Statistics South Africa, 2019). HIV/AIDS and PTB remains the main cause of death in the North-West province. The study purpose was to explore the impact of Pulmonary Tuberculosis and Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome co-infection in self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West Province, South Africa. The study was conducted in the selected primary health care facilities where participants collect treatment, within Bojanala district of North-West province. The researcher used qualitative approach with descriptive phenomenological design. Population was adult patients between the ages 25-45 who are co-infected with Pulmonary Tuberculosis and Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome. Unstructured face-to-face interviews were used to collect data from the participants. Non-probability purposive sampling was utilised to select participants. The researcher interviewed 8 adult patients until data saturation. Tesch's eight steps criteria were used to analyse data. Measures to ensure trustworthiness and ethical principles were maintained throughout the study. The recommendations were developed based on the findings of the study.

**Keywords:** Adult, Co-infection, HIV/AIDS, Pulmonary Tuberculosis, and self-management

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| ARV | Antiretroviral |
| HIV | Human Immunodeficiency Virus |
| PLWHA | People Living with HIV/AIDS |
| PTB | Pulmonary Tuberculosis |
| SA | South Africa |
| UK | United Kingdom |
| UN | United Nations |
| WHO | World Health Organization |
| UNAIDS | United Nations Programme on HIV/AIDS |

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# CHAPTER ONE

# ORIENTATION TO THE STUDY

## 1. INTRODUCTION

United Nations Program on Human Immunodeficiency Virus (HIV) and Acquired immune deficiency syndrome (AIDS) affirms that a patient may suffer from Pulmonary Tuberculosis (PTB) before the immune system has deteriorated (UNAIDS, 2018). The risk of being infected with PTB remains higher among patients infected with HIV/AIDS than those who are HIV negative. PTB mostly affects patients who are HIV positive and not on antiretroviral therapy (ART). PTB and HIV/AIDS co-infection is responsible for the increased mortality rate in South Africa (UNAIDS, 2018).

PTB is an airborne bacterial infection that affects the lungs (UNAIDS, 2019). Symptoms include chest pain, fever and haemoptysis. Since HIV/AIDS affects the immune system by decreasing the CD4 cell count, the body becomes more susceptible to infections that can affect the digestive system hence decreased appetite. Weight loss is common when one is co-infected with PTB and HIV/AIDS (WHO, 2019).

UNAIDS (2019) indicates that the PTB epidemic strongly correlates with the expansion in HIV/AIDS prevalence. This is influenced by a rise in HIV/AIDS and PTB positive cases among patients who are severely immunosuppressed. Approximately 57.9 million people were infected with HIV/AIDS worldwide at the end of 2019. In 2019 the Sub-Saharan region was affected the most with 25.8 million that account for 70% of HIV/AIDS cases globally and 1.2 million deaths. PLWHA (PLWHA) who are aware of their status are at 45%, those receiving ART at 39% and those with a suppressed viral load at 29%. All these excessive figures uplift many concerns about HIV/AIDS management among public health professionals, so they are trying to come up with a plan that at least every HIV/AIDS patient be tested for PTB for early detection (UNAIDS, 2019).

### 1.1 Background of the study

World Health Organization (WHO) (2020) indicates that PTB is the leading cause of death globally, followed by HIV/AIDS. PTB is the main cause of death among Patients Living with HIV/AIDS. HIV/AIDS is known to cause severe deformity in T cells immunity, rendering HIV/AIDS and PTB co-infected patients more susceptible to PTB complications. In 2019, 36.7 million adult patients were infected with HIV/AIDS and PTB worldwide whereas

approximately one million died of HIV/AIDS and PTB-related infections globally (WHO, 2020).

In the United States of America (USA) HIV/AIDS and PTB resulted in a serious threat to public health. Collectively, almost 100,000 new cases of PTB and HIV/AIDS in adult patients are diagnosed annually. Although appreciable medical progress has been made, these conditions continue to impact adult patients negatively. They experience health deterioration due to poor self-management such as non-compliance to treatment, not attending all appointments, poor diet plan, and lack of exercise (WHO, 2019). Nausea and loss of appetite can lead to severe weight loss and fatigue. Co-infected patients should eat nutritious food, comply with treatment, honour all the check-ups and do exercises. There is no cure for HIV/AIDS. However, effective antiretroviral therapy (ART) is considered the optimum available therapy for adult patients living with HIV/AIDS but there is a cure for PTB (WHO, 2019).

In Brazil treatment is based on the combination of four drugs, rifampicin, isoniazid, pyrazinamide and ethambutol. When PTB treatment is combined with antiretroviral drugs it results in a lot of side effects. It is always important to understand the side effects of using medication such as severe headache, dizziness, upset gut, joint pain, and nausea, as they can influence the patient to decrease or make changes to the therapeutic regimen especially in co-infected individuals. Other patients with PTB and HIV/AIDS co-infection when they start experiencing the side effects, they stop taking the treatment and only go to the health facilities when they are critically ill and unable to perform daily tasks such as bathing and preparing food (Bisson et al., 2017).

A study conducted in Brazil affirms that stigma, depression, negative feelings, and loss of hope caused by PTB, and HIV/AIDS co-infection may reduce an individual's motivation to take treatment (WHO,2019). There are factors related to non-compliance which are caused by smoking, alcohol, poor socioeconomic status, adverse reactions, number of pills since patients taking both antiretroviral and tuberculosis treatment are required to take large numbers of tablets daily. When there is a lack of motivation some of the patients may decide to stop the treatment because of denial. They may also develop a feeling of worthlessness and need support. Normally, when there is a symptom of remission after the beginning of the treatment for co-infections, patients prefer to stop taking treatment, believing they are already cured (Burgess et al., 2019).

In Afghanistan, PTB and HIV/AIDS are major causes of poverty aggravation as patients with the co-infections often face the burden of reduced income and increase in expenses. They are often too sick to go to work, and their families had to pay for all expenses in association

with treatment. When the patient is critically ill, self-management is often very difficult because activities require energy. Accessing and successfully adhering to treatment becomes a challenge due to fatigue especially if they should walk to the facility where they collect treatment (UNAIDS, 2019).

The findings of the study conducted in Zambia highlighted that patients diagnosed with PTB experience verbal stigma, insults, and social exclusion. Overall, stigma related to both PTB, and HIV/AIDS is very common, even at the facilities where the patients with co-infections collect treatment, they experience stigma because they que separately from other patients to collect treatment for PTB and HIV/AIDS from the nurse. This disturbs self-management because co-infected patients usually develop low self-esteem, others stop going to the facilities to collect the treatment and check-ups. Some end up neglecting themselves and become scared to disclose their sero status to their families and friends. Some patients with PTB and HIV/AIDS co-infection develop a feeling of hopelessness and engage in substance abuse as a sign of denial, anger, and fear of death (Fatoki, 2019).

In 2019, Ethiopia was one of the 30 countries with high PTB and HIV/AIDS burden countries in the world, with an incidence of 0.17% of patients per 1000 population for HIV/AIDS and 1.64% of patients per 1000 for PTB. A study conducted in Ethiopia has shown that PTB and HIV/AIDS co-infected individuals are at greater risk of having psychosocial problems, low quality life, and poor physical health than HIV/AIDS infected individuals who do not have PTB. Patients diagnosed with PTB, and HIV/AIDS mostly have trouble falling asleep due to stress because others find it difficult to accept that they have PTB and HIV/AIDS and start imagining how the community might treat them if they find out about the dual infections. Depression caused by denial may result in both fatigue and insomnia. They feel that taking treatment is a waste of time since they are going to die and refuse to be initiated and develop suicidal thoughts (Burgess et al., 2019).

In 2019 South Africa (SA) had about 7.5 million people infected with HIV/AIDS and two-thirds were also diagnosed with PTB. SA also experienced the worst HIV/AIDS driven PTB epidemic in the world, it came after India, China, and Indonesia (Bisson et al., 2017). Some adult co-infected women in SA also experience stigma in the preparation of food, their food is rejected, some family members separate eating utensils, like cups and plates, used by PLWHA from the ones used by the rest of the family. With that kind of treatment, patients feel discriminated against and neglect themselves (UNAIDS, 2020).

According to statistics SA (2019), SA ranks third among 22 high PTB and HIV/AIDS burden countries. PTB remains the main cause of death of one in five adult deaths. In 2019 a total

number of 63,000 patients died of PTB, of which 42,000 patients were also HIV/AIDS positive. When a patient is infected with both PTB and HIV/AIDS each infection accelerates the progress of the other. In addition to HIV/AIDS infection speeding up, the progression from latent to active PTB, mycobacterium tuberculosis also accelerates the progress of HIV infection into AIDS. SA developed a national strategic plan of 90-90-90 to try and decrease the number of HIV/AIDS and PTB but still, the goals are not yet reached because there is still a high number of co-infected patients, and more interventions still need to be done to reach the goals (Statistic SA, 2019).

The South African government has developed mobile technologies into routine practices to aid in generating many new opportunities to improve engagement in self-management interventions. Mobile technologies offer new opportunities to patients with chronic conditions including HIV/AIDS and PTB through common functions such as appointments, medication reminders, and motivational messaging to enhance the self-management interventions (Matlakala et al., 2019).

The findings of the study conducted by Noël and Pomeroy (2019) in North-West province South Africa revealed that most adult people of Bojanala district are illiterate and unemployed. Most of the time is spent on risky behaviours of abusing alcohol and drugs. They believe that chronic conditions such as PTB and HIV/AIDS are caused by witchcraft which delays initiation of treatment so they need some more intervention to try to help them understand the importance of proper self-management which can be in a form of education (Matlakala et al., 2019). The researcher has decided to explore the impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province.

### 1.1.2 Theoretical framework

The researcher utilised the health belief model as a theoretical framework. Health belief model is a model that attempts to explain and give predictions on health behaviours by focusing on the attitudes and beliefs of individuals, for example, how people living with the co-infection PTB and HIV/AIDS are managing their lives on a daily basis (Stole et al., 2019).

The health belief model is a value-expectancy theory and assumes that an individual's behaviour is guided by expectations of consequences of adopting new practices. This topic focuses on the impact of PTB and HIV/AIDS co-infection in self-management among adult patients. The duties of patients with PTB and HIV/AIDS co-infection is to make sure that they start engaging on new practices to stay healthy for a long time and making sure that they eat

a healthy balanced diet, making sure that they respond to their follow-up visits and take their medicines on a daily basis. Health belief model further articulates that health-related behaviour depends on the combination of several factors, namely perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy.

Perceived susceptibility refers to the individual's opinion of the chances of contracting illness and its perceived severity once contracted (Terbeck, 2021). Patients living with PTB and HIV/AIDS co-infection have high chances of contracting other illnesses and having high viral load if they do not manage themselves very well in terms of taking their medicines, exercises and eating a high protein diet.

Perceived severity refers to an individual's opinion on how serious a condition and its consequences are. Patients living with PTB and HIV/AIDS co-infection are the ones who know how serious their conditions are and the consequences of non-compliance such as ending up having high viral load, very low CD4 cell count, hemoptysis, pneumothorax and respiratory failure. Also, patients' self-management is negatively affected by non-compliance to treatment, not responding to all appointments, poor diet plan and lack of exercise. These contribute to the patient getting worse and in the worst case scenario the patient may end up dying.

Perceived benefits refer to one's belief in the efficacy of the recommended health behaviour in reducing the risk or seriousness of the condition. Patients who have HIV/AIDS and PTB co-infection require effective support to manage their conditions including making physical, social and psychological adjustments. Mehraeen et al. (2019) suggest that the effectiveness of ART and PTB treatment depends on timely take of prescribed medications, diet, and exercise compliance. Self-management of HIV/AIDS and PTB co-infection is not only dependent on healthcare services but also on social support and the provision of educational information in several areas such as how to practice safe sex behaviours, adherence to medication regimens (WHO, 2019).

Perceived barriers refer to the perception of cost associated with adhering to a recommended health behaviour if it is likely to be beneficial in reducing or eliminating the perceived threat (Terbeck, 2021). Some of the patients who have HIV/AIDS and PTB co-infection are likely to stick to good health habits in order to stay healthy for a long time. Also, there are many countries, including Ethiopia, that provide 'free' HIV/AIDS and PTB services (Stole et al., 2019).

Self-efficacy refers to the level of confidence in one's ability to perform healthy behaviour. Patients with HIV/AIDS and PTB co-infection with high self-efficacy are likely to have high

confidence and this will contribute to them performing good health behaviours. While on the other hand, those patients who have low self-efficacy will have low confidence in their ability, which will have an effect on the likelihood of the behaviour being performed by the patient.

The application and success of the health belief model as a theory of choice for addressing a wide range of health behaviours and populations has been previously reported (Silva, Dias and Rodrigues, 2022). In particular, the health belief model has been used to support studies seeking to understand preventative behaviours (such as diet, vaccination, smoking cessation, exercises, and contraception) and sick role behaviours (such as adherence to recommended medical treatments).

## 1.2 Problem statement

In 2018-2019 there were 1620 patients infected with PTB in Bojanala district of which 886, 540 were co-infected with PTB and HIV/AIDS (Statistic SA, 2019). In 2019, the researcher was doing community service at one of the Primary Health Care (PHC) facilities in Bojanala district. The researcher observed with concern that patients diagnosed with PTB and HIV/AIDS, struggle to comply with treatment. After the monthly routine blood tests of HIV/AIDS patients, the results of those that has PTB, and HIV/AIDS co-infection showed very high viral load and a very low CD4 cell count. The blood results made the researcher wonder if there is good self-management because HIV/AIDS treatment should reduce the viral load to the point that it is undetectable. HIV/AIDS and PTB co-infection negatively affect adult patients' self-management. Patients' self-management is negatively affected by non-compliance to treatment, not attending all appointments, poor diet plan and lack of exercise.

Patients who have HIV/AIDS and PTB co-infection require effective support to manage their conditions including making physical, social and psychological adjustments. Self-management of HIV/AIDS and PTB co-infection is not only dependent on healthcare services but also on social support and the provision of educational information in several areas such as how to practice safe sex behaviours, adherence to medication regimens (WHO, 2019).

The effectiveness of ART and PTB treatment depends on timely take of prescribed medications, diet, and exercise compliance (Mehraeen et al., 2019)). The researcher has therefore decided to explore the impact of PTB and HIV/AIDS co-infection on self-management among adult patients.

### 1.3 Rationale of the study

The researcher has searched for the literature related to the impact of PTB and HIV/AIDS co-infection in self-management among adult patients in the North-West province to find out if there are studies conducted focusing on the phenomenon under study. Unfortunately, the researcher could not find the study findings that are related to the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at Bojanala district of North-West province of South Africa. The researcher aims at improving the knowledge of the co-infected patients regarding PTB and HIV/AIDS self-management so that they can do what is expected of them such as compliance to treatment to improve their health.

### 1.4 Study purpose

The study purpose is to explore the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West Province, South Africa.

### 1.5 The objectives of the study

Objectives of the study are to:

- Explore the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa.
- Describe the impact of PTB on HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa.

### 1.6 Research Question

What is the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province?

## 1.7 Significance of the study

The people who may benefit from this study are nurses, policy makers, patients, family members and researchers. The standard of nursing may improve when they receive the findings of the study on the phenomenon.

The findings of the study may guide the policymakers to design appropriate PTB and HIV/AIDS education programs, and it may also help them in the development of new policies, protocols and guidelines regarding PTB and HIV/AIDS co-infection. The findings of the study may increase knowledge of the patients suffering from both HIV/AIDS and PTB

Family members may also gain knowledge regarding a patient who has HIV/AIDS and PTB infections. Knowledge of HIV/AIDS and PTB the co-infection may be used by the family members to support the patients with co-infection.

## 1.8 Definition of Terms

### 1.8.1 Adult

An adult is a person who has reached the age of majority and is therefore regarded as responsible and also independent (Basta*, 2018)*). In this study, an adult refers to a patient between the ages of 25-45 years.

### 1.8.2 Human immunodeficiency virus

HIV is the virus that if not treated advances to AIDS (UNAIDS, 2019). In this study, HIV refers to a virus that invade vital cells in the human immune system and leads to low levels of CD4 cell count.

### 1.8.3 Pulmonary tuberculosis

PTB is a contagious bacterial infection that is mainly an infection of the lungs (Daniel, 2017). In this study, PTB refers to the lung infection that commonly affects patients with weakened immune systems such as HIV/AIDS.

### 1.8.4 Co-infection

Co-infection refers to a situation in which a person has two or more infections at the same time (WHO, 2019). In this study, co-infection refers to a patient who has been diagnosed with PTB and HIV/AIDS.

### 1.8.5 Self-management

Self-management refers to the skills, methods and strategies by which individuals can successfully direct their own activities towards the achievements of objectives (Galvão, 2019). In this study, self-management refers to the ways in which adult patients who are co-infected with PTB and HIV/AIDS take care of themselves.

## 1.9 Research methodology

In this study, the researcher adopted a qualitative research method and a descriptive phenomenological research design to explore and describe the impact of PTB and HIV/AIDS co-infection among adult patients in Bojanala district of North-West province. Non-probability, purposive sampling technique was utilised to select the PHC facilities and adult patients who were co-infected with PTB and HIV/AIDS. Data were analysed according to Tesch‘s open coding method. Furthermore, the researcher indicated how ethical issues and measures to ensure trustworthiness were observed. The trustworthiness of the study was discussed under credibility, confirmability, transferability, and dependability.

## 1.10 Outline of the dissertation

**Chapter 1: Orientation to the study**

The chapter expound the introduction, background of the study, problem statement, purpose of the study, objectives, research question and significance of the study

**Chapter 2: Literature review**

Literature review is corresponding to the title of the study, focussing on the impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province

**Chapter 3: Research methodology**

The research methodology includes the research approach, research design, study setting, study population and sampling, unstructured in-depth face-to-face interviews, pre-test, measures to ensure trustworthiness, data collection, data management and analysis, ethical considerations, delimitation of the study and dissemination and implementation of results

**Chapter 4**: **Presentation, analysis, interpretation, and discussion**

Data presentation, analysis and interpretation and discussions.

**Chapter 5: Summary, findings and recommendations**

Conclusion of the findings and recommendations are deliberated.

## 1.11 Summary

Chapter one outlines the background problem statement, significance, the purpose of the study and research objective. It provides the reader with the study outline on the impact of PTB and HIV/AIDS co-infection on self-management. Chapter two describes literature reviewed from various sources in relation to the impact of PTB and HIV/AIDS in co-infected adult patients

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 INTRODUCTION

Brink, van der Walt and van Rensberg (2017) define a literature review as a written account of what has been published by scholars and other researchers on a particular topic that is organised. The introductory literature review is essential because it provides direction and focus to the study (Creswell, 2014). It is first used to contextualise the researcher's study, to argue a case, to identify a role to be polished by the research, and so on (Henning, van Rensberg, and Smit, (2017). The researcher reviewed literature from theoretical and empirical sources to get an idea of what is already known and what is not yet known about the impact of pulmonary tuberculosis and HIV/AIDS co-infection on the adult patient's self-management and to decide if the topic can and should be researched (Grove, Grey and Burns, 2015). The researcher reviewed the literature in Google Scholar and Science Direct

## 2.2 Impact of pulmonary tuberculosis and HIV/AIDS co-infection on the patient

The co-infected adult patients are faced with so many life challenges, PTB and HIV/AIDS co-infection impact their daily life activities negatively. PTB and HIV/AIDS have an unfavourable impact on the co-infected patients' finance, nutrition, sex life, health and they experience stigma from the community including their family members. They end up isolating themselves and skipping their follow-up visits.

### 2.2.1. Impact of PTB and HIV/AIDS on patient's health

The findings of the study on PTB and HIV/AIDS co-infection conducted in Ethiopia revealed that PTB and HIV/AIDS co-infected patients have a lower quality of life in all domains when being compared to HIV infected patients who do not have PTB (Wright and Epps, 2020). Depression, no income and family support are strongly related to most of the quality-of-life domains of the co-infected patients. Patients who are depressed are more likely to have poor physical health equate to individuals who are only HIV positive and are negative for PTB (Galvão and Janeiro, 2019).

According to WHO (2020) patients with PTB and HIV/AIDS's immune system is weak, and they are more prone to opportunistic infections which are triggered by organisms that

typically do not cause disease in individuals who are healthy. These organisms get an opportunity to attack the body when there is an opportunity to infect (WHO, 2020).

Seizures can occur, but in rare cases, this disease can also occur when CD4+T cell counts are below 200 cells per cubic millimetre of blood (Wright and Epps, 2020). Progressive multifocal leukoencephalopathy is a rare disorder of the nervous system caused by a common human polyomavirus that results in damage to the myelin sheath that protects neurons (Del Valle and Piña-Oviedo, 2019). The myelin sheath is the fatty covering the acts as an insulator on the nerve fibres of the brain. Symptoms include mental decline, vision problems, speech problems, and inability to coordinate movements, paralysis, and eventually coma (Perrotta, 2020).

According to UNAIDS (2018) candidiasis is an infection caused by Candida fungi and is commonly known as a yeast infection. It is the most common fungal infection associated with PTB and HIV/AIDS co-infections. It can affect the entire body, but in most cases it occurs in the mouth, which is called thrush, or in the vagina. Excessive growth of yeast in the vagina can lead to irritation, burning, itching, and thick white discharge (Rao and Mahmood, 2020)

Fatigue is a term commonly used to describe feelings of exhaustion, sleepiness, and lack of energy. It is a problem most experienced by patients; it is not a disease but rather a symptom of illness or infection (WHO, 2019). Some people suffer from isolated or periodic bouts of fatigue, while others suffer from chronic fatigue that can severely interfere with work or other daily activities (Bateman, 2021)

According to Shevchenko et al (2019) depression and anxiety are mostly associated with fatigue and are common in patients with PTB and HIV/AIDS co-infection. Depression and anxiety are associated not only with fatigue but also with insomnia, loss of appetite, and difficulty concentrating. Approximately every co-infected person goes through periods of feeling agitated, anxious, fearful, or depressed (Daftary et al., 2021).

Insufficient production of adrenal hormones can be the result of PTB and HIV/AIDS drugs, the PTB and HIV/AIDS co-infection itself or by opportunistic infections such as cytomegalovirus, which can directly infect and destroy the adrenal glands (Kolade et al., 2018). Adrenaline deficiency can lead to fatigue, chronic weight loss, low blood pressure, dizziness, and eventually death (Zhao et al., 2021).

Concurrent infection with PTB and HIV/AIDS and the medications used to treat them may cause the red blood cell count and percentage to fall below normal. When a person is anaemic, the body tries to compensate in various ways (Stephen and Kinara 2019). This

redistribution of blood causes people with anaemia to feel pale and cold but provides more oxygen to vital organs such as the heart, brain, and muscles (Collins, 2020). Increased activity leads to greater oxygen demand in these tissues, resulting in fatigue, weakness, palpitations, shortness of breath, and other symptoms ( Sambu and Collins, 2020).

### 2.2.2 Impact on finance

PTB and HIV/AIDS co-infection financially affect the co-infected patients financially as most will no longer afford the basics. The findings from the study conducted in the United States revealed that many co-infected patients diagnosed with PTB, and HIV/AIDS co-infection may no longer be able to work of the severe illness. As soon as they stop working, poverty begins to the families in which they are bread winners (Ansa et al., 2017).

Korstjens (2018) highlighted that patients pay for pre-diagnostic services, additional medications, laboratory tests, adverse event monitoring, hospitalisation, transportation, meals, and lodging. In addition, patients are pushed to seek treatment from expensive private providers because diagnostic services are not available in public health facilities (Land and Lisnk, 2019).

When civil servants become seriously ill, they usually request sick leave for a certain period with full or reduced pay (Loveday and Zweigenthal, 2019). In Zambia, for example, the Ministry of Agriculture, Food and Forestry authorises sick workers to take 90 days of continuous absence with full pay and another 6 months with half pay (Linsk and Gilbert, 2017). In Swaziland, a government employee can take up to 6 months of sick leave with full pay and another 6 months with half pay (Ansa, Walley and Rosenheck, 2017).

### 2.2.2 The impact of PTB and HIV/AIDS on economy

UNAIDS (2020) highlighted that HIV/AIDS and PTB are the greatest global health threats, resulting in a large financial burden for vulnerable populations. More than 72 million lives were saved between 2018 and 2021, but the high burden of disease, inequitable health care utilisation, and problems with quality of services persist (UNAIDS, 2019).

Although many countries, including Ethiopia, provide 'free' HIV/AIDS and PTB services, the measures taken do not provide realistic protection against financial risks (Pense, 2019). In Ethiopia, the health budget is only $33.2 per capita and 31% of all health financing is paid out of pocket, so patients and their families often face direct and indirect costs that result in financial strain on households (Pense, 2019).

Spending on treatment for HIV/AIDS and PTB co-infections can leave vulnerable households impoverished because it crowds out consumption of basic necessities. In addition, access to treatment can be compromised due to high patient costs, leading to poor treatment outcomes (Cholewińska and Szymańska, 2019). There are many factors that can lead to catastrophic health expenditures. HIV/AIDS and PTB waivers often address limited aspects of primary care such as treatment with antiretroviral therapies and medications for PTB (Daniel, 2017).

HIV/AIDS and PTB pose a serious challenge to development of the economy, mortality increase, and morbidity reduce living standards directly and have results that affect the economy in all areas (UNAIDS, 2019). At the macroeconomic level, there is a decline in the economic growth as the population grows more slowly and as reduced national saving, rising costs, and decline in the economic prospects deter investment (Beegle and Christiaensen, 2019).

The HIV/AIDS and PTB epidemic is impacting all functions and levels of government as more and more public servants become seriously ill and die. Apart from the disruption of public service coupled with increased attrition rates, HIV/AIDS and PTB co-infection also affects the stature of state employees in various dimensions (UNAIDS, 2018). Government employees enjoy some form of retirement, medical, and death benefits, and government personnel costs are increasing (Daniel, 2017).

The increase in mortality and morbidity impacts public services by increasing turnover and absenteeism of government employees due to HIV/AIDS and PTB co-infections and decreasing productivity due to poor health (Cholewińska and Szymańska, 2020). More broadly, HIV/AIDS and PTB co-infection also leads to higher absenteeism among those who are not infected, as these workers must, for example, care for sick family members and attend funerals (Kolade et al., 2018).

UNAIDS (2019) noted that HIV/AIDS and PTB affect economic growth by reducing the availability of human capital. In the absence of adequate prevention, nutrition, health care, and medicine available in developing countries, people fall victim to HIV/AIDS and PTB co-infection in large numbers. Co-infected patients are not only unable to work, but also require medical care. The increased mortality rate in South Africa led to a shortage of skilled labour. The smaller labour force consists of young people who lack knowledge and work experience, which led to a decline in productivity (Korstjens and Moser, 2019). The increasing number of workers taking time off to care for sick family members or taking sick

leave will also lead to a decline in productivity and an increase in mortality, which also weakened the mechanisms that generate human capital and investment in people through loss of income and adult deaths (Land and Linsk, 2019).

In countries with weak governance and opaque public records, public service coherence may also come under strain if deceased government employees are not removed from the payroll, benefiting the corrupt government, civil servants, or survivors (Loveday and Zweigenthal, 2020). In this case, an increase in mortality could lead to an increase in the number of "ghost workers". Mahan (2017) pointed out that HIV/AIDS also impacts the cost of training due to the need to replace government employees who become ill or die. Depending on the job category of the employee, these costs range from small amounts for basic on-the-job training to very substantial investments that include several years of training abroad (Mahan, 2017)

### 2.2.3 Impact PTB and HIV/AIDS on nutrition

Sambu and Collins (2020) revealed that HIV/AIDS and PTB co-infection can cause challenges related to nutrition sometimes. For example, some HIV/AIDS and PTB co-infection-related infections can make eating or swallowing hard. Medicines for co-infection can cause side effects such as loss of appetite, nausea, or diarrhoea that can make it hard to stick to the required diet (Stephen and Kinara, 2018).

Pence (2019) confirms that HIV/AIDS and PTB co-infection gradually destroy the immune system and lead to emaciation and weight loss, which often simultaneously exacerbates existing malnutrition, HIV/AIDS and PTB co-infected individuals who begin treatment when they are already malnourished are 3-5 times more likely to die than those who are not malnourished. Basta, Reece and Shacham (2018) has shown that HIV/AIDS and PTB co-infections are most prevalent in areas of widespread poverty and food insecurity, affecting populations that already have limited access to a healthy diet.

Co-infection with HIV/AIDS and PTB often exacerbates pre-existing food insecurity and malnutrition in a vicious cycle: medical costs and lost income (due to prolonged illness or stigma) increase food insecurity. Food-insecure people are also less likely to adhere to treatment (Silva, Dias and Rodrigues, 2022).

WHO (2018) emphasised that integrating a comprehensive food and nutrition component into the HIV/AIDS and PTB treatment and support package is critical to achieving better health outcomes for co-infected patients? Patients with HIV/AIDS and PTB co-infection are of great concern to the World Food Programme, which takes the lead in ensuring that food

and nutrition support is included in national HIV/AIDS and PTB strategies and distributed to patients as needed (UNAIDS, 2019).

HIV/AIDS and PTB co-infection has a negative impact on nutrition through an increase in the resting energy exhaustion; food intake reduction; nutrient mal-absorption and loss; as well as complex metabolic adjustment that culminate in weight loss and wasting (Del valle and Piña-Oviedo, 2019). The impact of HIV/AIDS and PTB on nutrition starts early in the development of the co-infections, even prior to an individual being aware that is infected by HIV/AIDS and PTB. HIV-infected adults need about 10% more energy while adults infected with HIV/AIDS and PTB need between 20 – 30% more energy when compared to individuals who are not infected (Basta, Reece and Shacham, 2018).

There is a connection between poorer primary health care facilities and a higher risk of death among HIV/AIDS and PTB co-infected adults with compromised micro-nutrient consumption or status (Perrotta, 2020). However, lack of vitamins such as A; B-complex; C; and E as well as minerals such as selenium and zinc, which are needed by the immune system in order to fight the infections, are quite usual among the people infected with HIV/AIDS and PTB (Bateman et al., 2021).

### 2.2.4 Impact of PTB and HIV/AIDS on the sex life of the patients

According to WHO (2020) healthy sexual life, intimacy and physical pleasure are crucial in overall health, this may change due to HIV/AIDS and PTB diagnosis. Nevertheless, some people who have HIV/AIDS and PTB find it tough to enjoy a healthy sex life, despite the fact that there are sexual challenges which are called sexual dysfunction which can be anyone's problem at different stages in their lives, studies show that patients with HIV/AIDS and PTB co-infection are particularly prone to: sexual desire problems, problems with arousal, problems with orgasm such as inability to have an orgasm at all, taking a long time to have orgasm, premature ejaculation and painful sex, which may result to avoidance and fatigue which makes it difficult for them to satisfy their partners (Rao and Mahmood, 2020).

There are certain psychological stressors associated with HIV/ AIDS and PTB co-infection, such as fear of transmitting it to others, the stigma regarding the virus, concerns about disclosing the status to others, and changes in body image (Timilsina and Regmi, 2019). These can potentially have an impact towards feelings about sex. Similarly, the way that patients feel about their body and sexuality, low self-confidence and poor self-image can all play a role to sexual difficulties. Anxiety, depression, problems with mood and the

medications that are used to treat them can contribute to difficulties in sex such as inability to reach orgasm (Shevchenko et al., 2019).

A study conducted by WHO (2019) in Brazil revealed that Erectile Dysfunction (ED) is when a man cannot get an erection that enables him to penetrate the vagina during sexual intercourse, Men struggle with ED, especially when they become older or when they are sick. It is also more prevalent in patients suffering from HIV/AIDS and PTB co-infection than in the general population, even though it has been hard to estimate how many are affected, research highlighted that around 40 to 60% of men with HIV/AIDS and PTB co-infection may experience some degree of erectile dysfunction (Timilsina and Regmi, 2019).

According to Daftary et al., (2018) decline in testosterone production is a common problem experienced by PTB and HIV/AIDS co-infected men. Like many other hormones, testosterone, which is produced primarily in the testes, is involved in regulating moods, sexual function and energy levels in men (Zhao et al., 2021). Approximately 45 percent of all patients with PTB and HIV/AIDS coinfection suffer from decreased testosterone levels. There are several causes of low testosterone production, including testicular dysfunction in which the testes are damaged, perhaps due to coinfection or side effects of medications, and elevated levels of the adrenal hormone cortisol (Beegle and Christiaensen, 2019).

### 2.3. Stigmatization

The process of stigmatisation begins when a particular trait or characteristic of an individual or group is viewed as pejorative or undesirable (Demirtaş-Madran, 2020). Stigma is determined and implemented by institutional and community norms and interpersonal attitudes. It is a social indicator of health. The stigmatised person often internalises this sense of devaluation and adopts a range of self-conscious attitudes toward the highlighted trait, including shame, disgust, and guilt. The attitudes conveyed to co-infected patients lead to a range of behaviours that include hiding the stigmatised trait, withdrawing from others, or increasing risk behaviours. Stigmatised individuals usually suffer discrimination and loss of status from the community at large, whose norms make them appear undesirable (Rivers et al., 2019).

According to McShane (2019) stigma includes all stereotypes, prejudices, and treatments that are unfair to a person's perceived or associated social status, value, or label. It is deeply rooted in culture and driven by personal values. It is not a natural phenomenon, but a determinant of health that directly impacts patient quality of life and treatment outcomes, particularly in PTB and HIV/AIDS coinfection (McShane, 2019).

Patient with PTB and HIV/AIDS co-infection tend to develop the internal stigma, “Internalised stigma” or “self-stigma” happens when a person takes in the ideas that are negative and stereotypes about PTB and HIV/AIDS and the co-infected individuals and start to apply them to oneself (Osaro, 2018). Lack of information and awareness combined with beliefs that are outdated makes people to fear getting PTB, and HIV/AIDS and many people think that PTB and HIV/AIDS co-infection are infections that only certain groups get, this leads to negative value judgements to co-infected patients (Osaro, 2018).

The nature of stigmatisation of people with PTB and HIV/AIDS coinfection is well known. Co-infected people have been stigmatised worldwide since the beginning of the epidemic, resulting in severe social consequences related to their rights, health services, freedom, self-identity, and social interactions (Visca et al., 2021). Discrimination and stigma associated with PTB and HIV/AIDS co-infection undermines public health efforts to combat the epidemic. The United Nations pointed out that stigma associated with PTB, and HIV/AIDS still hinders the prevention, care, and treatment that are provided everywhere (Villa et.al 2021).

Mothoa (2018) highlighted that the link between PTB and HIV/AIDS has contributed to the stigmatisation of co-infected patients because the community believes that they must have done something to deserve to be infected. This judgment may attest the belief that PTB and HIV/AIDS are divine punishments for a moral or personal failing, which then permit stigmatisation (Bresenham et al., 2020).

Perceived PTB and HIV/AIDS stigma impacts the quality of life negatively and has been corresponded with poorer mental health results, lowered self-esteem, lowered self-efficacy, and reduced adherence to dual treatments (Chen et al., 2021). People with PTB and HIV/AIDS received discrimination and are isolated from society and the community would keep away from them for fear of infection (Villa et al., 2021).

The study findings on PTB and HIV/AIDS co-infection in Tanzania and Uganda revealed that PTB and HIV/AIDS co-infected individuals identify themselves to be at risk for a number of stigmas in relation to social and economic outcomes, the most common outcome of PTB and HIV/AIDS stigma is being isolated from other community members, PTB and HIV/AIDS co-infection can substantially have an impact on economic opportunities (Visca et al., 2021). For example, the stigmatisation of PTB and HIV/AIDS in Ghana has led to the banning of PTB and HIV/AIDS co-Infected patients from selling their goods in the public markets and attending events of the community.

The fear of PTB and HIV/AIDS co-infection stigma can lead to co-infected patients to hide their PTB and HIV/AIDS status from their families. PTB and HIV/AIDS stigma also results in a feeling of shame or guilt, resulting to social withdrawal and isolation as co-infected individuals internalise the negative judgments about the co-infection from the community (Chen et al., 2021).

The findings of the study conducted in Zimbabwe by Adeoye (2018) revealed that Individuals diagnosed with PTB, and HIV/AIDS experience the challenges such as isolation and rejection such as employment loss, divorces or having reduced marriage prospects, being denied sharing meals, utensils or sleeping quarters with the rest of the family members, and general evasion or gossip from the members of the community. Masir (2019) further discovered that fear of what will happen if one is co-infected with PTB and HIV/AIDS may lead to delays in seeking medical care for PTB and HIV/AIDS co-infection and could have a negative impact on adherence to treatment. As a result of this, PTB and HIV/AIDS stigma continues to be viewed as a stumbling block to PTB and HIV/AIDS treatment compliance.

According to WHO (2019) some adult co-infected women in SA also experience stigma in the preparation of food, they are told that people with co-infection must not prepare food so if they do prepare their food is rejected. Some family members separate eating utensils, like cups and plates, used by their co-infected family member from the ones used by the rest of the family so with that kind of treatment patients may start to neglect themselves and feel like it's better to die (UNAIDS, 2020).

A number of publications have found that stigma associated with PTB, and HIV/AIDS co-infection is the greatest barrier to PTB and HIV/AIDS co-infection service utilisation, due to shame and fear of being discriminated against (Mothoa, 2019). Stigma occurs in different forms and at different levels, such as family, community, and health care settings. This makes co-infected patients feel bad and subject to social isolation, physical or verbal abuse, mistreatment, and political prejudice (Bresenham et al., 2020).

Stigma results to unfortunate health effects such as anxiety or depression, female sex worker, gays experience double stigma due to their PTB and HIV/AIDS co-infection status and their noticeably "illegal and unethical" behaviours (Adeoye, 2018). PTB and HIV/AIDS co-infection related stigmatisation experiences differ across different communities.

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3. Introduction

According to Henning et al., (2017), research methodology refers to the coherent group of methods and procedures that complement each other and are suitable to provide data and results that confirm the research question and meet the research purpose. This chapter details the research design and research methods. The research methodology includes the research approach, research design, study setting, study population and sample, face-to-face unstructured in-depth interviews, pre-test, measures to ensure trustworthiness, data collection, data management and analysis, ethical considerations, study delineation, and dissemination and implementation of findings.

## 3.1 Qualitative research approach

Polit and Beck (2014) defined qualitative research as the exploration of the phenomena, commonly in an in-depth and holistic fashion, by means of collection of rich narrative materials using a variable research design. However, Brink, Van der Walt, and van Rensburg (2017) highlighted that this type of research seeks to understand the phenomenon in Its completely, rather than concentrating on specific concepts. This type of research generates findings not arrived at by statistical procedures or other means of quantification. It has few assumptions and stresses the significance of people`s interpretation of events and circumstances, preferably than the researcher`s interpretation (Brink et al., 2016).

The researcher acquired a qualitative research approach to answer the research question and achieve the study objectives. It allowed the researcher to explore self-care management among the adult patients co-infected with HIV/AIDS and PTB at the selected primary health care facilities in Bojanala district of North-West province. The collected data, analysed and interpreted in a qualitative approach is not significantly calculated in numbers but sum up in words and thus, the researcher’s expertise was much desired. The qualitative approach permits interviewing of fewer participants in comprehensive, and data were narrated and addressed their understanding in their original context (Archibald et al., 2017). In this study, the main instrument was the researcher and was subjectively engaged in the process of the research. A qualitative research approach was suitable for this study as it allowed the

researcher to interview the participants who described impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients.

### 3.1.1 Study design

It is defined as a strategy moving from the fundamental philosophical assumptions to state the selection of participants, data gathering strategies to be used, and the data-analysis to be performed (Maree, 2016). It gives indication on how data will be gathered, what type of contrast will be made, and the study setting. It is also defined as an idea of addressing a research question, including designation for enhancing the integrity of the study (Polit and Beck, 2014). The researcher used a descriptive phenomenological design. The use of descriptive phenomenological design enabled researcher to explore and describe the impact of PTB and HIV/AIDS co-infection on self-management. This description leads up to the essence of the experiences for various individuals who have all encountered the phenomenon, it has strong philosophical development and thus includes conducting interviews. A descriptive phenomenological design was used as a strategy moving from the fundamental philosophical supposition specifying the selection of participants, data collecting techniques utilised, and the data analysis that was done (Brink et al., 2016).

The descriptive phenomenological design gives richly detailed information that the researcher may not have foreseen. Descriptive phenomenological design is significant to study the impact of PTB and HIV/AIDS co-infection on self-management because little is known about the phenomenon under study and in-depth information is needed. It gives the opportunity to define such phenomena by means of description precisely through narrative-type descriptions concerned with co-infected adults. The researcher allowed co-infected adult patients to describe the impact of PTB and HIV/AIDS co-infection.

## 3.2 Study setting

According to Grove, Gray and Burns, (2015) the study setting is a location in which the research is going to be conducted, can be natural, controlled partially, or controlled highly. The study was conducted at the selected PHC facilities in the consultation rooms that was prepared specifically for the interviews, in Bojanala district of North-West province with the high number of PTB and HIV/AIDS co-infected patients. Bojanala district is in the North-West Province of South Africa. It is enclosed by the district of Waterberg to the North, district of Kenneth Kaunda to the South, City of Tshwane Metro to the East, West Rand district to the South-East, and district of Ngaka Modiri Molema to the West.

Bojanala district consists of 107 rural villages, 115 PHC facilities, 9 health centres and 11 hospitals. Most people are unemployed, and their educational levels are low which led to low socio-economic status. Bojanala society strongly believes in its culture, however, they first consult traditional healers, when they are ill which delays them to start with ART and PTB medications. Most of the villages in Bojanala district are classified as rural areas with the very low densities which make the provision of basic services very difficult and expensive. Bojanala district experiences cold winters with frost, very hot summers with scarce rain. The soil is deep sandy and more susceptible to erosion which is not good for farming. Most of the co-infected adult patients are unemployed and they cannot afford nutritious food.

Data was collected from PTB and HIV/AIDS co-infected adult patients who are collecting treatment for PTB and HIV/AIDS at the primary health care facilities in Bojanala district of North-West Province, South Africa. Data was collected from adult patients who are co-infected with PTB and HIV/AIDS collecting treatment at the selected primary health care facilities in Bojanala district of North-West province, South Africa.

## 3.3 Study population and sampling

### 3.3.1 Study population

Brink, van der Walt and van Rensburg (2017) described the study population as the entire set of individuals or objects having some common characteristics. The study population were the patients co-infected with PTB and HIV/AIDS at the PHC facilities in Bojanala district of North-West Province, South Africa.

- Target population

According to Brink, van der Walt and van Rensburg (2017), a target population is an absolute set of persons or objects that have some common traits the researcher is interested on. Brink, (2017) define the target population as the complete set of individuals who assemble the specification that the researcher is interested in studying. The target population were the adult patients co-infected with PTB and HIV/AIDS between the ages of 25 to 45 years.

- Accessible population

Brink, (2017) claims that an accessible population is a group or objects that are reasonably within reach and available to the researcher for a study. In this study, the researcher has requested the clinical managers and the nurses at the selected primary health care facilities to assist her in identifying adult patients who were co-infected with PTB and HIV/AIDS.

### 3.3.2 Sample and Sampling method

Groves and Burns (2015) refer to sampling as a process in which the researcher selects a group of people, events, behaviours, or other component that are indicative of the population being studied. Non-probability, purposive sampling technique was used to select the PHC facilities and adult patients who were co-infected with PTB and HIV/AIDS. Polit and Beck (2014) confirm that using non-probability purposive sampling allowed the researcher to judge and sort out participants with PTB and HIV/AIDS co-infection.

#### 3.3.2.1 Sample size

According to Grove and Gray (2017) sample size refers to participants in a few numbers, events, behaviour, or situation assessed in a study. The size of the sample is controlled by the information needs of the study (Polit and Beck, 2014). The researcher purposefully selected 5 adult patients from the selected PHC facilities who were between the ages 25-45 years on dual treatment for PTB and HIV/AIDS. The rationale behind selecting the population between the ages 25 to 45 was that they are sexually active. However, the sample size was also determined by data saturation.

### 3.3.3 Inclusion criteria for the PHC facilities

The researcher selected 5 PHC facilities

- in Bojanala district, North-west Province, SA
- with a high number of PTB and HIV/AIDS co-infected patients

#### 3.3.3.1 Inclusion criteria for the participants

The researcher included adult patients who were:

- co-infected with PTB and HIV/AIDS

- between the ages of 25-45 years both males and females
- on ART and PTB treatment

### 3.4 Unstructured in-depth face-to-face interviews

According to Wagner (2017), an interview is a two-party dialogue and a purposive communication in which the researcher asks the participants questions to collect comprehensive data regarding the phenomenon. It includes verbal interaction between the participant and the researcher, where information is given to the researcher (Grove and Gray, 2017). The interviews provide more comprehensive information, and the researcher explored the impact of PTB and HIV/AIDS by means of probing.

The researcher started all the interviews by asking the participants one central question. The question was "**Kindly share with me the impact of PTB and HIV/AIDS co-infection in self-management''**. Face-to-face interviews allowed the participants to explain the impact of PTB and HIV/AIDS in self-management without openly. This type of data collection instrument allowed the researcher and participants to establish personal relationships, thereby enabling the participants to feel free to express themselves without fear or prejudice.

### 3.5 Pre-test

Pre-testing is an act whereby the researcher try-out the question that has been developed prior its actual use to work out the likely challenges with it (Kumar, 2014). Prior to actual data collection process, the researcher made an appointment with the nursing service manager on when the pre-test was going to be done, out of all the co-infected patients in one of the selected PHC only 2 adult patients who were co-infected with PTB and HIV/AIDS were interviewed. Pre-test was conducted to test if the question was phrased in a manner that the participants could understand.

The participants well understood the question. Pre-testing assisted the researcher to identify if the time allocated for a single interview was adequate and the feasibility of the data collection instrument. The pre-test gave the researcher a chance to evaluate his/her interviewing skills and the pre-test findings were not included in the main study because the researcher was still evaluating her interview skills and note what to exclude when doing the actual interview.

### 3.6 Measures to ensure trustworthiness

Trustworthiness is the degree of confidence qualitative researchers has in their data. Trustworthiness was ensured by making use of criteria such as credibility, conformability, transferability, dependability (Burns and Grove, 2015). Trustworthiness betrays how the researcher can convince her audiences that the findings of an inquest are worth paying attention to or worth taking proceeding of (Babbie and Mounton, 2016). These refer to the quality of the findings or an inquiry worthy of paying attention to and or worth considering that the research findings should be trusted. The researcher ensured honesty and integrity to collect unbiased data.

#### 3.6.1 Credibility

Credibility is the level at which any research declares to be based on legitimate evidence, genuine, free from error and evasion that the readers find its assumption to be believable and it is the most crucial criterion which indicates that the study is of quality and the findings gathered are agreeable (Silverman, 2014). Burns and Grove, (2015) further, proposed that credibility refers to the conviction of the reader about the level to which the researchers have generated results that reflected the perspective of the participants. In this study, credibility was ensured by means of prolonged engagement and member checking.

- **Prolonged engagement**

In qualitative inquiry, prolonged engagement relative to Ferguson et al., (2018) is spending extended time with participants during data collection to have a complete understanding of the impact of PTB and HIV/AIDS co-infection to test for disinformation and distortion and to warrant saturation of supreme categories. The researcher gained an in-depth understanding of the impact of PTB and HIV/AIDS co-infection as much as specific aspects during this stage. Data was collected in June and lasted for a month. To build rapport and trust the researcher dressed appropriately, made introductions so that they know each other with the participants and ran small talk being friendly, so they felt open to share their experience. The researcher also met with the participants at the selected primary health care facilities where they collect treatment so that they could feel that their information was safe.

- **Member checking**

Gary (2017) proposed that member check is when the researcher inspects together with the participants to notice if they have understood each other well on what was said the interview

process. The voice recorder was played back to the participant after each interview to confirm if what was recorded is what they said by so doing the researcher and the participants were checking whether they have really understood each other well on what was said during the interview process. Probing was performed during the interview to have clear and deep understanding of what the participants were saying. At the end of the process of data analysis, the researcher went back to the participants to verify with them if what the researcher has analysed is the true reflection of the data collected.

### 3.6.2 Confirmability

Confirmability gives guarantee that the findings, conclusions and recommendations are supported by the data and that there is an intramural agreement between investigators' interpretation and the genuine confirmation (Brink et al., 2016). To ensure confirmability the researcher became closely involved in the informant's lifeworld, which they disclosed in the course of study. Moreover, the researcher made sure that she was open to the perceptions of the participants rather than attaching her own meanings to it; setting aside assumptions and knowledge of the co-infection and interviewing the participants with an open mind to get new insights as the participants reported about their experiences. Continuous engagement between the researcher and the participants made it possible for the findings of the study to be true and unbiased.

### 3.6.3 Transferability

Korstjens and Moser (2018) define transferability as the degree to which results of qualitative research can be transferred to other contexts or settings with other participants. Polit and Beck (2014) view transferability as the level to which qualitative findings can be transferred and applied to another context, settings, or groups of similar characteristics. Qualitative research meets this category when the findings fit into context outside the situation of the study.

### 3.6.4 Dependability

According to Brink et al., (2016) dependability is when the researcher's peers follow researcher steps to determine whether they are approvable. To ensure dependability the study details were given in full and the purpose of this was to show manifestation of stability and solidity in the process of inquiry. Moreover, the researcher made sure that the research focus is nurtured and that the research problem was addressed and made sure that all the processes within the whole research process were consistent with the philosophical and

methodological principle of phenomenology. The researcher intended to confirm that the findings were in line with the raw collected data, ensuring that if some other researchers were to look over the data, and they would come to similar findings, interpretations, and conclusions regarding the data.

### 3.7 Data collection

Data collection is the collection of information to address a research problem (Brink et al., 2016). Burns and Grove (2017) define data collection as the process of picking participants and assembling data from the participants, it includes a selection of the sample, data gathering techniques and the transcriptions by means of notes taking and tape recordings. In qualitative studies, the researcher is supposed to give a comprehensive data collection process for others to "notice" how the research advanced to enhance the trustworthiness of the findings of the study. Participants and relevant authorities were informed about the study purpose. The researcher visited the selected PHC facilities and planned with the nursing service manager to identify the co-infected patients through checking on the register. Adult patients who met the inclusion criteria were recruited by the researcher with the assistance of the nursing service manager to be part of the study based on the researcher's judgement. An appointment was made by the researcher with the participants on when data was going to be collected.

On the days of conducting the interviews at the primary health care facilities, thorough explanation of the study purpose was done, participants voluntarily signed consent form. The participants were made aware that the researcher will use voice recorder reason being that it captured more information during the interview and was faster than writing. Interviews were conducted at the selected primary health care facilities, inside the consultation room prepared specifically for the interviews. It was a quiet suitable environment that did not have any interruptions and it took approximately 30-45 minutes. There were sanitisers at the door where participants were told to sanitise before they sit down with the researcher and were encouraged to wear a mask before entering the consultation room where the interviews were taking place. The chairs where the participants were sitting on were also sanitised after the interview of every participant. People were not allowed into the area where interviews were conducted to maintain the privacy of the participants. Unstructured interviews were utilised that allowed an in-depth interaction.

Each participant was given enough time to describe how PTB and HIV/AIDS co-infection had an impact on their self-management on daily basis in detail without the researcher getting in the way when not necessary and the researcher listened more and talked less. During the

interview, non-verbal signs such as facial expressions, gestures and tone of voice were observed. Probing questions were asked depending on participants' responses and from the central question established by the researcher (see ANNEXURE E). The participants were motivated to ask questions after the interview to be clarified by the researcher. Data saturation was reached when 8 participants were interviewed. The researcher gave thanks to the participants for their participation and took their contacts in case there would be a need for a follow-up.

### 3.8 Data management and analysis

Data was kept safe in a locked cupboard to maintain privacy. No names of the participants were linked to data but codes. The researcher transcribed data verbatim then translated it from Setswana to English. Data analysis is the process of bringing order, structure and meaning to the mass of collected data which entails categorizing, ordering, manipulating, and summarizing the data, and describing them in a meaningful way (Brink et al., 2016). Tesch's eight steps coding criteria guided the researcher to analyse data.

**Step 1: Get a sense of the whole**

After data collection the researcher sat down and listens conscientiously to the voice recorder. Where the researcher missed some information or did not understand the information well, the tape recorder was played repeatedly so that the researcher understands it clearly without missing any information.

**Step 2: Picking one document at a time**

The researcher selected one short interview transcripts of interest from the pile and read it rigorously, analysing the meaning. The substance of the information was highlighted with thoughts noted in the margins.

**Step 3: Making a list of all topics**

After reading several interview documents, the list of all topics derived from the interview report was made by the researcher. Same topics were categorised together, formed in columns organised as major topics, unique topics and not allocated.

**Step 4: Taking the list of topics and going back to the data**

From the list of topics, the researcher went back to the data and assigns each topic and abbreviates code that is identifiable. Then from the abbreviated list of topics, data segments were noted alongside that code.

**Step 5: Turning topics into categories**

Topics obtained from the interview reports that were interconnected to each other were classified together. The researcher then categorises the qualitative information by looking at categories, themes, or dimensions of information. General themes and sub-themes were established. The drawing of columns between categories showed how they corresponded.

**Step 6: Making a final decision**

The researcher made a final decision and themes were developed by gathering data material falling to each category.

**Step 7: Assembling the data**

Data material was gathered per each theme in one place, and a preliminary analysis was performed by the use cut and paste method.

**Step 8: Recoding data, if necessary**

The researcher conducted a code-recode procedure throughout the analysis phase on study data. After section of data was coded, the researcher had to wait for at least two weeks and then go back to recode the same data and assess the results.

### 3.9 Ethical considerations

Ethics is a system of moral values that is concerned with the extent to which a researcher sticks to professional, legal and social commitment during the research process (Brink, 2016). The researcher applied the most required research ethics throughout the study and that is: permission to conduct the study, informed consent, anonymity, privacy and confidentiality, freedom of autonomy and participant's rights.

#### 3.9.1 Permission to conduct a study

The permission to conduct the study was requested from the University Higher Degree Committee (see ANNEXURE A), North-West province Department of Health Research Ethics committee (see ANNEXURE B), Bojanala District Department of Health (see ANNEXURE C) and lastly the participants. The researcher submitted the proposal to the Advanced Nursing Science Department and the School of Health Sciences research panel members for quality purposes.

The researcher further submitted the proposal to the University Higher Degree Committee to obtain an ethical clearance certificate. Ethical clearance certificate to conduct the study was

obtained from the University of Venda Research and Ethics Committee (see ANNEXURE A) and used as evidence that the researcher was a student requesting permission to conduct a study of patients co-infected with PTB and HIV/AIDS in selected primary health care facilities of Bojanala district.

### 3.9.2 Informed consent

Grove and Burns (2015) explained that informed consent means that participants have enough information with regard to the study, comprehend the information, and are entitled to the make free choice, enabling them to give permission voluntarily to participate in the study or even to decline participation and that they have the right to quit before and during process of the interview and cannot be punished. The type of information that the researcher wants from the participants were given to them, why the information was being sought, and what purpose was to be put to, how they were supposed to participate in the study, how it was going to have an impact on them directly or indirectly and that served as an agreement (Kumar, 2014).

The researcher explained the purpose of the study, procedure, possible benefits, assurance of confidentiality, risks description, alternatives to voluntary participation and participant's right to quit before they sign an informed consent to the participants as well as the procedures that was to be followed. Participants were also made aware that there won't be any payment or other rewards for participating in the study. Participants were given the power to choose what shall or shall not happen and these guaranteed participants the permission to withdraw at any time they feel that they were at risk. Participants who agreed to be part of the study were informed that the information collected will not be linked to their names (see ANNEXURE D). The participants were given the researchers 'contact numbers to be used her if they need any clarifications.

### 3.9.3 Deception

According to Wagner (2017) deception is when the researcher provides the participants deliberately with deceiving, cheating or hold back information f regarding the aim and methods of study. The researcher remained truthful to the participants as there were no undisclosed risks and a detailed explanation was provided. Prior to data collection the researcher informed the participants about the study purpose.

### 3.9.4 Anonymity

The researcher ensured that data collected from the participants was not linked to any participant's name, instead, code numbers or pseudonym names were used to achieve that, participants were assured that during report the data they gave can't be traced back to them even on presentations, and other forms of dissemination. No report was made on the long quote of participants responding to questions to avoid recognising participants by connecting quotes to the participants.

### 3.9.5 Privacy and Confidentiality

According to Grove and Burns (2015) privacy is the freedom that the participants must decide the time, extent, and general conditions under which their private and emotional information will be sheltered and will not be made available to the third person other than the research team using password protection. Interviews were conducted in a private room away from destruction.

Participants were guaranteed privacy and confidentiality and given assurance that no information will be made accessible to anyone not directly involved in the study, the researcher did not identify a person's responses and promised not to disclose that person's identity in any report, paper, or public forum. Privacy and confidentiality were maintained participants were not forced to divulge information to the researcher that they did not want to reveal. Personal identifications of information such as names, birthdates and place of residence were not collected. The researcher always treated any information that was provided as confidential.

The participants were enlightened that they should feel free to quit at any stage from the study and they should not provide announcement about their withdrawal or give any reason. The reports were examined attentively for proof that the participants' confidentiality was sustained, and the collected data was kept under lock and key where only the researcher and the supervisor can have an access easily, to protect participants from possible harm including psychological harm such as shame or distress.

### 3.9.6 Principle of beneficence

This principle was ensured by doing well and above all no harm was done to the participants

- **The right to freedom from harm and exploitation**

The participant's well-being was maintained and kept safe from discomfort and harm. Participants were informed that participation was voluntary and that they could quit at any time should they wish or feel to do so, without any form of punishment used against them, to ensure that they participated in the study without any fear. The participants who were becoming emotional during the interview were referred to the appropriate services.

- **Withdrawal of participants from the study**

The participants were assured that they were free to withdraw their participation at any time without having to provide any explanation. They were also informed that withdrawal from participation will not prejudice how they receive services, to assure the participants that if they decided to withdraw, they cannot be mistreated, and service delivery won't be affected. The participants were also given an explanation that the researcher used a recording device for saving information and ensured the participants that the information was only going to be used only for the study so that they don't feel like their information can be exposed.

### 3.10 Delimitation of the study

The researcher only included patients from the selected PHC facilities of Bojanala district who were infected with both PTB and HIV/AIDS. Patients who did not have PTB and HIV/AIDS were not part of the study that restricted the population group that does not have the characteristics set by the researcher.

### 3.11 Dissemination and implementation of results

The research findings will be disseminated by means of presentations, workshops, and publications to a variety of audiences such as policy developers and professionals that deals with PTB and HIV/AIDS co-infection. Dissertation copies will be submitted to the UNIVEN library and various Government departments such Department of health. The dissertation will be published in the peer-reviewed journals so that the readers be made aware of the impact of PTB, and HIV/AIDS co-infection.

## 3.12 SUMMARY

This chapter described in detail the qualitative, descriptive phenomenological research design that was utilised in this study. Unstructured in-depth interviews with an interview guide were used for data collection until reaching data saturation. Taking notes in the field and a voice recorder were also utilised during collection of data. Data were analysed according to Tesch ‘s open coding method as indicated by de Vos et al (2012). Moreover, the researcher expressed how ethical issues and measures to ensure trustworthiness were observed. Trustworthiness of the study was expounded through credibility, confirmability, transferability, and dependability. The following chapter is the discussion of the study findings. Chapter 4 outlines data analysis, interpretations, and discussion.

# CHAPTER FOUR

# DATA PRESENTATION, ANALYSIS AND DISCUSSION

## 4.1 Introduction

The previous chapter dwell on the research design and methods that were used to conduct this study. This chapter concentrates on data presentation, description of the study findings and analysis. Data analysis was based on Tesch's eight steps of open coding of qualitative data (Creswell, 2014). Before commencement of the interviews, the researcher enlightened the participants that whatever they are going to talk about during the interview will be kept private. The content of the consent forms was enlightened to the participants in their home language to ensure that they understand very well. The researcher asked the participants permission of recording the interviews with the audiotape.

In-depth individual interviews were conducted with adult patients between the age of 25-45 who are co-infected with PTB and HIV/AIDS at the primary health care facilities in Bojanala District of North-West province to find the Impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients. The average time spent on a single in-depth individual interview was about 30-45 minutes, and Setswana was the medium of communication

## 4.2 Demographic data of participants

The researcher had an interview with 8 adult patients at the primary health care facilities in Bojanala district of North-West province. Six of the participants were females whilst 2 were males. The participants were between the ages 30 years and 44.

**Table 4.1: Demographic data of the participants**

| Participant | Gender | Age in years |
|---|---|---|
| 1 | Female | 30 |
| 2 | Female | 40 |
| 3 | Female | 33 |
| 4 | Male | 45 |
| 5 | Female | 43 |
| 6 | Female | 38 |
| 7 | Female | 30 |
| 8 | Male | 44 |

### 4.2 Challenges faced by patients with PTB and HIV/AIDS co-infections

Patients with PTB and HIV/AIDS co-infection experienced physical, social and employment challenges. The physical challenges faced by patients when they manage themselves involve poor personal hygiene, failure to prepare food, failure to do gardening. Social challenges in relation to community and family members are experienced as stigmatisation which is characterized by name-calling, discrimination, isolation, and withdrawal from people. The social challenges had a negative impact on the marriages which was characterised by lack of intimacy and ultimately divorce. Co-infection had a negative impact on the patient's employment where some of them were compelled to resign or lose jobs due to fatigue. Loss of jobs resulted in food insecurities and failure to honour follow-up visits. The challenges that patients with co-infection experience determines the standard of self-management. The standard at which self-management was executed, determines the outcome.

**4.2 Challenges experienced by patients diagnosed with PTB and HIV/AIDS co-infection.**

| Major themes | Themes | Sub-themes |
|---|---|---|
| **4.2.1 Physical challenges** | 4.2.1.1 Poor nutritional status | 4.2.1.1.1 Failure to prepare food<br>4.2.1.1.2 Failure to do gardening<br>4.2.1.1.3 Poor personal hygiene |
| **4.2.2. Psycho-social challenges** | 4..2.2.1 Stigmatisation | 4.2.2.1.1 Name-calling<br>4.2.2.1.2 Discrimination and limited support<br>4.2.2.1.3 Isolation and withdrawal |
| | 4.2.2.2 Marital challenges | 4.2.2.2.1 Conjugal rights<br>4. 2 2 2 2 Divorce |
| **4.2.3. Employment challenges** | .2.3.1. Loss of jobs | 4.2.3.1.1 Food insecurity<br>4.2.3.1.2. Failure to honour follow- up visits |

### 4.2.1. Physical challenges

PTB and HIV/AIDS impacts negatively on the patient's self-management. Bisson (2018) defines self-management as the ability to control behaviours, thoughts, and emotions consciously and productively. Poor self-management impacts negatively the patients' hygiene. The signs and symptoms of PTB and HIV/AIDS impact negatively on the patients' nutritional status. Poor nutritional status determined the patients' ability to prepare food, gardening, and personal hygiene.

#### 4.2.1.1 Poor nutritional status

The study findings revealed lack of energy and fatigue as major concern which resulted from co-infection and poor nutritional status which led to failure to prepare food and poor personal

hygiene. Insufficient food intake and malabsorption led to weight loss, which further exacerbates the catabolic nature of HIV/AIDS and PTB co-infection resulting to poor nutritional status. Patients became weak to an extent that they could not walk to the bathroom, and they were supported in bathing as they were very weak. They were also assisted to apply the body lotion and dressing up which resulted into poor personal hygiene. Failure to do gardening negatively affected consumption of fruits and vegetables. When a patient is co-infected with HIV/AIDS and PTB, it causes a catabolic state and increased susceptibility to infection which are compounded by lack of caloric and other nutrient intake, leading to progressive worsening of malnutrition (Bond et al., 2019). Poor nutritional status resulted into, failure to prepare food, failure to do gardening and poor personal hygiene.

#### 4.2.1.1.1. Failure to prepare food

The findings of the study revealed that some of the patients diagnosed with PTB, and HIV/AIDS co-infection could not prepare or cook food because of fatigue. Some of them could not stand at all or they could stand for few minutes. They relied on the family members to cook when they were very weak.

Participant 8 said:

> *''I cannot cook because I don't have the energy to do so, but my sisters always make sure that I have food to eat starting from breakfast. After preparing food they just come into my room and put food in, then I feed myself but at least I can feed myself without any problem''*

Some of the patients who were co-infected with PTB and HIV/AIDS and could not feed themselves. They depend on their relatives who were sometimes not available. They were expected to eat at and take the prescribed medication routinely as a requirement for antiretroviral therapy.

Participant 1 attested:

> *"I cannot eat on my own, and I cannot prepare food for myself because I cannot stand for a long time. My mother or my sister prepares food for me so that they can feed me".*

Fatigue has been found to be a more common PTB and HIV/AIDS-related symptom that co-infected patients experience in life. The consequences adversely impact on the patients' day-to-day activities which might result in poor quality of life (Bond et al., 2019). Fatigue can

make it hard for the co-infected patient to stand for a long time doing certain activities such as food preparation and some other house chores (Waluyo et al., 2020).

#### 4.2.1.1.2 Failure to do gardening

The findings of the study revealed that some of the patients were doing gardening as a way doing exercises. They became very weak because of poor nutritional status, and they failed to do the vegetable garden. The finding also revealed that gardening save money that could be used to buy the basics. Gardening kept their body fit since the co-infected patients are required to do some exercises. This clearly shows that PTB and HIV/AIDS co-infection affected the participants negatively as they could no longer access some of the fresh fruits and vegetables from the garden because they no longer had the energy to plough the garden.

Participant 3 stated that:

> *"We have a vegetable garden, but I'm the one who used to plough, but now I am very weak. You know teenagers don't like ploughing. My sister was never involved in gardening. Now we must buy fruits and vegetables. I used to produce spinach, carrots, potatoes, and beans."*

Participant 7 attested:

> *"I was very emaciated, now I am becoming much better, I always had severe headaches, frequent diarrhoea, and fatigue."*

PTB and HIV/AIDS co-infection does not invade nerve cells directly but instead they put their function at risk by infecting cells called glia that support and give protection to the neurons. This activates inflammation that may damage the brain and spinal cord and result to confusion and forgetfulness, headaches, movement problems including a lack of coordination and difficulty walking as symptoms (Cholewińska et al., 2020). Damage to the peripheral nerves can cause progressive weakness and loss of sensation in the arms and legs. Therefore, the co-infected patient cannot be able to perform most of the activities that require movement (Anku et al., 2018). Lack of energy had a negative impact on the co-infected patient's personal hygiene.

#### 4.2.1.1.3 Poor personal hygiene

The study findings revealed sometimes was patients become weak to an extend that they are unable to go to the bathroom without support. This clearly shows that PTB and HIV/AIDS

co-infection had a negative impact on the participants' self-management. Not having people around to assist the patients meant that they were expected to use the bucket as a toilet.

Participant 2 affirmed:

> *"I could not do anything on my own, my mother and my sister used to bath me and do everything for me. When I was seriously ill I could not go to the toilet, I was using a bucket toilet. At least I could say that I wanted to go to the toilet and unfortunately the toilet was very far."*

According to Stole et al., (2019) Health belief model involves a client struggling to do anything on her own, participant 2 couldn't do anything on her own so her sister and her mother being the one to bath her, failing to adapt to new changes due to fatigue. This clearly shows that after being diagnosed with PTB and HIV/AIDS co-infection the participants could no longer maintain their physical hygiene as they used to do before. This made life difficult for the participants and their relatives who looked after themselves. Participants who had relatives to look after them were better off than those who had no one to help them. The participants without relatives or friends to help them ended up taking more time doing one thing and this affected their progress.

Participant 4 stated:

> *"I was always tired, so every time I had to go to work it was a challenge. I used to take more than 1 hour 30 minutes just to bathe, apply lotion and dress up because I had to take a break to rest then continue and after that I will be very tired. I sometimes do not bath because I do not have enough energy to do so and there is no one to help me at home because my sisters are saying they are afraid that they can be infected."*

Some of the participants explained that they could not wear makeup and do the hair. This has a great impact on some of the participants as some of them were gaining their confidence from their makeup and some from the beautiful hairstyles. This contributed to some of the participants having low self-esteem.

Participant 6 explained:

> *"I can no longer take care of myself like I used to do. I used to be a clean lady as you can see that I'm beautiful. These days I just bathe in the morning, but I no longer put my makeup on to look neat."*

People with PTB and HIV/AIDS co-infection need energy because they are constantly battling with co-infection. They experience fatigue as one of the clinical manifestations of both PTB and HIV/AIDS (Alikeyeva et al., 2018). They are more likely to develop fatigue because their viral load is high and high viral load is particularly associated with fatigue and they may feel worn out (Dhungana et al., 2019). PTB and HIV/AIDS can result to nerve damage throughout the body, which may result in serious pain or weakness, known as neuropathy (Ford et al., 2019). There are symptoms in the feet that patients might complain about which are the following: numbness, pain, pins and needles, tingling, hypersensitivity to touch, the hands and legs may also be involved in more severe cases, and some patients may be completely unable to walk (Bond et al., 2019).

### 4.2.2 Psycho-social challenges

The psycho-social challenges are described under stigmatisation and marital challenges. Stigmatisation is further described under name-calling, discrimination and limited support and isolation and withdrawal from friends, family and the community members. The findings of the study revealed that patients with PTB and HIV/AIDS are stigmatised by the family members and the community members. Stigmatization is the action of describing or regarding someone or something as worthy of disgrace or great disapproval.

#### 4.2.2.1 Stigmatisation

According to Willington (2018) stigma is a process that starts when trait of an individual or group is recognised as being undesirable or disvalued. The findings of the study revealed that stigmatization occurred through name-calling. discrimination and limited support, which led the patient diagnosed with PTB and HIV/AIDS to isolate and withdrawal from other people. They felt unwanted which resulted in low self-esteem. Stigma against PTB and HIV/AIDS results in severe morbidities. It can be easily transmissible from one person to the other, since the general population discern that these diseases are usually found among people who are different and have an abnormal behaviour (Ayana et al., 2019).

According to Perlick (2020) Health belief model involves a client (isolated participant) striving to have self-efficacy that will contribute to participant 5 performing good health behaviours resulting from stigmatisation. Some of the patients were discriminated by their partners. They were not allowed to prepare food or come closer to the children. Some of the participant's partners moved out of their main bedroom with an excuse that they may be infected.

Stigma, depression, negative feelings, and loss of hope caused by PTB, and HIV/AIDS co-infection may reduce an individual's motivation to take treatment (WHO, 2019). Some co-infected women also experience stigma when preparing food. Family members rejected food that they cook. Their eating utensils were separated from the ones used by the rest of the family (WHO, 2020). The utensils were separated because they believed that sharing utensils with the co-infected patients, they can also become infected, so with that kind of attitude patients may start to feel hopeless and neglect themselves (WHO, 2020). The community is more likely to hold the infected individuals to be responsible for their own illness when they regard the contraction of the disease to be more controllable. The co-infected patients are more likely to be blamed and rejected from society (Waluyo, Nurachmah and Rosakawati, 2020).

The participants also reported that some of the people made funny comments related to their gross loss of weight and body changes caused by the signs of PTB and HIV/AIDS co-infection. Stigmatisation had a great impact on self-management to an extent that some of the participants did not go to the clinic to collect the medications hence default. Stigma resulting from PTB, and HIV/AIDS take place in several contexts such as in society, family, place of work, and healthcare system, PTB and HIV/AIDS co-infection influence the patients to get isolated from their friends and family members (Ayaba et al., 2019).

#### 4.2.2.1.1 Name-calling

The participants also explained that the called names that were related to their diagnosis of PTB and HIV/AIDS co-infection. They were given names at work by the friends and colleagues based on their appearance. One of the participants explained that her colleagues were calling her a ghost, and this affected her psychologically.

Participant 6 said:

> *''I requested for sick leave before I became critically ill because already at work some of my colleagues were calling me a ghost. Some said my skin is dry, and it's like I've applied the maize meal on the face. After those statements whenever I see myself in the mirror, I just felt like they are telling the truth, my self-confidence is gone.''*

Participant 4 attested:

> *''There is a group of women who like sitting in the streets gossiping about people, whenever I pass where they are, they laugh so loud and start a topic about the skeletons. One of them came to my home*

> *trying to make herself look better than the others, she told me that the day I passed the group people in the street talking about the skeletons, they were referring to me."*

Some of the participants explained that some of the community members knew that their fiancé were diagnosed of PTB and HIV/AIDS co-infection, but they never told them because they wanted them to be infected and learn the hard way.

Participant said

> *"Community members are always talking about me, even when they are passing by my home when I'm sitting under the tree, I notice that I am the topic. There is one woman who stays 3 streets away from my home who once came and said she kept quiet when I was trying to ruin her marriage by dating her husband, so I got what I wanted since I am a house wrecker and a wild animal" Participant 3*

The findings of the study conducted in Zambia highlighted that patient diagnosed with PTB experience verbal stigma, insults, and social exclusion (Jayakody et al., 2019). PTB and HIV/AIDS infection is not socially acceptable in most countries and patients co-infected with PTB, and HIV/AIDS are labelled as adultery (Kachhi et al., 2018). Co-infected patients in some countries are stigmatised and pushed out of the community. The person's personality is deeply degraded through stigmatisation, from a whole to an ordinary and finally to a stigmatized human being. They lose social status and experience name-calling according to his/her appearance and some are even called by their conditions (Jayakody et al., 2019).

#### 4.2.2.1.2 Discrimination and limited support

Ferrer et al., (2018) defines discrimination as an act of unfair treatment towards a person or group of people in a different way from other people or groups of people. The findings of the study revealed that co-infected participants experienced discrimination from the people that they know in the community, and some were their best friends, neighbours, and family members. Instead of giving them support in all possible ways, they were discriminating against them. The findings of the study revealed that family members and relatives did not visit the patients due to fear of cross- infection.

Participant 5 noted that:

> *"My sisters told me that they don't want to be infected with PTB because they have children to raise. Their children are no longer allowed to come closer to me. What they only help me with is food and laundry."*

Participant 8 had to say:

> ''My *husband moved out of the room with an excuse that I will infect him, and he will infect the children and he wouldn't allow me help in preparing the children to school he would make it seem like he is just concerned about my health. One of my friends once came and started making funny comments about my weight so we ended up fighting, since then she has never set foot in this yard. My son heard some people in our community saying I'm dead and when they see me coming to the clinic in my wheelchair some even laugh at me, some even say I must thank God for raising me from the dead."*

The participants avoided to attend the social gatherings. They felt disappointed because they their friends, neighbours, and family members did not support them.

Participant 7 indicated that:

> *''I have noticed that wherever I go people do not want to sit next to me especially at the clinic because I'm always coughing. People at the clinic will be looking at me in a bad way whenever I cough, others don't even hide it they move and go and sit somewhere far from me. When people see me coming to the clinic they fill all the gaps where they are sitting so that I don't sit next to them. I try to act strong, but it hurts.*

Participant 5 responded:

> *''I'm now feeling much better so I sometimes feel like helping my mother in cooking, she would refuse and say people who have PTB, and HIV/AIDS are not supposed to prepare food for others, so I only help in sweeping the yard. When there is a family gathering people no longer sit next to me. I'm now okay because I'm no longer coughing and I'm on my last month of taking the PTB treatment. I*

> *remember the other day when I volunteered to chop the vegetable at my cousin's birthday. She quickly came and take everything that I was using away and told me to sit down, I got into the house and cried bitterly."*

A participant mentioned how HIV/AIDS and PTB co-infection had robbed her of the opportunity to live with her children. They were staying with their grandma due to the fear that their mother would infect them with PTB and HIV/AIDS viruses. The findings revealed that separation reduce attachment between the mother and children. t hence slow healing process.

Participant 4 alluded:

> *"My mother is staying with my kids and because someone told her that PTB is infectious, she does not allow them to visit me. Every weekend they would come and spend time here. "I miss preparing them to go to school, help them with the homework and sing bed songs to the last born who is 5 years old."*

Perceived discrimination against patients with PTB and HIV/AIDS impact negatively on self-management. It is associated with poor mental health results, low self-esteem, low self-efficacy, and reduced compliance to antiretroviral treatments (Ferrer et al., 2018). Evidence has shown over the decades that individuals co-infected with or being suspected of having PTB and HIV/AIDS were refused employment, denied entry to foreign countries, avoided by neighbours and co-workers, and experienced social disturbances with family members and friends (Orisma, 2021). Discrimination impact extensively on the sufferers, the influence is felt at home, workplace, and at the institutions.

#### 4.2.1.1.3 Isolation and withdrawal

The findings revealed that isolation and withdrawal are very common in people diagnosed with PTB and HIV/AIDS co-infection because they find it hard to deal with all the negative comments that they receive from friends, family members and community members. They do not talk bad about us in our presence. It is dangerous when the patient starts withdrawing from people because no one knows what will be going through his/her mind at that time. Some of the patients may commit suicide.

Participant 6 elucidated:

> *I do not normally go out to the street unless I am going to the clinic to collect my medications because I do not want to hear what people say about me. I have made peace with the fact that people do not want me near them. I lock myself in the room because I am not even allowed to spend time with my own children. The other day I nearly killed myself but then I thought of my children that if I kill myself, they might suffer. I decided to stay indoors and focus on my health not hearing negative statements that people always say when they see me. Imagine being told that you look like a skeleton."*

Participant 3 affirmed:

> *"I remember guys used to fight for me because I was very beautiful now, I no longer even look at myself in the mirror because I feel like I am very ugly. I used to change my hair styles every week but now my hair is very fluffy, and the hairdresser told me that I must look for someone else to do my hair hence I decided that I will lock myself in the room. Sometimes I even pretend like I cannot wake up so that my sister can go and collect the treatment for me. The other day I met my ex-boyfriend and he said I did well by dumping him now the guys have finished all my curves, I am no longer his type."*

Some of the patients with PTB and HIV/AIDS co-infection develops a feeling of hopelessness and end up withdrawing from other people in the community including their family members as a sign of denial, anger, and fear of death (Orisma, 2021).

### 4.2.3 Marital challenges

The findings revealed that PTB and HIV/AIDS co-infection impact negatively on the patient's marriage life. It affects intimacy between the partners which might ultimately lead to divorce. The partners who are not co-infected with PTB and HIV/AIDS did not accept that the sex life needs should have some changes because the co-infected partners are too weak to satisfy their sexual them.

#### 4.2.3.1 Conjugal rights

The findings of the study revealed that PTB and HIV/AIDS co-infection caused fatigue which made it difficult for them to sexually satisfy their partners, hence family disintegration. as women would always complain about their sexual needs not being met. Sexual intercourse

between couples brings attachment. Abstinence from sexual intercourse as a married couple leads to a lack of attachment.

The findings of the study revealed that family disintegration occurred as partners who live with HIV/AIDS and PTB developed survival strategies to the demise of their marriages. For instance, some devised well-calculated coping strategies to help them hide their long developed and co-infection induced incapability that made them fail to satisfy their partners in their sexual love life.

Participant 1 had to say:

> *"I couldn't do sex like I used to, I get tired easily, I have trouble in breathing as if I was running and end up not completing the round. The moment I realized that I could no longer satisfy my wife, I avoided making love."*

Patients with HIV/AIDS and PTB co-infection are particularly prone to problems with sexual desire and arousal. It is more common in co-infected males than women but occurs in both mainly because most of the co-infected patients experience fatigue and chest pains (Osaro, 2018). Sexual intercourse requires energy which most of the co-infected patients do not have. According to Jha et al., (2019) patients complain of physical and emotional stress. Fatigue becomes an issue and can lead to exhaustion and a cocktail of medications can also results.

to low energy so co-infected patients end up not having the energy for sex. Shortness of breath in some co-infected patients and then there's low libido, low self-esteem and/or body image, issues with arousal and orgasm, retrograde ejaculation, erectile dysfunction, and premature ejaculation which negatively impact sex life of the co-infected patients which might lead to tension and breakup (Jha et al., 2019).

#### 4.2.3.2. Divorce

Some of the impact that HIV/AIDS and PTB co-infected patients are faced with are linked to the increased prevalence of marriage divorces. This result is mainly from the fact that HIV/AIDS and PTB heavily affect patients' physical, social and mental well-being. This in turn interferes with their love and family affairs. Participants revealed that being co-infected with HIV/AIDS and PTB interfered heavily with their marriage affairs to the detriment of their

love life as the co-infected patients became less able to satisfy their partners in bed. This is supported by what one participant 7 had to say:

> *"Yes, she would say she can't continue to stay with someone who can't meet her needs, and that it was better for her to return home because she had once advised me not to go to the prophet as there is no one who can cure HIV and I didn't listen."*

The participants also reported that after revealing their status to their partners they just went silent on them and never came back again to give them emotional support. From the participants' responses, it seems as if having PTB and HIV/AIDS co-infection is a curse, and people distance themselves. When the partners are informed of the co-infection, the relationship may become negatively affected.

> *"The man that I was dating left me after I had told him that I was diagnosed with both HIV/AIDS and PTB. He has never called me since then. Even when I try to call him, he does not pick up the phone. We have been dating for more than 4 years. I guess he is afraid of being infected."*

The findings of the study conducted in Zimbabwe by Nkporbu (2017) revealed that Individuals diagnosed with PTB, and HIV/AIDS experience the challenges such as isolation, rejection, divorced, diminished marriage prospects and also have an impact on family cohesion. Families end up disintegrating upon realizing that either a partner is living with PTB and HIV/AIDS co-infection. Separation is more likely among couples affected by PTB and HIV/AIDS and that women co-infected with PTB and HIV/AIDS may experience a particularly high risk of abandonment (Othieno, 2018). Population-based surveys on PTB and HIV/AIDS co-infection in Malawi found that separation was more likely among patients with PTB and HIV/AIDS (Gebretsadik et al., 2020). Inevitably, some of the people who are co-infected with PTB and HIV/AIDS get married, being parents, and involved in disintegrating relationships with their spouses, ultimately get divorced (Othieno, 2018). The financial state of the patients co-infected with PTB and HIV/AIDS is negatively impacted because they face employment challenges.

### 4.2.4 Employment challenges

The participants highlighted that pulmonary tuberculosis and HIV/AIDS co-infection financially had a negative impact on their daily lives. Some of the participants revealed that after having been diagnosed with pulmonary tuberculosis and HIV/AIDS co-infection they could no longer go to work as they were no longer physically fit to perform their job description mainly because of fatigue and stigma.

#### 4.2.4.1 Loss of Job

Employment challenges were the results of loss of jobs. Jobs were lost when the participants who were diagnosed with PTB and HIV/AIDS were told to go home and rest or expelled from work as they were seen to be very weird and waisted. Loss of jobs were characterised by food insecurity, and they failed to honour the follow-up visits.

#### 4.2.4.2 Food insecurity

When the co-infected patients stopped from going to work, it was the beginning of poverty in their families as some of them were breadwinners. The participants further revealed that they could no longer afford the basic food, even fruits and vegetables that were encouraged to eat at the hospitals. One of the participants stated that:

> *"No, I don't have any specific diet, I just eat everything available at that moment plus I cannot afford to have a specific diet since I can no longer provide for myself and my aunt is not working, I don't have parents so it's just the two of us." Participant 6*

Another participant also said that:

> *"No, I don't have a diet. I'm just eating what is available at that time, but I make sure that I sometimes eat vegetables. I have the list of healthy food from the dietician, but I can't follow it because I can't afford some of the things"* Participant 3

From what the participant mentioned one can clearly note that having pulmonary tuberculosis and HIV/AIDS co-infection contribute to many people losing their jobs while trying to concentrate on their health, but this also contributes to poverty as they did not have sources of income and could not access basic commodities that are needed for daily living.

Participant 7 stated that:

> *"No, I can't afford everything since I lost my job because I couldn't stand for long hours at work and we were expected to stand the whole day. I was working at Shoprite in Rustenburg so they just said I must go and rest at home and on the other side my mother is a pensioner, my sister is still at varsity it is tough."*

Study on PTB and HIV/AIDS co-infection in Ghana highlighted that PTB and HIV/AIDS is a major cause of poverty aggravation as the co-infected patients are often faced with the double burden of reduced income and increased expenses because most of took a long sick leave without pay due to sickness (Loveday, 2020). They are often too sick to work and don't have the required energy to work so their families had to cover all expenses in the house (McShane, 2019). The co-infected patients and their families become exposed to poverty because the breadwinner is no longer able to afford to buy food for them and himself/herself too can't afford the required nutritious food for the co-infected patients (Linsk and Land, 2019). PTB and HIV/AIDS result to loss of wait caused by inability to afford nutritious food. (McShane, 2019).

The participants further explained that after having been diagnosed with pulmonary tuberculosis and HIV/AIDS co-infection they could no longer afford to pay the gardeners who used to help them to plough their backyard gardens. This even made their lives worse as they could neither work in the garden themselves due to sickness nor pay their gardeners. Life became so tough for them because they could no longer access some of the fruits and vegetables they used to get from their gardens.

### 4.4. 3. Loss of jobs

Some participants developed low self-esteem because they were expelled from work and no longer had money to buy their beauty products. PTB and HIV/AIDS had a negative impact on how the participants preferred to look like since they could no longer afford to buy toiletries. Participants mentioned that they could no longer afford to buy their expensive cologne, makeup and bathing products which made them look beautiful and smell nice.

> "*I feel like I'm no longer attractive since I can't afford the expensive cologne that I used to order online because I'm now unemployed, wherever I go people used to ask the name of the cologne that I was using since it was so strong and nice. These days I only bathe, but I can feel that something is lacking."*

Participant 3 confirmed:

> *''I feel like I'm now ugly because I used to apply makeup every day when I go to work, as you can see that I have small pimples. At that time, I was still beautiful and not sick. I didn't have anything on my face. The products that I used for my face to always be smooth I can't afford them anymore plus the makeup also makes the skin smooth and glow. I've even developed the dark spots all over my body and I'm emaciated.''*

PTB and HIV/AIDS co-infected patients experience some changes in their body such as the fragile hair, dry skin texture and structure of the nails, which is a sign of inadequate protein intake, high viral load and low CD4 cell count (Ojo et al., 2020). Dental caries, gingivitis and periodontitis are common in patients with PTB and HIV/AIDS co-infection, during PTB and HIV/AIDS co-infection the common actions of the innate and adaptive immune responses result in a concentrated effort to eliminate the pathogenic threats (Ojo et al., 2020). There can be a negative energy balance as a result of PTB and HIV/AIDS, and the consequent usage of stored fat and eventually protein from muscle tissue, this often results in severe malnutrition and the condition known as cachexia which is an established feature of PTB and HIV/AIDS co-infection so when the co-infected patient can't afford basic things such as food and toiletries with negative body changes they tend to neglect themselves and feel like they are no longer approachable (Kintu, 2021).

#### 4.2.4.1.3 Failure to honor follow up visits

Patients diagnosed with PTB, and HIV/AIDS are given treatment for 2 weeks while still on the first 2 months then given an appointment date for the subsequent follow-up visits. Many participants highlighted that they were so weak in such a way that they could not do follow-up visits on their own. They were accompanied or sent someone to go and collect on their behalf while others couldn't afford to catch a taxi or hire a car to go and collect treatment.

Participant 2 affirmed:

''*I was always weak so I could not go to the facility to collect treatment because I could not walk on my own, my mother was collecting them for me. Sometimes if she is not around, she would send my sister to go and collect them but at least now I can go to collect on my own just that I must rest along the way and the clinic is a bit far.''*

Participant 5 supported:

> *I was bedridden so there was no way that I can go to the facility to collect treatment, at home there are cars but still they were not helping because I could not even lift my head. My daughter was the*

*one collecting treatment and she would complain sometimes that people will start to think that she has got an infection as well because treatment for PTB they were issued for only 2 weeks then she would have to go back there after."*

According to the study conducted in Uganda, the co-infected patients experience the signs and symptoms such as nausea, appetite loss, fatigue, and severe weight loss (Krapić et al., 2021). When the patient is co-infected should take good care of his/her health when it comes to things like eating nutritious food, complying with treatment, attending all the check-ups, and exercising so usually when there is fatigue patient is no longer able to carry out such tasks (Kintu, 2021). The co-infected patients are mostly too sick to walk and go collect the treatment and attend all the follow-up visits from the facilities where they collect treatment (Krapić et al., 2021).

### 4.5 Summary

In this chapter, the researcher presented Physical, Social and Economic Challenges as major themes, themes and sub-themes which stood out from the data collected from 8 HIV/AIDS and PTB co-infected patients. The co-infected patients experienced various challenge namely, Diminished energy level and poor nutritional status, Community and family related challenges, Marriage related challenges and Employment challenges and financial constraints. On the impact related to self-management, the following sub-themes have been identified: Poor personal hygiene, failure to prepare food, failure to do gardening, follow-up visits, discrimination and limited support, isolation and social withdrawal, lack of intimacy, divorce, food insecurity, release from work, and failure to honour follow-up visits.

# CHAPTER FIVE

# SUMMARY, LIMITATIONS, AND RECOMMENDATIONS

## 5.1 Introduction

This chapter describes the summary, limitations, conclusion and recommendations, based on the study findings. The findings of the study revealed that having both PTB and HIV/AIDS impact on patient's self-management. Some of the patients deal with the situation through the support from their loved ones. The findings reveal of the patients find it very difficult to cope with PTB and HIV/AIDS co-infection. The population comprised of adult patients who have both PTB and HIV/AIDS co-infections at Bojanala district primary health care facilities of North-West Province, SA. The findings revealed that most adult patients diagnosed of PTB, and HIV/AIDS do not receive enough support from their families and people from their community and they also experience stigma.

## 5.2 Objectives of the study

The objectives of the study were to explore and describe the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa. The researcher explored and described the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa. Adult patients described how PTB, and HIV/AIDS impact on their self-management, inadequate provision of support. The researcher observed that the objectives of the study were met.

## 5.3 Summary of the study

This study was conducted in Bojanala district of North-West province, South Africa. The study broadly identified the impact of PTB and HIV/AIDS co-infection on self-management among adult patients who are on dual treatment for PTB and HIV/AIDS. The method of data collection was through unstructured in-depth individual face to face interviews. The primary data sources were adult patients from 25-45 years of age. Participants were picked from the population using a non-probability purposive sampling technique. The researcher established and enlightened the study purpose concerning the objectives in detail. Data saturation for this study was reached after interviewing 8 participants, nonetheless, the researcher did not

just assume that saturation has been reached instead the researcher continued interviewing four more participants to confirm saturation.

The study used a qualitative research approach to explore the impact of PTB and HIV/AIDS co-infection on self-management among adult patients and reflected on descriptive phenomenological designs. The option of the study was consistent with the presented objectives. Permission to conduct the study was acquired from the University of Venda ethics committee, North-West province Department of Health Research Ethics committee and the clinical managers of the selected primary health care facilities. Informed consent was acquired from the participants giving the researcher an authorisation to interview them and the participants voluntarily signed the assent forms before they were interviewed.

All participants interviewed were residing at Bojanala district from the four rural villages: Ledig, Mogwase, Chaneng and Phatsima. During the initial stage, participants were gathered at the primary health care facilities where they collect treatments on the dates of their appointments as it was the easy way to find them. The researcher informed the participants about the purpose of the study. The researcher then utilised their appointment dates for data collection while giving them their treatment assisting the nurses so that there won't be a queue, after the interview a list of participants who were interviewed was made with their contact detail in case if the researcher needs to make follow-ups for more information.

Tesch's eight steps of systematic open coding were used to maintain the formalisation of proven, significant patterns (Creswell, 2014). The transcribing of data was verbatim, and transcripts were coded by the researcher. Trustworthiness was ensured through ensuring credibility which includes prolonged engagement and member checking, confirmability, transferability, and dependability of the study.

The study findings were categorised into three major themes, four themes and twelve sub-themes on the impact of PTB and HIV/AIDS co-infection related to self-management and self-care. Co-infected adult patients experience stigmatisation, lack of resources and failure of marriages/social disintegration. On impact related to self-management and self-care, the following themes have been identified, physical challenges, social challenges and Employment challenges. Sub-themes such as name labelling and calling, and discrimination were identified under stigmatisation. Family disintegration, lack of intimacy and divorces have been identified as some of the impact related to social disintegration experienced by HIV/AIDS and PTB co-infected patients

### 5.4 Demographic data

Participants were adult males and females between the age of 25-45 years who are on dual treatment for both PTB and HIV/AIDS. Of all the 8 participants, the majority (75.0%; n = 6) were females whilst the remaining 25% (n = 2) were males. All participants interviewed were from Bojanala a district, of North-West province in South Africa. Participants were collecting treatment for both PTB and HIV/AIDS in Chaneng, Bakubung, Mogwase and Phatsima primary health care facilities.

### 5.5 Discussion of the findings

The impact of PTB and HIV/AIDs co-infection resulted into several challenges namely: Physical, Social and Financial challenges.

#### 5.5.1. Physical challenges

The findings of the study revealed that having PTB and HIV/AIDS co-infection has impacted the participant's physically/hygiene-wise. Participants who used to bathe themselves used to make sure that their hair is neatly done and those who used to put on makeup after being diagnosed with PTB and HIV/AIDS could no longer self-manage themselves. This clearly shows that after being diagnosed with PTB and HIV/AIDS co-infection the participants could no longer self-manage themselves like they used to do before. This made life difficult for the participants and their relatives who looked after them. Participants who had relatives to look after them were better off than those who had no one to help them.

- **Poor personal hygiene**

Most of the participants after being diagnosed with PTB and HIV/AIDS co-infection they could no longer bathe themselves because of fatigue. Some were too sick to even wake up from the bed so their family members used to bathe them. Study also revealed that participants were no longer able to do makeup and hair due to PTB and HIV/AIDS co-infection which contributed to them having low self-esteem because they were gaining their confidence from their makeup and some from the beautiful hairstyles they will be having. Some participants were not able to go to the bathroom alone without being assisted. Not having people around to help it means one will end up messing himself/herself.

- **Failure to prepare food**

Some co-infected adults could not cook food for themselves and wait for someone in the family to cook. If family members were not available they would sleep on an empty stomach. They did not have enough energy to stand for a long time and prepare food for themselves. This clearly shows that PTB and HIV/AIDS co-infection negatively impacted the participants' self-management. Not having people around to help it means one will end up sleeping with an empty stomach. Some participants even revealed that they would go to work without eating breakfast if there is no one to assist since they would spend much time on preparing slowly due to fatigue.

- **Failure to do exercises**

The findings also revealed that they were no longer able to plough the garden as they used to before they were diagnosed with PTB and HIV/AIDS. They were no longer able to plough and plant their favourite veggies because of sickness. This clearly shows that PTB and HIV/AIDS co-infection affected the participants negatively as they could no longer access some of the fresh fruits and vegetables from the garden. Some adult patients were even malnourished because they were not able to eat a good diet that is inclusive of vegetables and fruits. This meant that in order to eat vegetables and fruits they had to buy and some could not afford.

- **Follow up visits**

Co-infected patients are expected to attend all the follow up visits for the collection of treatment and to be assessed if there is an improvement in their condition. Some participants highlighted that for PTB they were given treatment for only 2 weeks after that they had to go back to the primary health care facility to collect another treatment so it was very difficult for them because they couldn't walk properly, they had to stop along the way because of chest pains and fatigue. For HIV/AIDS it was much better because the treatment could last for up to a month. The study indicated that there were those who couldn't walk at all so they used to send their relatives to go and collect treatment on their behalf.

### 5.5.2. Social changes

Many co-infected adult patients are stigmatised by their families, friends and their communities. Stigma makes one feel unwanted, unloved and this contributes to one having

low self-esteem. Findings revealed that some co-infected adult patients were not even going outside because of the fear of stigmatisation. It is more painful when one is being stigmatised by own family members. Usually when one gets sick, one relies on family members for care and support so being stigmatised by them is more painful.

The findings also revealed that sometimes husbands don't allow their co-infected wives to prepare food or to prepare kids for school and they even move out of their main bedroom with an excuse that they would get infected and the children. Some of the people even make funny comments on how the co-infected would have lost weight and how they had changed due PTB and HIV/AIDS co-infection.

- **Discrimination and name-calling**

The findings revealed that co-infected adult patients were being name-called and discriminated against due to their condition of having pulmonary tuberculosis and HIV/AIDS co-infection. Parents and other family members once they find out that one has PTB and HIV/AIDS stop going to visit them. It was also revealed that some were called ghosts by their colleagues, and it affected them a lot. People in the community always talk bad about the co-infected adult patients whenever they see them. Instead of giving them emotional support, they will be discriminating and labelling them.

The findings further revealed that the discrimination and name-calling that people make towards the adult patients having pulmonary tuberculosis and HIV/AIDS co-infection made some of the participants default or miss their appointment date because they knew that when people in the community sees them they are going to make funny comments about their appearance and how they have lost so much weight.

- **Isolation and withdrawal from people**

The stigma that participants received from their family members and community members wherever they go made some participants to stop going to places where there will be other people. Some co-infected participants even stop going to their family gatherings because they knew they were going to be stigmatised, other family members would even show that they don't want to sit next to them and also not allow their children to go near them. The study highlighted that some participants experienced discrimination and name-calling, they were given names such as skeleton, ghost etc. which made them stay indoors and not go outside meaning they'd also miss their follow up visits. Some participants mentioned that they sometimes had suicidal thoughts and that showed how negatively PTB and HIV/AIDS co-infection had an impact on their self-management.

### 5.5.3. Marriage related challenges

- **Lack of intimacy**

Sex is crucial in a relationship or marriage so once one partner is no longer able to satisfy the other it put their marriage at stake. Some male participants explained that they were also tired which made women to complain. Another participant revealed that the family disintegration occurred as partners who live with HIV/AIDS and PTB developed survival strategies to the demise of their marriages. For instance, some devised well-calculated coping strategies to help them hide their long developed and co-infection induced incapability that made them fail to satisfy their partners in their sexual love life. There was no longer attachment between partners which made some to divorce, some didn't divorce but there was no happiness in the family.

- **Relationship break-ups and divorce**

HIV/AIDS and PTB co-infected adult patients are linked to an increased prevalence of divorces. This result is mainly from the fact that HIV/AIDS and PTB heavily affect patients' physical, social and mental well-being. This in turn interferes with their love and family affairs as they became less able to satisfy their partners in bed. The findings also reported that co-infected adult patients after revealing their status to their partners just went silent on them and never came back again to give them emotional support. It seems as if having pulmonary tuberculosis and HIV/AIDS co-infection is a curse and no one will want to associate with you.

### 5.5.1.4 Financial challenges

The findings revealed that PTB and HIV/AIDS co-infection financially affected the co-infected adult patients as they could no longer afford things they used to afford before they were diagnosed with the co-infection. Some after having been diagnosed with PTB and HIV/AIDS co-infection they could no longer go to work. Some were told to stop coming from work because they no longer had energy to perform their duties well. Loss of job was the beginning of poverty in their families. Study revealed that some participants could no longer afford food and toiletries.

- **Food insecurity**

Some participants after losing their jobs they could no longer afford the basic food, even fruits and vegetables that were encouraged to eat at the hospitals. Since some were

breadwinners, it means hunger in the family as they had no other source of income. The study findings highlighted that most of the adult co-infected patients were not able to access the proper diet that is prescribed for the people living with PTB and HIV/AIDS co-infection due to lack of finance. Participants who depended on their gardens for fruits and vegetables since they no longer afford to pay the gardeners and no longer able to plough due to sickness don't have any plan.

- **Job losses**

PTB and HIV/AIDS had a negative impact on how the participants preferred to look like since they could no longer afford to buy toiletries, some even mentioned that they can't afford a normal soap to bath with. Toiletries are one of the basic things that a person shouldn't lack but they need money in order to buy them. There are participants who were used to certain things expensive cologne and beauty products but because they lost their jobs due to sickness, they could no longer afford which made them feel like they are now ugly and unattractive.

## 5.6 Recommendations

### 5.6.1 Recommendations related to further research

- The impact of PTB and HIV/AIDS could further be researched to establish the nature and intensity it could have on self-management within the same context of co-infected patients.
- This study only focused on the impact of PTB and HIV/AIDS co-infection experienced by co-infected adult patients however, further research can be conducted on moral stress related to PTB and HIV/AIDS co-infection experienced by parents, children and other family members staying with the co-infected patients.
- The study on the impact of PTB and HIV/AIDS co-infection could also be conducted in other districts of North-West Province to explore the intensity of self-management and the kind of needs that it would have within other co-infected adults patients elsewhere.

### 5.6.2 Recommendation related to physical challenges

- Government should employ more home-based care workers who will assist those co-infected patients who can't do anything on their own and have no one to assist them.

- The researcher recommends that respective stakeholders such as businesspeople, traditional leaders, churches, NGO's and political leaders assist those who are unable to go to the toilets because they are far by building toilets that are not that far from the house.
- The nurses can encourage the co-infected patients to try by all means to maintain their looks and not neglect themselves due to sickness because others feel like being co-infected means that one is going to die.
- Government, businesspeople, traditional leaders, churches, NGO's and political leaders

  Should also assist by providing some funds to the co-infected patients so that they can be able to pay their gardeners and still have access to fresh fruits and vegetables.

### 5.6.3. Recommendation related to health service in the rural PHC cervices

- The government should provide counsellors who will be responsible for counselling the co-infected patients every time they go for their follow-up visits to ensure that they have accepted the conditions and are coping.
- The nurses at the primary health care facilities should call family members to educate them about PTB and HIV/AIDS so that they become aware that once the patient is on treatment, he/she can't infect them by just sitting with them but rather by droplets.
- Nurses can also start a campaign and include the community to teach them about PTB and HIV/AIDS so that they gain knowledge and give support to the co-infected patients
- More nurses can be employed so that when people who have PTB and HIV/AIDS co-infections goes to the primary health care facilities for the collection of treatment they don't wait for so long in the queue being stigmatized by other patients but rather just go to their section and collect their parcels that are already sorted.

### 5.6.4. Recommendations related to social challenges

- Nurses should provide health education to partners whose spouses are co-infected that PTB and HIV/AIDS co-infection might result to changes in sexual behaviour and partners should be patient and support each other.
- Nurses should encourage partners to avoid discrimination against one another

### 5.6.5. Recommendations related to employment challenges

- The researcher recommends that the respective stakeholders such as businesspeople, traditional leaders, churches NGO's and political leaders identify different projects that will intervene and assist patients who are co-infected with PTB and HIV/AIDS with food and toiletries as they are faced with so many challenges after being co-infected with PTB and HIV/AIDS and it needs collaborative support.

## 5.7 Delimitation of the study

The researcher only included patients from the selected PHC facilities of Bojanala district who are infected with both PTB and HIV/AIDS. Patients who do not have PTB and HIV/AIDS were not part of the study and that restricted the population group that does not have the characteristics set by the researcher.

## 5.8 Dissemination and implementation of results

The research findings will be communicated using presentations, workshops, and publications to a variety of audiences such as policy developers and professionals that deal with PTB and HIV/AIDS co-infection. Dissertation copies will be submitted to the UNIVEN library and various Government departments such Department of health. The dissertation will be published in the peer reviewed journals so that communities will be made aware of experiences faced by adult patients who have both PTB and HIV/AIDS.

## 5.9. Conclusion of the study

The purpose of the study was to explore the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West Province, South Africa. The objectives of the study were to explore and describe the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa.

The study findings revealed PTB, and HIV/AIDS have lots of impact on the self-management of the co-infected patients, after being diagnosed with pulmonary tuberculosis and HIV/AIDS co-infection the patients could no longer self-manage themselves as they used to do before.

This made life difficult for them and their relatives who had to look after them. Having PTB and HIV/AIDS co-infection also reduces performance at work. Instead of working one will be concentrating on the pain and some of the medications make one be dizzy and tired and they end up not able to perform their duties hence they had to stop working and start having financial problems.

Most of the co-infected patients become so weak that they can even walk, go to the bathroom on their own, feed themselves, bathe and dress so it becomes a burden to the family members. Some were being stigmatised by their families, friends and their communities which made them feel unwanted, unloved and this contributed to one having low self-esteem and some even start isolating themselves. They experienced name-calling and labelling. However, the study strongly recommends that education programs for co-infected patients need to also include other members of the community so that they can offer appropriate support and also put an end to stigmatisation.

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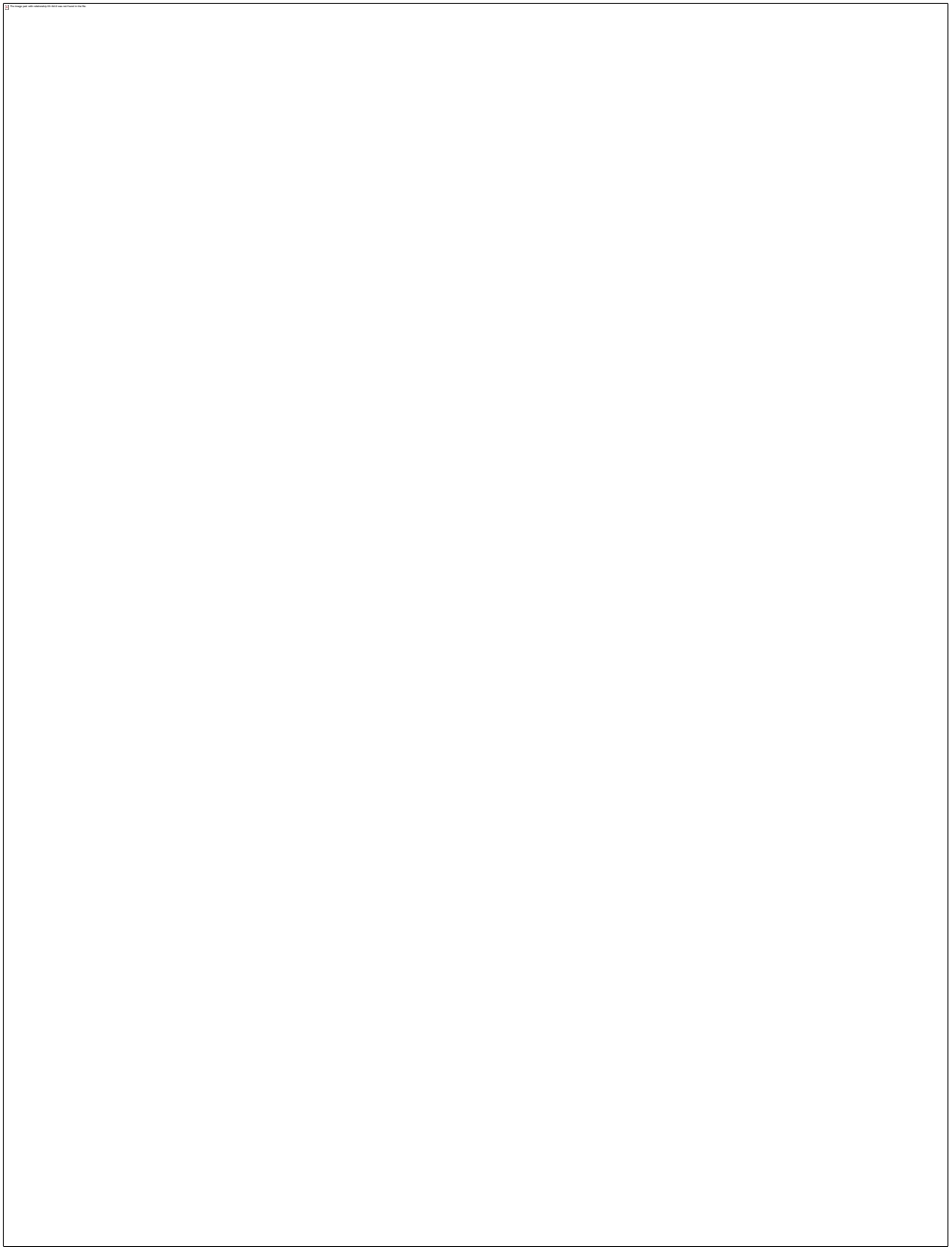
**ANNEXURE A**: Approval letter from the University of Venda



**ANNEXURE B**: Approval letter from the Department Of Health

health
Department of
Health
North West Province
REPUBLIC OF SOUTH AFRICA

Cnr Sekame & First Street
New Office Park
Mafiheng, 2745
Private Bag X2068
MMABATHO, 2735

Enq: Ms. Tshiamo Mokate
Tel: 018 391 4501
TMokate@nwpg.gov.za
www.nwhealth.gov.za

2030 NDP

## RESEARCH, MONITORING AND EVALUATION DIRECTORATE

**Name of researcher:** **Ms. N.M Nematahe**
**University of Venda**

DEPARTMENT OF HEALTH
OFFICE OF THE SUPERINTENDENT GENERAL
08 -05- 2021
PRIVATE BAG X 2068 MMABATHO, 2735

**Physical Address (Work/ Institution)** HNO ESH LEDIG
MOSES KOTANE
HOSPITAL

**Subject** **Research Approval Letter – The impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala District of North West Province.**

This letter serves to inform the Researcher that permission to undertake the above mentioned study has been granted by the North West Department of Health. The Researcher must arrange in advance a meeting with the District Chief Director and District Director to introduce their research team/members on the proposed research to be undertaken. Further to the above the researcher must produce this letter to the District and chosen facilities as proof that the research was approved by the NWDoH.

This letter of permission should be signed and a copy returned to the department. By signing, the Researcher agrees, binds him/herself and undertakes to furnish the Department with an electronic copy of the final research report. Alternatively, the Researcher can also provide the Department with electronic summary highlighting recommendations that will assist the Department in its planning to improve some of its services where possible. Through this the Researcher will not only contribute to the academic body of knowledge but also contributes towards the bettering of health care services and thus the overall health of citizens in the North West Province.

Below are the contact details of Office of the Chief Director and District Director for Bojanala District.

**Bojanala District**

| Office of the Chief Director | Office of the District Director |
|---|---|
| Mr. Pule Monale | Ms. Maggy Mere |
| PMonale@nwpg.gov.za | MMere@nwpg.gov.za/ebonye938@gmail.com |
| 014 592 8906/ 159 | 014 592 8906/ 159 |

Kindest regards.

**Dr. FRM Reichel** — **Date** 8/6/2021

**Director: RM&E**

**Researcher** — **Date** 08/06/2021

**ANNEXURE C**: Permission to conduct research from Bojanala district

health
Department of
Health
North West Province
REPUBLIC OF SOUTH AFRICA

1ST Floor
44 Boom Street
Rustenburg
0299

Ms. GRP Khumalo
Tel: (014 592 8906
Khumalog@nwpg.gov.za

2030 NDP

**OFFICE OF CHIEF DIRECTOR BOJANALA DISTRICT**

**TO** : **Mr. L Mokotedi**
**SDM: Moses Kotane SD**

**Dr. M Dikgang**
**Acting CEO: Moses Kotane Hospital**

**Mr. TS Isaacs**
**Acting CEO: Brits District Hospital**

**FROM** : **Mr. MMP Monale**
**CHIEF DIRECTOR**
**BOJANALA: DHS**

**DATE** : **05 July 2021**

**SUBJECT: RESEARCH APPROVAL LETTER-THE IMPACT OF PULMONARY TUBERCOLOSIS HIV/AIDS CO-INFECTION IN SELF-MANAGEMENT AMONG ADULT PATIENTS AT THE PRIMARY HEALTH CARE FACILITIES IN BOJANALA DISTRICT OF NORTH WEST PROVINCE.**

**Purpose**

The above matter bears reference

**Background**

1. This is to inform your office that Ms N.M Nematahe has been granted permission to conduct Research by the Directorate: Policy Planning Research Monitoring and Evaluation NW Health. **(Please see attached.)**

2. You are therefore requested to allow Ms N.M Nematahe to conduct the research as stipulated in the approval by the Provincial office.

3. Attached are the following documents:
   - Approval from the Provincial PPRM & E Directorate

For any clarity seeking questions, please do not hesitate to contact the office of the Chief Director

PP
**Mr MMP Monale**
**CHIEF DIRECTOR**
**BOJANALA: DHS**

*PERMISSION TO CONDUCT RESEARCH Ms N.M Nematahe*

**ANNEXURE D**: Consent form

**RESEARCH ETHICS COMMITTEE**

**UNIVEN INFORMED CONSENT**

**LETTER OF INFORMATION**

Title of the Research Study: The impact of PTB and HIV/AIDS co-infection in self-management among adult patients at the selected primary health care facilities in Bojanala District of North-West Province.

**Principal Investigator/s/ researcher** : Nematahe Munei Nillivence

**Co-Investigator/s/supervisor/s** : Dr Ndou N.D and Dr Luhalima T

**Brief Introduction and Purpose of the Study:** PTB represents the leading cause of death among people with HIV/AIDS. HIV/AIDS is known to cause severe defects in T cell immunity, rendering HIV/AIDS and PTB co-infected individuals more susceptible to PTB progression and complications, HIV/AIDS is additionally associated with severely compromised antibody responses, particularly in individuals with active PTB. The purpose is to explore the impact of PTB and HIV/AIDS co-infection adult patients at the selected primary health care facilities in Bojanala District of North-West Province, South Africa.

**Outline of the Procedures**: The researcher will request a register for HIV/AIDS and PTB from health care professionals to check and only those who meet the criteria of inclusion will be informed about the study in advance, and set the appointment date, time and venue for the interview. The researcher will explain the ethical issues namely: confidentiality, issues of benefits and voluntary participation and the right to withdraw from participating without giving any reason. If the participant agree to participate in the study informed consent will be signed. Permission for audio recording will be obtained from each participant. The

researcher will conduct data through unstructured in-depth interviews, this will give the participants opportunity to explore and describe their lived experiences in rural primary health care facilities. Interview will last for 30 to 45 minutes. Central question will be used and probing questions will be asked, determined by the response from the participants. The study will focus only on patients who are infected with both PTB and HIV/AIDS and are on HIV treatment for more than two years, 2 months and above on PTB treatment

**Risks or Discomforts to the Participant**: No invasive procedures will be done to the participants but in case of adverse reaction the participants will be taken to the doctor while reporting to the CEO of the institution, the participant will be withdrawn from the study.

**Benefits**:

The nurses may benefit from the findings of the study by gaining knowledge about HIV/AIDS and PTB, so through their knowledge nursing practice may improve. The findings of the study may help the policy makers to design appropriate PTB and HIV/AIDS education programme, and it may also help them in the development of new policies, protocols and guidelines regarding PTB and HIV/AIDS co-infection. The findings of the study may increase the knowledge of the patients suffering from both HIV/AIDS and PTB about the impact, hence they will become aware of the negative impact regarding self-management and improve their state of the health.

Family members may also gain knowledge regarding patient who has HIV/AIDS and PTB infections. By having this knowledge about the dual infection of HIV/AIDS and PTB they may be able to provide necessary support and protect them. Finally the study findings may share more light about the impacts of PTB and HIV/AIDS regarding self-management and may also add value to the existing body of knowledge and set a foundation for future research.

**Why the Participant May Be Withdrawn from the Study**: The participants have the right to withdraw at any stage of the research if you wish to do so. There is no harm or threats expected in participating in the study or to withdraw from the study.

**Remuneration:** No remunerations will be offered.

**Costs of the Study:** Participants will not be expected to pay anything towards the study.

**Confidentiality:** To ensure confidentiality, Interview will take place in a quiet private place

Your anonymity will also be safeguarded by using pseudo names throughout the study.

No information will be linked to your name.

**Research-related Injury**: In case of research related injury, the researcher will withdraw the participant from the study, refer to the Doctor and report the event to the managers of the institution and to my supervisors at Univen for assistants. No compensation is available.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher Nematahe M.N at (0724157472) my supervisor DR N.D Ndou at (tel no.060 613 5281) or the University Research Ethics Committee Secretariat on 015 962 9058. Complaints can be reported to the Director: Research and Innovation, Prof GE Ekosse on 015 962 8313 or Georges Ivo.Ekosse@univen.ac.za

General:

Potential participants must be assured that participation is voluntary and the approximate number of participants to be included should be disclosed. A copy of the information letter should be issued to participants. The information letter and consent form must be translated and provided in the primary spoken language of the research population.

**CONSENT**

Statement of Agreement to Participate in the Research Study:

- I hereby confirm that I have been informed by the researcher, (*Nematahe M.N*), about the nature, conduct, benefits and risks of this study - Research Ethics Clearance Number:
- I have also received, read and understood the above written information (*Participant Letter of Information*) regarding the study.
- I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials and diagnosis will be anonymously processed into a study report.
- In view of the requirements of research, I agree that the data collected during this study can be processed in a computerized system by the researcher.
- I may, at any stage, without prejudice, withdraw my consent and participation in the study.
- I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

- I understand that significant new findings developed during this research which may relate to my participation will be made available to me.

Full Name of Participant Date Time Signature

I..... ..... ..... .....

*Nematahe M.N* hereby confirms that the above participant has been fully informed about the nature, conduct and risks of the above study.

Full Name of Researcher

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

Full Name of Witness (If applicable)..... Date .....
Signature.....

Full Name of Legal Guardian (If applicable)

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

***Please note the following:***

Research details must be provided in a clear, simple and culturally appropriate manner and prospective participants should be helped to arrive at an informed decision by use of appropriate language (grade 10 level- use Flesch Reading Ease Scores on Microsoft Word), selecting of a non-threatening environment for interaction and the availability of peer counseling (Department of Health, 2004)

If the potential participant is unable to read/illiterate, then a right thumb print is required and an impartial witness, who is literate and knows the participant e.g. parent, sibling, friend, pastor, etc. should verify in writing, duly signed that informed verbal consent was obtained (Department of Health, 2004).

If anyone makes a mistake completing this document e.g. a wrong date or spelling mistake, a new document has to be completed. The incomplete original document has to be kept in the participant's file and not thrown away, and copies thereof must be issued to the participant.

**ANNEXURE D:** Foromo ya tumalano

melawana ya komiti ya patlisiso

UNIVEN: foromo yatomalano

**LEKWALO LA TSHEDIMOTSHO**

Setlhogo a thuto ya go batlisisa: Ditlamorago ta kokwanatlhoko ya PTB and HIV/AIDS mo go itaoleng ga balwetsi babagolo kwa lefelong la bookelo le le potlana, mo kgaolong ya Bojanala, Porofense ya Bokone Bophirima.

Mmatlisisi ya Mogolo : Nematahe Munei Nillivence

Molekodi wa Patlisiso : Dr Ndou N.D and Dr Luhalima TR

Matseho ka boripana le maikelelo a patlisiso : PTB e emelela sebakwa sa leso mo bathong gammogo le HIV/AIDS. HIV/AIDS e itsagale ka go tlhola go sa direng sentle ga di T-cell, tse di neeletsang gore balwetse ba HIV/AIDS le PTB ba tshabellwe ke go gakala le go thatafa ga PTB. HIV/AIDS e golagane le bokoa ba masole a mmele, segolobogolo mo bathong ba ba nang le PTB. Maikemisetso ke go batlisisa ditlamorago tsa balwetse ba ba tshwaeditsweng ke PTB le HIV/AIDS kwa dikokelong-potlana tse di tlhopilweng mo kgaolong ya Bojanala, Porofense ya Bokomo Bophirima, South Africa.

Tlhaloso ya dikgato : mmatlisisi o tlile go kopa bukana ya rejisetara ya balwetse ba HIV/AIDS le PTB go tswa mo badiring ba ba tlhomameng ba lefapha la boitekanelo. Go thlola le gore ba ba fitlhelwang ba le maleba batla itsisiwe kwapele ka patlisiso e be go bewa letlha, nako, le lefelo le go tla tshwarelwang dipotsotherisano. Mmatlisisi o tla tlhalosa melawana ya botho jaaka: go tshwara sephiri, melemo, go ithaopa le tshwanelo ya go tswa fa o sa batle go tsaya karolo kwa ntle ga go neela lebaka. Fa motsaya karolo a dumela go tsaya karolo mo patlisong, o tla saenisiwa lekwalo la tumalano. Tetlelelo ya go gatisa lentswe e tla kopiwa pele go tswa mo motsayakarolo mongwe le mongwe. Mmatlisisi o tla tsaya tshedimosetso go tswa mo dipotsotherisanong tse di sa tlhamalelang, se se tla naya motsayakarolo monyetla wa go batla le go tlhalosa maitemogelo a bona a botshelo mo dikokelong-potlana tsa kwa metseng. Potsotherisano e tlo diriswa le dipotso tsedi tlhotlheletsang di tlile go botswa, di ikaegile ka dikarabo tsa batsayakarolo. Patlisiso e tla lebelela thata balwetse ba ba tshwaeditsweng ke PTB le HIV/AIDS, ebile ba le mo thirithimenteng ya HIV/AIDS go feta dingwaga di le pedi, kgwedi tse pedi le go feta mo thiritimenteng ya PTB.

Go sa phutologeng ga motsaya karolo : Ga go na dikgato tsa go tsenyeletsa tsedi tlileng go dirwa mme fa go itemogelwa ditlamorago tse di sa itumediseng, motsayakarolo o tla tsewa a isiwa kwa ngakeng, CEO ya begelwa ebile motsayakarolo a ntshiwa mo patlisisong.

Dipoelo :

Baoki ba ka duelwa ka ga inopela kitso – tlaleletso ka bolwetse ba HIV/AIDS le PTB, kitso e e tlo dirang gore booki bo tokafale. Diphitlhelelo tsa patlisiso di ka thusa badiri ba dipholisi

go dira thuto e e siameng ya PTB le HIV/AIDS gape e ka ba thusa mo go direng dipholisi tse di swa, dikgato le melawana e e mabapi le mogare wa PTB le HIV/AIDS. Diphitlhelelo tsa patlisiso di ka oketsa kitso ya balwatse b aba tshwerweng ke HIV/AIDS le PTB, go itsi ka ditlamorago tsa malwetse a le gore ban ne Malala-a-laotswe ka ditlamorago tse disa siamang ka ga goipaakanya ga motho le go tokafatsa maemo a boitekanelo ba bona.

Maloko a malapa ba ka itseela kitso le Lesedi ka ga balwetse ba ba nang le megare ya HIV/AIDS le PTB fa ba tshwere kitso ya malwetse a mabedi a, ba ka kgona go neelana ka tshegetso e e tlhokegang le go ba sireletsa.

Sa bofelo, diphitlhelelo tsa patlisiso e di tla abeelana ka Lesedi le le ntsi mabapi le ditlamarago tsa PTB le HIV/AIDS, segolobogolo re lelebeletse boitswaro jwa motho, gape bo ka oketsa botlhokwa mo kitsong e e setseng e le teng le go ala samente ya dipatlisiso tsa kamoso.

Goreng motsayakarolo a ka ntshiwa mo patlisisong : Batsaya-karolo o na le tokelo ya go tswa mo legatong lengwe le lengwe la patlisiso fa ba eletsa go dira jalo. Ga go na kotsi kgotsa matshosetsi a pe a a ka diragalelong motsayakarolo fa a batla go tswa.

Tuelo : ga go na madi a a tlo abeelwang.

Madi a patlisiso: batsayakarolo ga ba letlelelwa go duela sepe mo patlisisong

Khupamarama: Go netefatsa khupamarama kgotsa sephira. Potsotherisano e tla diragalela mo lefelong le le didimetseng ebile le le fitlhegileng. Tshedimosetso e e golaganang le leina to ta la gago.

Dikgobalo tse di amanang le patlisiso: fa go ka nna le dikgobalo tse di amanang le patlisio, mmatlisisio tlile go ntsha motsayakarolo mo patlisisong, a mo fetisetsa kwa ngakeng ebe a bega tiragalo eo kwa molaoding wa sekolo le kwa bakaeding ba gagweba univen gore bam o thuse.  Ga gona madi a a tlileng go deulwa.

Batho ba o ka ikgolaganyang le bona fa go ka ma le mathata kgotsa dipotso.

Ka kopa leletsa mmatlisisi Nematahe M.N mogo (072 415 7472), Mokaedi wa me DR N.D Ndou mogo (060 613 5281) kgotsa komiti ya melawana ya patlisiso ya Yunibesithi mogo (015 962 9058). Dingongorego di ka begelwa motsamaise: research and innovation, Prof GE Ekosse mogo 015 962 8313 kgotsa Georges Ivo.Ekosse@univen.co.za

Tse dingwe:

Ba e tlileng go nna batsayakarolo tshwanetse ba itsisiwe gore go tsaya karolo ga se pateletso, go tswa dio go bone. Nomoro yothlhe ya batsayakarolo e tshwanetse go buiwa. Lekwalo-tshwano la tshodimosetso tshwanetse le neelwe batsayakarolo. Lekwalo la tshedimosetso le tumelo tshwanetse le fetolelwe mo puong e e buiwang ke batho ba patlisiso.

Go Dumela

Tumalalno ya go tsaya karolo mo patlisisong:

- Ke dumela gore ke boleletswe ke mmatlisisi (Nematahe M.N) ka thlago, tsamaiso, dipoelo le dikotsi tse di tsamaisanang le patlisiso e.
- Gape ke filwe, ke badile ebile ke thlalogantse lekwalo la tshedimosetso le le fa godimo. Maba pi le patlisiso.

- Ke a itse gore diphitlhelelo tsa patlisiso, go akaretsa dintlha tsa botho jaaka bong ba mei dingwaga, letlha la matsalo, ditlha tsa ntlha tsa maina a me di tlile go fitihwa fa go kwalwa pegelo ya patlisiso.
- Mo ponong ya ditlhokego tsa patlisiso, ke dumela gore tshedimosetso e e tserweng mo patlisiso e ka diriswa go tsenyeletsa mo khomputareng ke mmatlisisi.
- Nka nne tswa mo patlisisong nako e nngwe le enngwe, ka tlogela go tsaya karolo.
- Ke nnile le tshono e e ntsi go botsa dipotso le go dumela gore ke ipaakantse go ka tsaya karolo.
- Ke a tlhaloganya gore diphitlhelelo tse ntshwa tsa botlhokwa go tswa mo patlisisong e tse di ka tswang di amana le go tseyeng karolo ga ka, di tlile go mpitlhelela.

Lenna ka botlalo la motsayakarolo Letlha Nako Tshaeno

**Nna**…… …… ……. ……..

*Nematahe M.N* ke netefatsa gore motsayakarolo oo fa godimo o ne a boleletswe ka tlhagon mokgwa le dikotsi tsa patlisiso e e fa godimo.

Leina ka botlalo la paki( Fa a le teng)

…… Letlha……
Tshaeno……

Leina ka botlalo la paki (Fa a le teng)…… Letlha ……
Tshaeno……..

Leina ka botlalo la motlhokomedi (Fa a le teng)

…… Letlha…… Tshaeno……

Ka kopa ela tlhoko dilo tse di latelang:

Dintlha tsa patlisiso tshwanetse di kwale ka tlhamalalo, di nne bonolo le go kwala ka mokgwa oo siameng wa setso. Batsayakarolo ba batlileng go tlhopiwa ba tshwanetse go thusiwa go fitlha kwa go tseyeng sepheto ka tiriso ya puo e e siameng (mophato wa 10 – dirisa Flesch Reading Ease Scores on Microsoft Word), go tlhopa lefelo le le senang matshosetsi le go tlileng go kopanelwa mo go lona, le go dira gore peer counselling e e nne gona (Department of Health,2004).

Fa e le gore motsayakarolo ga a go buisa le go kwala, go tla batliwa right thumb print le pake e e sa tseyeng letlhakore, o o rutegileng ebile a itse gore motsayakarolo sekao, motsadi, ngwana wa kwa eno, tsala, moruti jalo le jalo tshwanetse ba netefatse ka go kwala le go saena gore kitsiso ya tumalano ya molomo e tserwe (Department of health, 2004)

Fa go ka nna le mongwe yo o dirang phoso fa a tlatsa tokomane e jaaka letlha le le sa siamang. Kgotsa mopeleto o o fosagetseng, tokomane e e ntshwa tshwanetse e beiwe mo faeleng ya motsayakarolo, e seka ya latlhiwa, gape dikhopi tsateng tshwanetse di ntshiwe, di fiwe motsayakarolo.

**ANNEXURE E:** Central question

“Kindly share with me the impact of PTB and HIV/AIDS co-infection in self-management’’

**ANNEXURE F**: Originality report



## Turnitin Originality Report

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IMPACT OF PULMONARY TUBERCULOSIS AND HIV/AIDS CO-INFECTION IN SELF- MANAGEMENT AMONG ADULT PATIENTS AT THE PRIMARY HEALTH CARE FACILITIES IN BOJANALA DISTRICT OF NORTH-WEST PROVINCEA dissertation submitted in fulfilment of the requirements for the degree of Master of nursing BY Nematahe Munei Nillivence Student No: 15004614 Department of Advanced Nursing Science Faculty of Health Science University of Venda Supervisor: Dr Ndou N.D Co-Supervisor: Dr Luhalima TR DECEMBER 2022 i CHAPTER ONE ORIENTATION TO THE STUDY 1. INTRODUCTION United Nations Program on Human Immunodeficiency Virus (HIV) and Acquired immune deficiency syndrome (AIDS) affirms that a patient may suffer from Pulmonary Tuberculosis (PTB) before the immune system has deteriorated (UNAIDS, 2018). The risk of being infected with PTB remains higher among patients infected with HIV/AIDS than those who are HIV negative. PTB mostly affects patients who are HIV positive and not on antiretroviral therapy (ART). PTB and HIV/AIDS co-

infection is responsible for the increased mortality rate in South Africa (UNAIDS, 2018). PTB is an airborne bacterial infection that affects the lungs (UNAIDS, 2019). Symptoms include chest pain, fever and haemoptysis. Since HIV/AIDS affects the immune system by decreasing the CD4 cell count, the body becomes more susceptible to infections that can affect the digestive system hence decreased appetite. Weight loss is common when one is co-infected with PTB and HIV/AIDS (WHO, 2019). UNAIDS (2019) indicates that the PTB epidemic strongly correlates with the expansion in HIV/AIDS prevalence. This is influenced by a rise in HIV/AIDS and PTB positive cases among patients who are severely immunosuppressed. Approximately 57.9 million people were infected with HIV/AIDS worldwide at the end of 2019. In 2019 the Sub-Saharan region was affected the most with 25.8 million that account for 70% of HIV/AIDS cases globally and 1.2 million deaths. PLWHA (PLWHA) who are aware of their status are at 45%, those receiving ART at 39% and those with a suppressed viral load at 29%. All these excessive figures uplift many concerns about HIV/AIDS management among public health professionals, so they are trying to come up with a plan that at least every HIV/AIDS patient be tested for PTB for early detection (UNAIDS, 2019). 1.1 Background of the study World Health Organization (WHO) (2020) indicates that PTB is the leading cause of death globally, followed by HIV/AIDS. PTB is the main cause of death among Patients Living with HIV/AIDS. HIV/AIDS is known to cause severe deformity in T cells immunity, rendering HIV/AIDS and PTB co-infected patients more susceptible to PTB complications. In 2019, 36.7 million adult patients were infected with HIV/AIDS and PTB worldwide whereas approximately one million died of HIV/AIDS and PTB-related infections globally (WHO, 2020). In the United States of America (USA) HIV/AIDS and PTB resulted in a serious threat to public health. Collectively, almost 100,000 new cases of PTB and HIV/AIDS in adult patients are diagnosed annually. Although appreciable medical progress has been made, these conditions continue to impact adult patients negatively. They experience health deterioration due to poor self-management such as non-compliance to treatment, not attending all appointments, poor diet plan, and lack of exercise (WHO, 2019). Nausea and loss of appetite can lead to severe weight loss and fatigue. Co-infected patients should eat nutritious food, comply with treatment, honour all the check-ups and do exercises. There is no cure for HIV/AIDS. However, effective antiretroviral therapy (ART) is considered the optimum available therapy for adult patients living with HIV/AIDS but there is a cure for PTB (WHO, 2019). In Brazil treatment is based on the combination of four drugs, rifampicin, isoniazid, pyrazinamide and ethambutol. When PTB treatment is combined with antiretroviral drugs it results in a lot of side effects. It is always important to understand the side effects of using medication such as severe headache, dizziness, upset gut, joint pain, and nausea, as they can influence the patient to decrease or make changes to the therapeutic regimen especially in co-infected individuals. Other patients with PTB and HIV/AIDS co-infection when they start experiencing the side effects, they stop taking the treatment and only go to the health facilities when they are critically ill and unable to perform daily tasks such as bathing and preparing food (Bisson et al., 2017). A study conducted in Brazil affirms that stigma, depression, negative feelings, and loss of hope caused by PTB, and HIV/AIDS co-infection may reduce an individual's motivation to take treatment (WHO,2019). There are factors related to non-compliance which are caused by smoking, alcohol, poor socioeconomic status, adverse reactions, number of pills since patients taking both antiretroviral and tuberculosis treatment are required to take large numbers of tablets daily. When there is a lack of motivation some of the patients may decide to stop the treatment because of denial. They may also develop a feeling of worthlessness and need support. Normally, when there is a symptom of remission after the beginning of the treatment for co-infections, patients prefer to stop taking treatment, believing they are already cured (Burgess et al., 2019). In Afghanistan, PTB and HIV/AIDS are major causes of poverty aggravation as patients with the co-infections often face the burden of reduced income and increase in expenses. They are often too sick to go to work, and their families had to pay for all expenses in association with treatment. When the patient is critically ill, self-management is often very difficult because 2 activities require energy. Accessing and successfully adhering to treatment becomes a challenge due to fatigue especially if they should walk to the facility where they collect treatment (UNAIDS, 2019). The findings of the study conducted in Zambia highlighted that patients diagnosed with PTB experience verbal stigma, insults, and social exclusion. Overall, stigma related to both PTB, and HIV/AIDS is very common, even at the facilities where the patients with co-infections collect treatment, they experience stigma because they que separately from other patients to collect treatment for PTB and HIV/AIDS from the nurse. This disturbs self-management because co-infected patients usually develop low self-esteem, others stop going to the facilities to collect the treatment and check-ups. Some end up neglecting themselves and become scared to disclose their sero status to their families and friends. Some patients with PTB and HIV/AIDS co-infection develop a feeling of hopelessness and engage in substance abuse as a sign of denial, anger, and fear of death (Fatoki, 2019). In 2019, Ethiopia was one of the 30 countries with high PTB and HIV/AIDS burden countries in the world, with an incidence of 0.17% of patients per 1000 population for HIV/AIDS and 1.64% of patients per 1000 for PTB. A study conducted in Ethiopia has shown that PTB and HIV/AIDS co-infected individuals are at greater risk of having psychosocial problems, low quality life, and poor physical health than HIV/AIDS infected individuals who do not have PTB. Patients diagnosed with PTB, and HIV/AIDS mostly have trouble falling asleep due to stress because others find it difficult to accept that they have PTB and HIV/AIDS and start imagining how the community might treat them if they find out about the dual infections. Depression caused by denial may result in both fatigue and insomnia. They feel that taking treatment is a waste of time since they are going to die and refuse to be initiated and develop suicidal thoughts (Burgess et al., 2019). In 2019 South Africa (SA) had about 7.5 million people infected with HIV/AIDS and two-thirds were also diagnosed with PTB. SA also experienced the worst HIV/AIDS driven PTB epidemic in the world, it came after India, China, and Indonesia (Bisson et al., 2017). Some adult co- infected women in SA also experience stigma in the preparation of food, their food is rejected, some family members separate eating utensils, like cups and plates, used by PLWHA from the ones used by the rest of the family. With that kind of treatment, patients feel discriminated against and neglect themselves (UNAIDS, 2020). According to statistics SA (2019), SA ranks third among 22 high PTB and HIV/AIDS burden countries. PTB remains the main cause of death of one in five adult deaths. In 2019 a total number of 63,000 patients died of PTB, of which 42,000 patients were also HIV/AIDS positive. When a patient is infected with both PTB and HIV/AIDS each infection accelerates the progress of the other. In addition to HIV/AIDS infection speeding up, the

infection into AIDS. SA developed a national strategic plan of 90-90-90 to try and decrease the number of HIV/AIDS and PTB but still, the goals are not yet reached because there is still a high number of co-infected patients and more interventions still need to be done to reach the goals (Statistic SA, 2019). The South African government has developed mobile technologies into routine practices to aid in generating many new opportunities to improve engagement in self-management interventions. Mobile technologies offer new opportunities to patients with chronic conditions including HIV/AIDS and PTB through common functions such as appointments, medication reminders, and motivational messaging to enhance the self-management interventions (Matlakala et al., 2019). The findings of the study conducted by Noël and Pomeroy (2019) in North-West province South Africa revealed that most adult people of Bojanala district are illiterate and unemployed. Most of the time is spent on risky behaviours of abusing alcohol and drugs. They believe that chronic conditions such as PTB and HIV/AIDS are caused by witchcraft which delays initiation of treatment so they need some more intervention to try to help them understand the importance of proper self-management which can be in a form of education (Matlakala et al., 2019). The researcher has decided to explore the impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province. 1.1.2 Theoretical framework The researcher utilised the health belief model as a theoretical framework. Health belief model is a model that attempts to explain and give predictions on health behaviours by focusing on the attitudes and beliefs of individuals, for example, how people living with the co-infection PTB and HIV/AIDS are managing their lives on a daily basis (Stole et al., 2019). The health belief model is a value-expectancy theory and assumes that an individual's behaviour is guided by expectations of consequences of adopting new practices. This topic focuses on the impact of PTB and HIV/AIDS co-infection in self-management among adult patients. The duties of patients with PTB and HIV/AIDS co-infection is to make sure that they start engaging on new practices to stay healthy for a long time and making sure that they eat a healthy balanced diet, making sure that they respond to their follow-up visits and take their medicines on a daily basis. Health belief model further articulates that health-related behaviour depends on the combination of several factors, namely perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy. Perceived susceptibility refers to the individual's opinion of the chances of contracting illness and its perceived severity once contracted (Terbeck, 2021). Patients living with PTB and HIV/AIDS co-infection have high chances of contracting other illnesses and having high viral load if they do not manage themselves very well in terms of taking their medicines, exercises and eating a high protein diet. Perceived severity refers to an individual's opinion on how serious a condition and its consequences are. Patients living with PTB and HIV/AIDS co-infection are the ones who know how serious their conditions are and the consequences of non-compliance such as ending up having high viral load, very low CD4 cell count, hemoptysis, pneumothorax and respiratory failure. Also, patients' self-management is negatively affected by non-compliance to treatment, not responding to all appointments, poor diet plan and lack of exercise. These contribute to the patient getting worse and in the worst case scenario the patient may end up dying. Perceived benefits refer to one's belief in the efficacy of the recommended health behaviour in reducing the risk or seriousness of the condition. Patients who have HIV/AIDS and PTB co- infection require effective support to manage their conditions including making physical, social and psychological adjustments. Mehraeen et al. (2019) suggest that the effectiveness of ART and PTB treatment depends on timely take of prescribed medications, diet, and exercise compliance. Self-management of HIV/AIDS and PTB co-infection is not only dependent on healthcare services but also on social support and the provision of educational information in several areas such as how to practice safe sex behaviours, adherence to medication regimens (WHO, 2019). Perceived barriers refer to the perception of cost associated with adhering to a recommended health behaviour if it is likely to be beneficial in reducing or eliminating the perceived threat (Terbeck, 2021). Some of the patients who have HIV/AIDS and PTB co-infection are likely to stick to good health habits in order to stay healthy for a long time. Also, there are many countries, including Ethiopia, that provide 'free' HIV/AIDS and PTB services (Stole et al., 2019). Self-efficacy refers to the level of confidence in one's ability to perform healthy behaviour. Patients with HIV/AIDS and PTB co-infection with high self-efficacy are likely to have high confidence and this will contribute to them performing good health behaviours. While on the other hand, those patients who have low self-efficacy will have low confidence in their ability, which will have an effect on the likelihood of the behaviour being performed by the patient. The application and success of the health belief model as a theory of choice for addressing a wide range of health behaviours and populations has been previously reported (Silva, Dias and Rodrigues, 2022). In particular, the health belief model has been used to support studies seeking to understand preventative behaviours (such as diet, vaccination, smoking cessation, exercises and contraception) and sick role behaviours (such as adherence to recommended medical treatments). 1.2 Problem statement In 2018-2019 there were 1620 patients infected with PTB in Bojanala district of which 886, 540 were co-infected with PTB and HIV/AIDS (Statistic SA, 2019). In 2019, the researcher was doing community service at one of the Primary Health Care (PHC) facilities in Bojanala district. The researcher observed with concern that patients diagnosed with PTB and HIV/AIDS, struggle to comply with treatment. After the monthly routine blood tests of HIV/AIDS patients, the results of those that has PTB, and HIV/AIDS co-infection showed very high viral load and a very low CD4 cell count. The blood results made the researcher wonder if there is good self-management because HIV/AIDS treatment should reduce the viral load to the point that it is undetectable. HIV/AIDS and PTB co-infection negatively affect adult patients' self-management. Patients' self-management is negatively affected by non-compliance to treatment, not attending all appointments, poor diet plan and lack of exercise. Patients who have HIV/AIDS and PTB co-infection require effective support to manage their conditions including making physical, social and psychological adjustments. Self-management of HIV/AIDS and PTB co-infection is not only dependent on healthcare services but also on social support and the provision of educational information in several areas such as how to practice safe sex behaviours, adherence to medication regimens (WHO, 2019). The effectiveness of ART and PTB treatment depends on timely take of prescribed medications, diet, and exercise compliance (Mehraeen et al., 2019)). The researcher has therefore decided to explore the impact of PTB and HIV/AIDS co-infection on self- management among adult patients. 1.3 Rationale of the study The researcher has searched for the literature related to the impact of PTB and HIV/AIDS co- infection in self-management among adult patients in the North-West province to find out if there are studies conducted focusing on the phenomenon under study.

Unfortunately, the researcher could not find the study findings that are related to the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at Bojanala district of North-West province of South Africa. The researcher aims at improving the knowledge of the co-infected patients regarding PTB and HIV/AIDS self-management so that they can do what is expected of them such as compliance to treatment to improve their health. 1.4 Study purpose The study purpose is to explore the impact of PTB and HIV/AIDS co-infection on self- management among adult patients at the selected primary health care facilities in Bojanala district of North-West Province, South Africa. 1.5 The objectives of the study Objectives of the study are to: • Explore the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North- West province, South Africa. • Describe the impact of PTB on HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North- West province, South Africa. 1.6 Research Question What is the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province? 1.7 Significance of the study The people who may benefit from this study are nurses, policy makers, patients, family members and researchers. The standard of nursing may improve when they receive the findings of the study on the phenomenon. The findings of the study may guide the policymakers to design appropriate PTB and HIV/AIDS education programs, and it may also help them in the development of new policies, protocols and guidelines regarding PTB and HIV/AIDS co-infection. The findings of the study may increase knowledge of the patients suffering from both HIV/AIDS and PTB Family members may also gain knowledge regarding a patient who has HIV/AIDS and PTB infections. Knowledge of HIV/AIDS and PTB the co-infection may be used by the family members to support the patients with co-infection. 1.8 Definition of Terms 1.8.1 Adult An adult is a person who has reached the age of majority and is therefore regarded as responsible and also independent (Basta, 2018)). In this study, an adult refers to a patient between the ages of 25-45 years. 1.8.2 Human immunodeficiency virus HIV is the virus that if not treated advances to AIDS (UNAIDS, 2019). In this study, HIV refers to a virus that invade vital cells in the human immune system and leads to low levels of CD4 cell count. 1.8.3 Pulmonary tuberculosis PTB is a contagious bacterial infection that is mainly an infection of the lungs (Daniel, 2017). In this study, PTB refers to the lung infection that commonly affects patients with weakened immune systems such as HIV/AIDS. 1.8.4 Co-infection Co-infection refers to a situation in which a person has two or more infections at the same time (WHO, 2019). In this study, co-infection refers to a patient who has been diagnosed with PTB and HIV/AIDS. 1.8.5 Self-management Self-management refers to the skills, methods and strategies by which individuals can successfully direct their own activities towards the achievements of objectives (Galvão, 2019). In this study, self-management refers to the ways in which adult patients who are co-infected with PTB and HIV/AIDS take care of themselves. 1.9 Research methodology In this study, the reasercher adopted a qualitative research method and a descriptive phenomenological research design to explore and describe the impact of PTB and HIV/AIDS co-infection among adult patients in Bojanala district of North-West province. Non-probability, purposive sampling technique was utilised to select the PHC facilities and adult patients who were co-infected with PTB and HIV/AIDS. Data were analysed according to Tesch's open coding method. Furthermore, the researcher indicated how ethical issues and measures to ensure trustworthiness were observed. The trustworthiness of the study was discussed under credibility, confirmability, transferability, and dependability. 1.10 Outline of the dissertation Chapter 1: Orientation to the study The chapter expound the introduction, background of the study, problem statement, purpose of the study, objectives, research question and significance of the study Chapter 2: Literature review Literature review is corresponding to the title of the study, focussing on the impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province Chapter 3: Research methodology The research methodology includes the research approach, research design, study setting, study population and sampling, unstructured in-depth face-to-face interviews, pre-test, measures to ensure trustworthiness, data collection, data management and analysis, ethical considerations, delimitation of the study and dissemination and implementation of results Chapter 4: Presentation, analysis, interpretation, and discussion Data presentation, analysis and interpretation and discussions. Chapter 5: Summary, findings and recommendations Conclusion of the findings and recommendations are deliberated. 1.11 Summary Chapter one outlines the background problem statement, significance, the purpose of the study and research objective. It provides the reader with the study outline on the impact of PTB and HIV/AIDS co-infection on self-management. Chapter two describes literature reviewed from various sources in relation to the impact of PTB and HIV/AIDS in co-infected adult patients CHAPTER TWO LITERATURE REVIEW 2.1 INTRODUCTION Brink, van der Walt and van Rensberg (2017) define a literature review as a written account of what has been published by scholars and other researchers on a particular topic that is organised. The introductory literature review is essential because it provides direction and focus to the study (Creswell, 2014). It is first used to contextualise the researcher's study, to argue a case, to identify a role to be polished by the research, and so on (Henning, van Rensberg, and Smit, (2017). The researcher reviewed literature from theoretical and empirical sources to get an idea of what is already known and what is not yet known about the impact of pulmonary tuberculosis and HIV/AIDS co-infection on the adult patient's self-management and to decide if the topic can and should be researched (Grove, Grey and Burns, 2015). The researcher reviewed the literature in Google Scholar and Science Direct 2.2 Impact of pulmonary tuberculosis and HIV/AIDS co-infection on the patient The co-infected adult patients are faced with so many life challenges, PTB and HIV/AIDS co- infection impact their daily life activities negatively. PTB and HIV/AIDS have an unfavourable impact on the co-infected patients' finance, nutrition, sex life, health and they experience stigma from the community including their family members. They end up isolating themselves and skipping their follow-up visits. 2.2.1. Impact of PTB and HIV/AIDS on patient's health The findings of the study on PTB and HIV/AIDS co-infection conducted in Ethiopia revealed that PTB and HIV/AIDS co-infected patients have a lower quality of life in all domains when being compared to HIV infected patients who do not have PTB (Wright and Epps, 2020). Depression, no income and family support are strongly related to most of the quality-of-life domains of the co-infected patients. Patients who are depressed are more likely to have poor physical health equate to individuals who are only HIV positive and are negative for PTB (Galvão and Janeiro,

are more prone to opportunistic infections which are triggered by organisms that typically 11 do not cause disease in individuals who are healthy. These organisms get an opportunity to attack the body when there is an opportunity to infect (WHO, 2020). Seizures can occur, but in rare cases, this disease can also occur when CD4+T cell counts are below 200 cells per cubic millimetre of blood (Wright and Epps, 2020). Progressive multifocal leukoencephalopathy is a rare disorder of the nervous system caused by a common human polyomavirus that results in damage to the myelin sheath that protects neurons (Del Valle and Piña-Oviedo, 2019). The myelin sheath is the fatty covering the acts as an insulator on the nerve fibres of the brain. Symptoms include mental decline, vision problems, speech problems, and inability to coordinate movements, paralysis, and eventually coma (Perrotta, 2020). According to UNAIDS (2018) candidiasis is an infection caused by Candida fungi and is commonly known as a yeast infection. It is the most common fungal infection associated with PTB and HIV/AIDS co-infections. It can affect the entire body, but in most cases it occurs in the mouth, which is called thrush, or in the vagina. Excessive growth of yeast in the vagina can lead to irritation, burning, itching, and thick white discharge (Rao and Mahmood, 2020) Fatigue is a term commonly used to describe feelings of exhaustion, sleepiness, and lack of energy. It is a problem most experienced by patients; it is not a disease but rather a symptom of illness or infection (WHO, 2019). Some people suffer from isolated or periodic bouts of fatigue, while others suffer from chronic fatigue that can severely interfere with work or other daily activities (Bateman, 2021) According to Shevchenko et al (2019) depression and anxiety are mostly associated with fatigue and are common in patients with PTB and HIV/AIDS co-infection. Depression and anxiety are associated not only with fatigue but also with insomnia, loss of appetite, and difficulty concentrating. Approximately every co-infected person goes through periods of feeling agitated, anxious, fearful, or depressed (Daftary et al., 2021). Insufficient production of adrenal hormones can be the result of PTB and HIV/AIDS drugs, the PTB and HIV/AIDS co-infection itself or by opportunistic infections such as cytomegalovirus, which can directly infect and destroy the adrenal glands (Kolade et al., 2018). Adrenaline deficiency can lead to fatigue, chronic weight loss, low blood pressure, dizziness, and eventually death (Zhao et al., 2021). Concurrent infection with PTB and HIV/AIDS and the medications used to treat them may cause the red blood cell count and percentage to fall below normal. When a person is anaemic, the body tries to compensate in various ways (Stephen and Kinara 2019). This redistribution 12 of blood causes people with anaemia to feel pale and cold but provides more oxygen to vital organs such as the heart, brain, and muscles (Collins, 2020). Increased activity leads to greater oxygen demand in these tissues, resulting in fatigue, weakness, palpitations, shortness of breath, and other symptoms ( Sambu and Collins, 2020). 2.2.2 Impact on finance PTB and HIV/AIDS co-infection financially affect the co-infected patients financially as most will no longer afford the basics. The findings from the study conducted in the United States revealed that many co-infected patients diagnosed with PTB, and HIV/AIDS co-infection may no longer be able to work of the severe illness. As soon as they stop working, poverty begins to the families in which they are bread winners (Ansa et al., 2017). Korstjens (2018) highlighted that patients pay for pre-diagnostic services, additional medications, laboratory tests, adverse event monitoring, hospitalisation, transportation, meals, and lodging. In addition, patients are pushed to seek treatment from expensive private providers because diagnostic services are not available in public health facilities (Land and Lisnk, 2019). When civil servants become seriously ill, they usually request sick leave for a certain period with full or reduced pay (Loveday and Zweigenthal, 2019). In Zambia, for example, the Ministry of Agriculture, Food and Forestry authorises sick workers to take 90 days of continuous absence with full pay and another 6 months with half pay (Linsk and Gilbert, 2017). In Swaziland, a government employee can take up to 6 months of sick leave with full pay and another 6 months with half pay (Ansa, Walley and Rosenheck, 2017). 2.2.2 The impact of PTB and HIV/AIDS on economy UNAIDS (2020) highlighted that HIV/AIDS and PTB are the greatest global health threats, resulting in a large financial burden for vulnerable populations. More than 72 million lives were saved between 2018 and 2021, but the high burden of disease, inequitable health care utilisation, and problems with quality of services persist (UNAIDS, 2019). Although many countries, including Ethiopia, provide 'free' HIV/AIDS and PTB services, the measures taken do not provide realistic protection against financial risks (Pense, 2019). In Ethiopia, the health budget is only $33.2 per capita and 31% of all health financing is paid out of pocket, so patients and their families often face direct and indirect costs that result in financial strain on households (Pense, 2019). Spending on treatment for HIV/AIDS and PTB co-infections can leave vulnerable households impoverished because it crowds out consumption of basic necessities. In addition, access to treatment can be compromised due to high patient costs, leading to poor treatment outcomes (Cholewińska and Szymańska, 2019). There are many factors that can lead to catastrophic health expenditures. HIV/AIDS and PTB waivers often address limited aspects of primary care such as treatment with antiretroviral therapies and medications for PTB (Daniel, 2017). HIV/AIDS and PTB pose a serious challenge to development of the economy, mortality increase, and morbidity reduce living standards directly and have results that affect the economy in all areas (UNAIDS, 2019). At the macroeconomic level, there is a decline in the economic growth as the population grows more slowly and as reduced national saving, rising costs, and decline in the economic prospects deter investment (Beegle and Christiaensen, 2019). The HIV/AIDS and PTB epidemic is impacting all functions and levels of government as more and more public servants become seriously ill and die. Apart from the disruption of public service coupled with increased attrition rates, HIV/AIDS and PTB co-infection also affects the stature of state employees in various dimensions (UNAIDS, 2018). Government employees enjoy some form of retirement, medical, and death benefits, and government personnel costs are increasing (Daniel, 2017). The increase in mortality and morbidity impacts public services by increasing turnover and absenteeism of government employees due to HIV/AIDS and PTB co-infections and decreasing productivity due to poor health (Cholewińska and Szymańska, 2020). More broadly, HIV/AIDS and PTB co-infection also leads to higher absenteeism among those who are not infected, as these workers must, for example, care for sick family members and attend funerals (Kolade et al., 2018). UNAIDS (2019) noted that HIV/AIDS and PTB affect economic growth by reducing the availability of human capital. In the absence of adequate prevention, nutrition, health care, and medicine available in developing countries, people fall victim to HIV/AIDS and PTB co- infection in large numbers. Co-infected patients are not only unable to work, but also require medical care. The increased mortality rate in South Africa led to a shortage of skilled labour. The smaller labour force consists of young people who lack knowledge and work experience, which led to a decline in productivity (Korstjens and Moser, 2019). The increasing number of workers taking time

culture and driven by personal values. It is not a natural phenomenon, but a determinant of health that directly impacts patient quality of life and treatment outcomes, particularly in PTB and HIV/AIDS coinfection (McShane, 2019). Patient with PTB and HIV/AIDS co-infection tend to develop the internal stigma, "Internalised stigma" or "self-stigma" happens when a person takes in the ideas that are negative and stereotypes about PTB and HIV/AIDS and the co-infected individuals and start to apply them to oneself (Osaro, 2018). Lack of information and awareness combined with beliefs that are outdated makes people to fear getting PTB, and HIV/AIDS and many people think that PTB and HIV/AIDS co-infection are infections that only certain groups get, this leads to negative value judgements to co-infected patients (Osaro, 2018). The nature of stigmatisation of people with PTB and HIV/AIDS coinfection is well known. Co- infected people have been stigmatised worldwide since the beginning of the epidemic, resulting in severe social consequences related to their rights, health services, freedom, self- identity, and social interactions (Visca et al., 2021). Discrimination and stigma associated with PTB and HIV/AIDS co-infection undermines public health efforts to combat the epidemic. The United Nations pointed out that stigma associated with PTB, and HIV/AIDS still hinders the prevention, care, and treatment that are provided everywhere (Villa et.al 2021). Mothoa (2018) highlighted that the link between PTB and HIV/AIDS has contributed to the stigmatisation of co-infected patients because the community believes that they must have done something to deserve to be infected. This judgment may attest the belief that PTB and HIV/AIDS are divine punishments for a moral or personal failing, which then permit stigmatisation (Bresenham et al., 2020). Perceived PTB and HIV/AIDS stigma impacts the quality of life negatively and has been corresponded with poorer mental health results, lowered self-esteem, lowered self-efficacy, and reduced adherence to dual treatments (Chen et al., 2021). People with PTB and HIV/AIDS received discrimination and are isolated from society and the community would keep away from them for fear of infection (Villa et al., 2021). The study findings on PTB and HIV/AIDS co-infection in Tanzania and Uganda revealed that PTB and HIV/AIDS co-infected individuals identify themselves to be at risk for a number of stigmas in relation to social and economic outcomes, the most common outcome of PTB and HIV/AIDS stigma is being isolated from other community members, PTB and HIV/AIDS co- infection can substantially have an impact on economic opportunities (Visca et al., 2021). For example, the stigmatisation of PTB and HIV/AIDS in Ghana has led to the banning of PTB and HIV/AIDS co-Infected patients from selling their goods in the public markets and attending events of the community. The fear of PTB and HIV/AIDS co-infection stigma can lead to co-infected patients to hide their PTB and HIV/AIDS status from their families. PTB and HIV/AIDS stigma also results in a feeling of shame or guilt, resulting to social withdrawal and isolation as co-infected individuals internalise the negative judgments about the co-infection from the community (Chen et al., 2021). The findings of the study conducted in Zimbabwe by Adeoye (2018) revealed that Individuals diagnosed with PTB, and HIV/AIDS experience the challenges such as isolation and rejection such as employment loss, divorces or having reduced marriage prospects, being denied sharing meals, utensils or sleeping quarters with the rest of the family members, and general evasion or gossip from the members of the community. Masir (2019) further discovered that fear of what will happen if one is co-infected with PTB and HIV/AIDS may lead to delays in seeking medical care for PTB and HIV/AIDS co-infection and could have a negative impact on adherence to treatment. As a result of this, PTB and HIV/AIDS stigma continues to be viewed as a stumbling block to PTB and HIV/AIDS treatment compliance. According to WHO (2019) some adult co-infected women in SA also experience stigma in the preparation of food, they are told that people with co-infection must not prepare food so if they do prepare their food is rejected. Some family members separate eating utensils, like cups and plates, used by their co-infected family member from the ones used by the rest of the family so with that kind of treatment patients may start to neglect themselves and feel like it's better to die (UNAIDS, 2020). A number of publications have found that stigma associated with PTB, and HIV/AIDS co- infection is the greatest barrier to PTB and HIV/AIDS co-infection service utilisation, due to shame and fear of being discriminated against (Mothoa, 2019). Stigma occurs in different forms and at different levels, such as family, community, and health care settings. This makes co-infected patients feel bad and subject to social isolation, physical or verbal abuse, mistreatment, and political prejudice (Bresenham et al., 2020). Stigma results to unfortunate health effects such as anxiety or depression, female sex worker, gays experience double stigma due to their PTB and HIV/AIDS co-infection status and their noticeably "illegal and unethical" behaviours (Adeoye, 2018). PTB and HIV/AIDS co-infection related stigmatisation experiences differ across different communities. CHAPTER THREE RESEARCH METHODOLOGY 3. Introduction According to Henning et al., (2017), research methodology refers to the coherent group of methods and procedures that complement each other and are suitable to provide data and results that confirm the research question and meet the research purpose. This chapter details the research design and research methods. The research methodology includes the research approach, research design, study setting, study population and sample, face-to-face unstructured in-depth interviews, pre-test, measures to ensure trustworthiness, data collection, data management and analysis, ethical considerations, study delineation, and dissemination and implementation of findings. 3.1 Qualitative research approach Polit and Beck (2014) defined qualitative research as the exploration of the phenomena, commonly in an in-depth and holistic fashion, by means of collection of rich narrative materials using a variable research design. However, Brink, Van der Walt, and van Rensburg (2017) highlighted that this type of research seeks to understand the phenomenon in its completely, rather than concentrating on specific concepts. This type of research generates findings not arrived at by statistical procedures or other means of quantification. It has few assumptions and stresses the significance of people's interpretation of events and circumstances, preferably than the researcher's interpretation (Brink et al., 2016). The researcher acquired a qualitative research approach to answer the research question and achieve the study objectives. It allowed the researcher to explore self-care management among the adult patients co-infected with HIV/AIDS and PTB at the selected primary health care facilities in Bojanala district of North-West province. The collected data, analysed and interpreted in a qualitative approach is not significantly calculated in numbers but sum up in words and thus, the researcher's expertise was much desired. The qualitative approach permits interviewing of fewer participants in comprehensive, and data were narrated and addressed their understanding in their original context (Archibald et al., 2017). In this study, the main instrument was the researcher and was subjectively engaged in the process of the research. A qualitative research approach was suitable for this study as it allowed the researcher to interview the participants who described impact of pulmonary tuberculosis

and HIV/AIDS co-infection in self-management among adult patients. 3.1.1 Study design It is defined as a strategy moving from the fundamental philosophical assumptions to state the selection of participants, data gathering strategies to be used, and the data-analysis to be performed (Maree, 2016). It gives indication on how data will be gathered, what type of contrast will be made, and the study setting. It is also defined as an idea of addressing a research question, including designation for enhancing the integrity of the study (Polit and Beck, 2014). The researcher used a descriptive phenomenological design. The use of descriptive phenomenological design enabled researcher to explore and describe the impact of PTB and HIV/AIDS co-infection on self-management. This description leads up to the essence of the experiences for various individuals who have all encountered the phenomenon, it has strong philosophical development and thus includes conducting interviews. A descriptive phenomenological design was used as a strategy moving from the fundamental philosophical supposition specifying the selection of participants, data collecting techniques utilised, and the data analysis that was done (Brink et al., 2016). The descriptive phenomenological design gives richly detailed information that the researcher may not have foreseen. Descriptive phenomenological design is significant to study the impact of PTB and HIV/AIDS co-infection on self-management because little is known about the phenomenon under study and in-depth information is needed. It gives the opportunity to define such phenomena by means of description precisely through narrative-type descriptions concerned with co-infected adults. The researcher allowed co-infected adult patients to describe the impact of PTB and HIV/AIDS co-infection. 3.2 Study setting According to Grove, Gray and Burns, (2015) the study setting is a location in which the research is going to be conducted, can be natural, controlled partially, or controlled highly. The study was conducted at the selected PHC facilities in the consultation rooms that was prepared specifically for the interviews, in Bojanala district of North-West province with the high number of PTB and HIV/AIDS co-infected patients. Bojanala district is in the North-West Province of South Africa. It is enclosed by the district of Waterberg to the North, district of Kenneth Kaunda to the South, City of Tshwane Metro to the East, West Rand district to the South-East, and district of Ngaka Modiri Molema to the West. Bojanala district consists of 107 rural villages, 115 PHC facilities, 9 health centres and 11 hospitals. Most people are unemployed, and their educational levels are low which led to low socio-economic status. Bojanala society strongly believes in its culture, however, they first consult traditional healers, when they are ill which delays them to start with ART and PTB medications. Most of the villages in Bojanala district are classified as rural areas with the very low densities which make the provision of basic services very difficult and expensive. Bojanala district experiences cold winters with frost, very hot summers with scarce rain. The soil is deep sandy and more susceptible to erosion which is not good for farming. Most of the co-infected adult patients are unemployed and they cannot afford nutritious food. Data was collected from PTB and HIV/AIDS co-infected adult patients who are collecting treatment for PTB and HIV/AIDS at the primary health care facilities in Bojanala district of North-West Province, South Africa. Data was collected from adult patients who are co-infected with PTB and HIV/AIDS collecting treatment at the selected primary health care facilities in Bojanala district of North-West province, South Africa. 3.3 Study population and sampling 3.3.1 Study population Brink, van der Walt and van Rensburg (2017) described the study population as the entire set of individuals or objects having some common characteristics. The study population were the patients co-infected with PTB and HIV/AIDS at the PHC facilities in Bojanala district of North- West Province, South Africa. ? Target population According to Brink, van der Walt and van Rensburg (2017), a target population is an absolute set of persons or objects that have some common traits the researcher is interested on. Brink, (2017) define the target population as the complete set of individuals who assemble the specification that the researcher is interested in studying. The target population were the adult patients co-infected with PTB and HIV/AIDS between the ages of 25 to 45 years. ? Accessible population Brink, (2017) claims that an accessible population is a group or objects that are reasonably within reach and available to the researcher for a study. In this study, the researcher has requested the clinical managers and the nurses at the selected primary health care facilities to assist her in identifying adult patients who were co-infected with PTB and HIV/AIDS. 3.3.2 Sample and Sampling method Groves and Burns (2015) refer to sampling as a process in which the researcher selects a group of people, events, behaviours, or other component that are indicative of the population being studied. Non-probability, purposive sampling technique was used to select the PHC facilities and adult patients who were co-infected with PTB and HIV/AIDS. Polit and Beck (2014) confirm that using non-probability purposive sampling allowed the researcher to judge and sort out participants with PTB and HIV/AIDS co-infection. 3.3.2.1 Sample size According to Grove and Gray (2017) sample size refers to participants in a few numbers, events, behaviour, or situation assessed in a study. The size of the sample is controlled by the information needs of the study (Polit and Beck, 2014). The researcher purposefully selected 5 adult patients from the selected PHC facilities who were between the ages 25-45 years on dual treatment for PTB and HIV/AIDS. The rationale behind selecting the population between the ages 25 to 45 was that they are sexually active. However, the sample size was also determined by data saturation. 3.3.3 Inclusion criteria for the PHC facilities The researcher selected 5 PHC facilities ? in Bojanala district, North-west Province, SA ? with a high number of PTB and HIV/AIDS co-infected patients 3.3.3.1 Inclusion criteria for the participants The researcher included adult patients who were: ? co-infected with PTB and HIV/AIDS ? between the ages of 25-45 years both males and females ? on ART and PTB treatment 3.4 Unstructured in-depth face-to-face interviews According to Wagner (2017), an interview is a two-party dialogue and a purposive communication in which the researcher asks the participants questions to collect comprehensive data regarding the phenomenon. It includes verbal interaction between the participant and the researcher, where information is given to the researcher (Grove and Gray, 2017). The interviews provide more comprehensive information, and the researcher explored the impact of PTB and HIV/AIDS by means of probing. The researcher started all the interviews by asking the participants one central question. The question was "Kindly share with me the impact of PTB and HIV/AIDS co-infection in self- management". Face-to-face interviews allowed the participants to explain the impact of PTB and HIV/AIDS in self-management without openly. This type of data collection instrument allowed the researcher and participants to establish personal relationships, thereby enabling the participants to feel free to express themselves without fear or prejudice. 3.5 Pre-test Pre-testing is an act whereby the researcher try-out the question that has been developed prior its actual use to work out the likely challenges with it (Kumar, 2014). Prior to actual data collection process, the researcher made an appointment with the nursing service manager on when the pre-test

was going to be done, out of all the co-infected patients in one of the selected PHC only 2 adult patients who were co-infected with PTB and HIV/AIDS were interviewed. Pre-test was conducted to test if the question was phrased in a manner that the participants could understand. The participants well understood the question. Pre-testing assisted the researcher to identify if the time allocated for a single interview was adequate and the feasibility of the data collection instrument. The pre-test gave the researcher a chance to evaluate his/her interviewing skills and the pre-test findings were not included in the main study because the researcher was still evaluating her interview skills and note what to exclude when doing the actual interview. 3.6 Measures to ensure trustworthiness Trustworthiness is the degree of confidence qualitative researchers has in their data. Trustworthiness was ensured by making use of criteria such as credibility, conformability, transferability, dependability (Burns and Grove, 2015). Trustworthiness betrays how the researcher can convince her audiences that the findings of an inquest are worth paying attention to or worth taking proceeding of (Babbie and Mounton, 2016). These refer to the quality of the findings or an inquiry worthy of paying attention to and or worth considering that the research findings should be trusted. The researcher ensured honesty and integrity to collect unbiased data. 3.6.1 Credibility Credibility is the level at which any research declares to be based on legitimate evidence, genuine, free from error and evasion that the readers find its assumption to be believable and it is the most crucial criterion which indicates that the study is of quality and the findings gathered are agreeable (Silverman, 2014). Burns and Grove, (2015) further, proposed that credibility refers to the conviction of the reader about the level to which the researchers have generated results that reflected the perspective of the participants. In this study, credibility was ensured by means of prolonged engagement and member checking. ? Prolonged engagement In qualitative inquiry, prolonged engagement relative to Ferguson et al., (2018) is spending extended time with participants during data collection to have a complete understanding of the impact of PTB and HIV/AIDS co-infection to test for disinformation and distortion and to warrant saturation of supreme categories. The researcher gained an in-depth understanding of the impact of PTB and HIV/AIDS co-infection as much as specific aspects during this stage. To build rapport and trust the researcher dressed appropriately, made introductions so that they know each other with the participants and ran small talk being friendly, so they felt open to share their experience. The researcher also met with the participants at the selected primary health care facilities where they collect treatment so that they could feel that their information was safe. ? Member checking Gary (2017) proposed that member check is when the researcher inspects together with the participants to notice if they have understood each other well on what was said the interview process. The voice recorder was played back to the participant after each interview to confirm if what was recorded is what they said by so doing the researcher and the participants were checking whether they have really understood each other well on what was said during the interview process. Probing was performed during the interview to have clear and deep understanding of what the participants were saying. At the end of the process of data analysis, the researcher went back to the participants to verify with them if what the researcher has analysed is the true reflection of the data collected. 3.6.2 Confirmability Confirmability gives guarantee that the findings, conclusions and recommendations are supported by the data and that there is an intramural agreement between investigators' interpretation and the genuine confirmation (Brink et al., 2016). To ensure confirmability the researcher became closely involved in the informant's lifeworld, which they disclosed in the course of study. Moreover, the researcher made sure that she was open to the perceptions of the participants rather than attaching her own meanings to it; setting aside assumptions and knowledge of the co-infection and interviewing the participants with an open mind to get new insights as the participants reported about their experiences. Continuous engagement between the researcher and the participants made it possible for the findings of the study to be true and unbiased. 3.6.3 Transferability Korstjens and Moser (2018) define transferability as the degree to which results of qualitative research can be transferred to other contexts or settings with other participants. Polit and Beck (2014) view transferability as the level to which qualitative findings can be transferred and applied to another context, settings, or groups of similar characteristics. Qualitative research meets this category when the findings fit into context outside the situation of the study. 3.6.4 Dependability According to Brink et al., (2016) dependability is when the researcher's peers follow researcher steps to determine whether they are approvable. To ensure dependability the study details were given in full and the purpose of this was to show manifestation of stability and solidity in the process of inquiry. Moreover, the researcher made sure that the research focus is nurtured and that the research problem was addressed and made sure that all the processes within the whole research process were consistent with the philosophical and methodological principle of phenomenology. The researcher intended to confirm that the findings were in line with the raw collected data, ensuring that if some other researchers were to look over the data, and they would come to similar findings, interpretations, and conclusions regarding the data. 3.7 Data collection Data collection is the collection of information to address a research problem (Brink et al., 2016). Burns and Grove (2017) define data collection as the process of picking participants and assembling data from the participants, it includes a selection of the sample, data gathering techniques and the transcriptions by means of notes taking and tape recordings. In qualitative studies, the researcher is supposed to give a comprehensive data collection process for others to "notice" how the research advanced to enhance the trustworthiness of the findings of the study. Participants and relevant authorities were informed about the study purpose. The researcher visited the selected PHC facilities and planned with the nursing service manager to identify the co-infected patients through checking on the register. Adult patients who met the inclusion criteria were recruited by the researcher with the assistance of the nursing service manager to be part of the study based on the researcher's judgement. An appointment was made by the researcher with the participants on when data was going to be collected. On the days of conducting the interviews at the primary health care facilities, thorough explanation of the study purpose was done, participants voluntarily signed consent form. The participants were made aware that the researcher will use voice recorder reason being that it captured more information during the interview and was faster than writing. Interviews were conducted at the selected primary health care facilities, inside the consultation room prepared specifically for the interviews. It was a quiet suitable environment that did not have any interruptions and it took approximately 30-45 minutes. There were sanitisers at the door where participants were told to sanitise before they sit down with the researcher and were encouraged to wear a mask before entering the consultation room where the interviews were taking place. The chairs where the participants were

sitting on were also sanitised after the interview of every participant. People were not allowed into the area where interviews were conducted to maintain the privacy of the participants. Unstructured interviews were utilised that allowed an in-depth interaction. Each participant was given enough time to describe how PTB and HIV/AIDS co-infection had an impact on their self-management on daily basis in detail without the researcher getting in the way when not necessary and the researcher listened more and talked less. During the interview, non-verbal signs such as facial expressions, gestures and tone of voice were observed. Probing questions were asked depending on participants' responses and from the central question established by the researcher (see ANNEXURE E). The participants were motivated to ask questions after the interview to be clarified by the researcher. Data saturation was reached when 8 participants were interviewed. The researcher gave thanks to the participants for their participation and took their contacts in case there would be a need for a follow-up. 3.8 Data management and analysis Data was kept safe in a locked cupboard to maintain privacy. No names of the participants were linked to data but codes. The researcher transcribed data verbatim then translated it from Setswana to English. Data analysis is the process of bringing order, structure and meaning to the mass of collected data which entails categorizing, ordering, manipulating, and summarizing the data, and describing them in a meaningful way (Brink et al., 2016). Tesch's eight steps coding criteria guided the researcher to analyse data. Step 1: Get a sense of the whole After data collection the researcher sat down and listens conscientiously to the voice recorder. Where the researcher missed some information or did not understand the information well, the tape recorder was played repeatedly so that the researcher understands it clearly without missing any information. Step 2: Picking one document at a time The researcher selected one short interview transcripts of interest from the pile and read it rigorously, analysing the meaning. The substance of the information was highlighted with thoughts noted in the margins. Step 3: Making a list of all topics After reading several interview documents, the list of all topics derived from the interview report was made by the researcher. Same topics were categorised together, formed in columns organised as major topics, unique topics and not allocated. Step 4: Taking the list of topics and going back to the data From the list of topics, the researcher went back to the data and assigns each topic and abbreviates code that is identifiable. Then from the abbreviated list of topics, data segments were noted alongside that code. Step 5: Turning topics into categories Topics obtained from the interview reports that were interconnected to each other were classified together. The researcher then categorises the qualitative information by looking at categories, themes, or dimensions of information. General themes and sub-themes were established. The drawing of columns between categories showed how they corresponded. 28 Step 6: Making a final decision The researcher made a final decision and themes were developed by gathering data material falling to each category. Step 7: Assembling the data Data material was gathered per each theme in one place, and a preliminary analysis was performed by the use cut and paste method. Step 8: Recoding data, if necessary The researcher conducted a code-recode procedure throughout the analysis phase on study data. After section of data was coded, the researcher had to wait for at least two weeks and then go back to recode the same data and assess the results. 3.9 Ethical considerations Ethics is a system of moral values that is concerned with the extent to which a researcher sticks to professional, legal and social commitment during the research process (Brink, 2016). The researcher applied the most required research ethics throughout the study and that is: permission to conduct the study, informed consent, anonymity, privacy and confidentiality, freedom of autonomy and participant's rights. 3.9.1 Permission to conduct a study The permission to conduct the study was requested from the University Higher Degree Committee (see ANNEXURE A), North-West province Department of Health Research Ethics committee (see ANNEXURE B), Bojanala District Department of Health (see ANNEXURE C) and lastly the participants. The researcher submitted the proposal to the Advanced Nursing Science Department and the School of Health Sciences research panel members for quality purposes. The researcher further submitted the proposal to the University Higher Degree Committee to obtain an ethical clearance certificate. Ethical clearance certificate to conduct the study was obtained from the University of Venda Research and Ethics Committee (see ANNEXURE A) and used as evidence that the researcher was a student requesting permission to conduct a study of patients co-infected with PTB and HIV/AIDS in selected primary health care facilities of Bojanala district. 3.9.2 Informed consent Grove and Burns (2015) explained that informed consent means that participants have enough information with regard to the study, comprehend the information, and are entitled to the make free choice, enabling them to give permission voluntarily to participate in the study or even to decline participation and that they have the right to quit before and during process of the interview and cannot be punished. The type of information that the researcher wants from the participants were given to them, why the information was being sought, and what purpose was to be put to, how they were supposed to participate in the study, how it was going to have an impact on them directly or indirectly and that served as an agreement (Kumar, 2014). The researcher explained the purpose of the study, procedure, possible benefits, assurance of confidentiality, risks description, alternatives to voluntary participation and participant's right to quit before they sign an informed consent to the participants as well as the procedures that was to be followed. Participants were also made aware that there won't be any payment or other rewards for participating in the study. Participants were given the power to choose what shall or shall not happen and these guaranteed participants the permission to withdraw at any time they feel that they were at risk. Participants who agreed to be part of the study were informed that the information collected will not be linked to their names (see ANNEXURE D). The participants were given the researchers 'contact numbers to be used her if they need any clarifications. 3.9.3 Deception According to Wagner (2017) deception is when the researcher provides the participants deliberately with deceiving, cheating or hold back information f regarding the aim and methods of study. The researcher remained truthful to the participants as there were no undisclosed risks and a detailed explanation was provided. Prior to data collection the researcher informed the participants about the study purpose. 3.9.4 Anonymity The researcher ensured that data collected from the participants was not linked to any participant's name, instead, code numbers or pseudonym names were used to achieve that, participants were assured that during report the data they gave can't be traced back to them even on presentations, and other forms of dissemination. No report was made on the long quote of participants responding to questions to avoid recognising participants by connecting quotes to the participants. 3.9.5 Privacy and Confidentiality According to Grove and Burns (2015) privacy is the freedom that the participants must decide the time, extent, and general conditions under which their private and emotional information

will be sheltered and will not be made available to the third person other than the research team using password protection. Interviews were conducted in a private room away from destruction. Participants were guaranteed privacy and confidentiality and given assurance that no information will be made accessible to anyone not directly involved in the study, the researcher did not identify a person's responses and promised not to disclose that person's identity in any report, paper, or public forum. Privacy and confidentiality were maintained participants were not forced to divulge information to the researcher that they did not want to reveal. Personal identifications of information such as names, birthdates and place of residence were not collected. The researcher always treated any information that was provided as confidential. The participants were enlightened that they should feel free to quit at any stage from the study and they should not provide announcement about their withdrawal or give any reason. The reports were examined attentively for proof that the participants' confidentiality was sustained, and the collected data was kept under lock and key where only the researcher and the supervisor can have an access easily, to protect participants from possible harm including psychological harm such as shame or distress. 3.9.6 Principle of beneficence This principle was ensured by doing well and above all no harm was done to the participants ? The right to freedom from harm and exploitation The participant's well-being was maintained and kept safe from discomfort and harm. Participants were informed that participation was voluntary and that they could quit at any time should they wish or feel to do so, without any form of punishment used against them, to ensure that they participated in the study without any fear. The participants who were becoming emotional during the interview were referred to the appropriate services. ? Withdrawal of participants from the study The participants were assured that they were free to withdraw their participation at any time without having to provide any explanation. They were also informed that withdrawal from participation will not prejudice how they receive services, to assure the participants that if they decided to withdraw, they cannot be mistreated, and service delivery won't be affected. The participants were also given an explanation that the researcher used a recording device for saving information and ensured the participants that the information was only going to be used only for the study so that they don't feel like their information can be exposed. 3.10 Delimitation of the study The researcher only included patients from the selected PHC facilities of Bojanala district who were infected with both PTB and HIV/AIDS. Patients who did not have PTB and HIV/AIDS were not part of the study that restricted the population group that does not have the characteristics set by the researcher. 3.11 Dissemination and implementation of results The research findings will be disseminated by means of presentations, workshops, and publications to a variety of audiences such as policy developers and professionals that deals with PTB and HIV/AIDS co-infection. Dissertation copies will be submitted to the UNIVEN library and various Government departments such Department of health. The dissertation will be published in the peer-reviewed journals so that the readers be made aware of the impact of PTB, and HIV/AIDS co-infection. 3.12 SUMMARY This chapter described in detail the qualitative, descriptive phenomenological research design that was utilised in this study. Unstructured in-depth interviews with an interview guide were used for data collection until reaching data saturation. Taking notes in the field and a voice recorder were also utilised during collection of data. Data were analysed according to Tesch 's open coding method as indicated by de Vos et al (2012). Moreover, the researcher expressed how ethical issues and measures to ensure trustworthiness were observed. Trustworthiness of the study was expounded through credibility, confirmability, transferability, and dependability. The following chapter is the discussion of the study findings. Chapter 4 outlines data analysis, interpretations, and discussion. CHAPTER FOUR DATA PRESENTATION, ANALYSIS AND DISCUSSION 4.1 Introduction The previous chapter dwell on the research design and methods that were used to conduct this study. This chapter concentrates on data presentation, description of the study findings and analysis. Data analysis was based on Tesch's eight steps of open coding of qualitative data (Creswell, 2014). Before commencement of the interviews, the researcher enlightened the participants that whatever they are going to talk about during the interview will be kept private. The content of the consent forms was enlightened to the participants in their home language to ensure that they understand very well. The researcher asked the participants permission of recording the interviews with the audiotape. In-depth individual interviews were conducted with adult patients between the age of 25-45 who are co-infected with PTB and HIV/AIDS at the primary health care facilities in Bojanala District of North-West province to find the Impact of pulmonary tuberculosis and HIV/AIDS co- infection in self-management among adult patients. The average time spent on a single in- depth individual interview was about 30-45 minutes, and Setswana was the medium of communication 4.2 Demographic data of participants The researcher had an interview with 8 adult patients at the primary health care facilities in Bojanala district of North-West province. Six of the participants were females whilst 2 were males. The participants were between the ages 30 years and 44. Table 4.1: Demographic data of the participants Participant Gender 1 Female Age in years 30 2 Female 40 3 Female 33 4 Male 45 5 Female 43 6 Female 38 7 Female 30 8 Male 44 4.2 Challenges faced by patients with PTB and HIV/AIDS co-infections Patients with PTB and HIV/AIDS co-infection experienced physical, social and employment challenges. The physical challenges faced by patients when they manage themselves involve poor personal hygiene, failure to prepare food, failure to do gardening. Social challenges in relation to community and family members are experienced as stigmatisation which is characterized by name-calling, discrimination, isolation, and withdrawal from people. The social challenges had a negative impact on the marriages which was characterised by lack of intimacy and ultimately divorce. Co-infection had a negative impact on the patient's employment where some of them were compelled to resign or lose jobs due to fatigue. Loss of jobs resulted in food insecurities and failure to honour follow-up visits. The challenges that patients with co-infection experience determines the standard of self-management. The standard at which self-management was executed, determines the outcome. 4.2 Challenges experienced by patients diagnosed with PTB and HIV/AIDS co-infection Major themes Themes Sub-themes 4.2.1 Physical challenges 4.2.1.1 Poor nutritional status 4.2.1.1.1 Failure to prepare food 4.2.1.1.2 Failure to do gardening 4.2.1.1.3 Poor personal hygiene 4.2.2. Psycho-social challenges 4..2.2.1 Stigmatisation 4.2.2.1.1 Name-calling 4.2.2.1.2 Discrimination and limited support 4.2.2.1.3 Isolation and withdrawal 4.2.2.2 Marital challenges 4.2.2.2.1 Conjugal rights 4. 2 2 2 2 Divorce 4.2.3. Employment challenges 4.2.3.1. Loss of jobs 4.2.3.1.1 Food insecurity 4.2.3.1.2. Failure to honour follow- up visits 4.2.1. Physical challenges PTB and HIV/AIDS impacts negatively on the patient's self-management. Bisson (2018) defines self-management as the ability to control behaviours, thoughts, and emotions consciously and productively.

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Poor self-management impacts negatively the patients' hygiene. The signs and symptoms of PTB and HIV/AIDS impact negatively on the patients' nutritional status. Poor nutritional status determined the patients' ability to prepare food, gardening, and personal hygiene. 4.2.1.1 Poor nutritional status The study findings revealed lack of energy and fatigue as major concern which resulted from co-infection and poor nutritional status which led to failure to prepare food and poor personal hygiene. Insufficient food intake and malabsorption led to weight loss, which further exacerbates the catabolic nature of HIV/AIDS and PTB co-infection resulting to poor nutritional status. Patients became weak to an extent that they could not walk to the bathroom, and they were supported in bathing as they were very weak. They were also assisted to apply the body lotion and dressing up which resulted into poor personal hygiene. Failure to do gardening negatively affected consumption of fruits and vegetables. When a patient is co-infected with HIV/AIDS and PTB, it causes a catabolic state and increased susceptibility to infection which are compounded by lack of caloric and other nutrient intake, leading to progressive worsening of malnutrition (Bond et al., 2019). Poor nutritional status resulted into, failure to prepare food, failure to do gardening and poor personal hygiene. 4.2.1.1.1. Failure to prepare food The findings of the study revealed that some of the patients diagnosed with PTB, and HIV/AIDS co-infection could not prepare or cook food because of fatigue. Some of them could not stand at all or they could stand for few minutes. They relied on the family members to cook when they were very weak. Participant 8 said: ''I cannot cook because I don't have the energy to do so, but my sisters always make sure that I have food to eat starting from breakfast. After preparing food they just come into my room and put food in, then I feed myself but at least I can feed myself without any problem'' Some of the patients who were co-infected with PTB and HIV/AIDS and could not feed themselves. They depend on their relatives who were sometimes not available. They were expected to eat at and take the prescribed medication routinely as a requirement for antiretroviral therapy. Participant 1 attested: "I cannot eat on my own, and I cannot prepare food for myself because I cannot stand for a long time. My mother or my sister prepares food for me so that they can feed me". Fatigue has been found to be a more common PTB and HIV/AIDS-related symptom that co- infected patients experience in life. The consequences adversely impact on the patients' day- to-day activities which might result in poor quality of life (Bond et al., 2019). Fatigue can make it hard for the co-infected patient to stand for a long time doing certain activities such as food preparation and some other house chores (Waluyo et al., 2020). 4.2.1.1.2 Failure to do gardening The findings of the study revealed that some of the patients were doing gardening as a way doing exercises. They became very weak because of poor nutritional status, and they failed to do the vegetable garden. The finding also revealed that gardening save money that could be used to buy the basics. Gardening kept their body fit since the co-infected patients are required to do some exercises. This clearly shows that PTB and HIV/AIDS co-infection affected the participants negatively as they could no longer access some of the fresh fruits and vegetables from the garden because they no longer had the energy to plough the garden. Participant 3 stated that: "We have a vegetable garden, but I'm the one who used to plough, but now I am very weak. You know teenagers don't like ploughing. My sister was never involved in gardening. Now we must buy fruits and vegetables. I used to produce spinach, carrots, potatoes, and beans." Participant 7 attested: "I was very emaciated, now I am becoming much better, I always had severe headaches, frequent diarrhoea, and fatigue." PTB and HIV/AIDS co-infection does not invade nerve cells directly but instead they put their function at risk by infecting cells called glia that support and give protection to the neurons. This activates inflammation that may damage the brain and spinal cord and result to confusion 38 and forgetfulness, headaches, movement problems including a lack of coordination and difficulty walking as symptoms (Cholewińska et al., 2020). Damage to the peripheral nerves can cause progressive weakness and loss of sensation in the arms and legs. Therefore, the co-infected patient cannot be able to perform most of the activities that require movement (Anku et al., 2018). Lack of energy had a negative impact on the co-infected patient's personal hygiene. 4.2.1.1.3 Poor personal hygiene The study findings revealed sometimes was patients become weak to an extend that they are unable to go to the bathroom without support. This clearly shows that PTB and HIV/AIDS co- infection had a negative impact on the participants' self-management. Not having people around to assist the patients meant that they were expected to use the bucket as a toilet. Participant 2 affirmed: "I could not do anything on my own, my mother and my sister used to bath me and do everything for me. When I was seriously ill I could not go to the toilet, I was using a bucket toilet. At least I could say that I wanted to go to the toilet and unfortunately the toilet was very far." According to Stole et al., (2019) Health belief model involves a client struggling to do anything on her own, participant 2 couldn't do anything on her own so her sister and her mother being the one to bath her, failing to adapt to new changes due to fatigue. This clearly shows that after being diagnosed with PTB and HIV/AIDS co-infection the participants could no longer maintain their physical hygiene as they used to do before. This made life difficult for the participants and their relatives who looked after themselves. Participants who had relatives to look after them were better off than those who had no one to help them. The participants without relatives or friends to help them ended up taking more time doing one thing and this affected their progress. Participant 4 stated: "I was always tired, so every time I had to go to work it was a challenge. I used to take more than 1 hour 30 minutes just to bathe, apply lotion and dress up because I had to take a break to rest then continue and after that I will be very tired. I sometimes do not bath because I do not have enough energy to do so and there is no one to help me at home because my sisters are saying they are afraid that they can be infected." Some of the participants explained that they could not wear makeup and do the hair. This has a great impact on some of the participants as some of them were gaining their confidence from their makeup and some from the beautiful hairstyles. This contributed to some of the participants having low self-esteem. Participant 6 explained: "I can no longer take care of myself like I used to do. I used to be a clean lady as you can see that I'm beautiful. These days I just bathe in the morning, but I no longer put my makeup on to look neat." People with PTB and HIV/AIDS co-infection need energy because they are constantly battling with co-infection. They experience fatigue as one of the clinical manifestations of both PTB and HIV/AIDS (Alikeyeva et al., 2018). They are more likely to develop fatigue because their viral load is high and high viral load is particularly associated with fatigue and they may feel worn out (Dhungana et al., 2019). PTB and HIV/AIDS can result to nerve damage throughout the body, which may result in serious pain or weakness, known as neuropathy (Ford et al., 2019). There are symptoms in the feet that patients might complain about which are the following: numbness, pain, pins and needles, tingling, hypersensitivity to touch, the hands and legs may also be involved in more severe cases, and

some patients may be completely unable to walk (Bond et al., 2019). 4.2.2 Psycho-social challenges The psycho-social challenges are described under stigmatisation and marital challenges. Stigmatisation is further described under name-calling, discrimination and limited support and isolation and withdrawal from friends, family and the community members. The findings of the study revealed that patients with PTB and HIV/AIDS are stigmatised by the family members and the community members. Stigmatization is the action of describing or regarding someone or something as worthy of disgrace or great disapproval. 4.2.2.1 Stigmatisation According to Willington (2018) stigma is a process that starts when trait of an individual or group is recognised as being undesirable or disvalued. The findings of the study revealed that stigmatization occurred through name-calling. discrimination and limited support, which led the patient diagnosed with PTB and HIV/AIDS to isolate and withdrawal from other people. They felt unwanted which resulted in low self-esteem. Stigma against PTB and HIV/AIDS results in severe morbidities. It can be easily transmissible from one person to the other, since the general population discern that these diseases are usually found among people who are different and have an abnormal behaviour (Ayana et al., 2019). According to Perlick (2020) Health belief model involves a client (isolated participant) striving to have self-efficacy that will contribute to participant 5 performing good health behaviours resulting from stigmatisation. Some of the patients were discriminated by their partners. They were not allowed to prepare food or come closer to the children. Some of the participant's partners moved out of their main bedroom with an excuse that they may be infected. Stigma, depression, negative feelings, and loss of hope caused by PTB, and HIV/AIDS co- infection may reduce an individual's motivation to take treatment (WHO, 2019). Some co- infected women also experience stigma when preparing food. Family members rejected food that they cook. Their eating utensils were separated from the ones used by the rest of the family (WHO, 2020). The utensils were separated because they believed that sharing utensils with the co-infected patients, they can also become infected, so with that kind of attitude patients may start to feel hopeless and neglect themselves (WHO, 2020). The community is more likely to hold the infected individuals to be responsible for their own illness when they regard the contraction of the disease to be more controllable. The co-infected patients are more likely to be blamed and rejected from society (Waluyo, Nurachmah and Rosakawati, 2020). The participants also reported that some of the people made funny comments related to their gross loss of weight and body changes caused by the signs of PTB and HIV/AIDS co-infection. Stigmatisation had a great impact on self-management to an extent that some of the participants did not go to the clinic to collect the medications hence default. Stigma resulting from PTB, and HIV/AIDS take place in several contexts such as in society, family, place of work, and healthcare system, PTB and HIV/AIDS co-infection influence the patients to get isolated from their friends and family members (Ayaba et al., 2019). 4.2.2.1.1 Name-calling The participants also explained that the called names that were related to their diagnosis of PTB and HIV/AIDS co-infection. They were given names at work by the friends and colleagues based on their appearance. One of the participants explained that her colleagues were calling her a ghost, and this affected her psychologically. Participant 6 said: ''I requested for sick leave before I became critically ill because already at work some of my colleagues were calling me a ghost. Some said 41 my skin is dry, and it's like I've applied the maize meal on the face. After those statements whenever I see myself in the mirror, I just felt like they are telling the truth, my self-confidence is gone.'' Participant 4 attested: ''There is a group of women who like sitting in the streets gossiping about people, whenever I pass where they are, they laugh so loud and start a topic about the skeletons. One of them came to my home trying to make herself look better than the others, she told me that the day I passed the group people in the street talking about the skeletons, they were referring to me.'' Some of the participants explained that some of the community members knew that their fiancé were diagnosed of PTB and HIV/AIDS co-infection, but they never told them because they wanted them to be infected and learn the hard way. Participant said "Community members are always talking about me, even when they are passing by my home when I'm sitting under the tree, I notice that I am the topic. There is one woman who stays 3 streets away from my home who once came and said she kept quiet when I was trying to ruin her marriage by dating her husband, so I got what I wanted since I am a house wrecker and a wild animal" Participant 3 The findings of the study conducted in Zambia highlighted that patient diagnosed with PTB experience verbal stigma, insults, and social exclusion (Jayakody et al., 2019). PTB and HIV/AIDS infection is not socially acceptable in most countries and patients co-infected with PTB, and HIV/AIDS are labelled as adultery (Kachhi et al., 2018). Co-infected patients in some countries are stigmatised and pushed out of the community. The person's personality is deeply degraded through stigmatisation, from a whole to an ordinary and finally to a stigmatized human being. They lose social status and experience name-calling according to his/her appearance and some are even called by their conditions (Jayakody et al., 2019). 4.2.2.1.2 Discrimination and limited support Ferrer et al., (2018) defines discrimination as an act of unfair treatment towards a person or group of people in a different way from other people or groups of people. The findings of the study revealed that co-infected participants experienced discrimination from the people that they know in the community, and some were their best friends, neighbours, and family members. Instead of giving them support in all possible ways, they were discriminating against them. The findings of the study revealed that family members and relatives did not visit the patients due to fear of cross- infection. Participant 5 noted that: "My sisters told me that they don't want to be infected with PTB because they have children to raise. Their children are no longer allowed to come closer to me. What they only help me with is food and laundry." Participant 8 had to say: ''My husband moved out of the room with an excuse that I will infect him, and he will infect the children and he wouldn't allow me help in preparing the children to school he would make it seem like he is just concerned about my health. One of my friends once came and started making funny comments about my weight so we ended up fighting, since then she has never set foot in this yard. My son heard some people in our community saying I'm dead and when they see me coming to the clinic in my wheelchair some even laugh at me, some even say I must thank God for raising me from the dead." The participants avoided to attend the social gatherings. They felt disappointed because they their friends, neighbours, and family members did not support them. Participant 7 indicated that: ''I have noticed that wherever I go people do not want to sit next to me especially at the clinic because I'm always coughing. People at the clinic will be looking at me in a bad way whenever I cough, others don't even hide it they move and go and sit somewhere far from me. When people see me coming to the clinic they fill all the gaps where they are sitting so that I don't sit next to them. I try to act strong, but it hurts. Participant 5 responded: ''I'm now feeling much better so

I sometimes feel like helping my mother in cooking, she would refuse and say people who have PTB, and HIV/AIDS are not supposed to prepare food for others, so I only help in sweeping the yard. When there is a family gathering people no longer sit next to me. I'm now okay because I'm no longer coughing and I'm on my last month of taking the PTB treatment. I remember the other day when I volunteered to chop the vegetable at my cousin's birthday. She quickly came and take everything that I was using away and told me to sit down, I got into the house and cried bitterly." A participant mentioned how HIV/AIDS and PTB co-infection had robbed her of the opportunity to live with her children. They were staying with their grandma due to the fear that their mother would infect them with PTB and HIV/AIDS viruses. The findings revealed that separation reduce attachment between the mother and children. t hence slow healing process. Participant 4 alluded: "My mother is staying with my kids and because someone told her that PTB is infectious, she does not allow them to visit me. Every weekend they would come and spend time here. "I miss preparing them to go to school, help them with the homework and sing bed songs to the last born who is 5 years old." Perceived discrimination against patients with PTB and HIV/AIDS impact negatively on self- management. It is associated with poor mental health results, low self-esteem, low self- efficacy, and reduced compliance to antiretroviral treatments (Ferrer et al., 2018). Evidence has shown over the decades that individuals co-infected with or being suspected of having PTB and HIV/AIDS were refused employment, denied entry to foreign countries, avoided by neighbours and co-workers, and experienced social disturbances with family members and friends (Orisma, 2021). Discrimination impact extensively on the sufferers, the influence is felt at home, workplace, and at the institutions. 4.2.1.1.3 Isolation and withdrawal The findings revealed that isolation and withdrawal are very common in people diagnosed with PTB and HIV/AIDS co-infection because they find it hard to deal with all the negative comments that they receive from friends, family members and community members. They do not talk bad about us in our presence. It is dangerous when the patient starts withdrawing from people because no one knows what will be going through his/her mind at that time. Some of the patients may commit suicide. Participant 6 elucidated: I do not normally go out to the street unless I am going to the clinic to collect my medications because I do not want to hear what people say about me. I have made peace with the fact that people do not want me near them. I lock myself in the room because I am not even allowed to spend time with my own children. The other day I nearly killed myself but then I thought of my children that if I kill myself, they might suffer. I decided to stay indoors and focus on my health not hearing negative statements that people always say when they see me. Imagine being told that you look like a skeleton." Participant 3 affirmed: "I remember guys used to fight for me because I was very beautiful now, I no longer even look at myself in the mirror because I feel like I am very ugly. I used to change my hair styles every week but now my hair is very fluffy, and the hairdresser told me that I must look for someone else to do my hair hence I decided that I will lock myself in the room. Sometimes I even pretend like I cannot wake up so that my sister can go and collect the treatment for me. The other day I met my ex-boyfriend and he said I did well by dumping him now the guys have finished all my curves, I am no longer his type." Some of the patients with PTB and HIV/AIDS co-infection develops a feeling of hopelessness and end up withdrawing from other people in the community including their family members as a sign of denial, anger, and fear of death (Orisma, 2021). 4.2.3 Marital challenges The findings revealed that PTB and HIV/AIDS co-infection impact negatively on the patient's marriage life. It affects intimacy between the partners which might ultimately lead to divorce. The partners who are not co-infected with PTB and HIV/AIDS did not accept that the sex life needs should have some changes because the co-infected partners are too weak to satisfy their sexual them. 4.2.3.1 Conjugal rights The findings of the study revealed that PTB and HIV/AIDS co-infection caused fatigue which made it difficult for them to sexually satisfy their partners, hence family disintegration. as women would always complain about their sexual needs not being met. Sexual intercourse between couples brings attachment. Abstinence from sexual intercourse as a married couple leads to a lack of attachment. The findings of the study revealed that family disintegration occurred as partners who live with HIV/AIDS and PTB developed survival strategies to the demise of their marriages. For instance, some devised well-calculated coping strategies to help them hide their long developed and co-infection induced incapability that made them fail to satisfy their partners in their sexual love life. Participant 1 had to say: "I couldn't do sex like I used to, I get tired easily, I have trouble in breathing as if I was running and end up not completing the round. The moment I realized that I could no longer satisfy my wife, I avoided making love." Patients with HIV/AIDS and PTB co-infection are particularly prone to problems with sexual desire and arousal. It is more common in co-infected males than women but occurs in both mainly because most of the co-infected patients experience fatigue and chest pains (Osaro, 2018). Sexual intercourse requires energy which most of the co-infected patients do not have. According to Jha et al., (2019) patients complain of physical and emotional stress. Fatigue becomes an issue and can lead to exhaustion and a cocktail of medications can also results. to low energy so co-infected patients end up not having the energy for sex. Shortness of breath in some co-infected patients and then there's low libido, low self-esteem and/or body image, issues with arousal and orgasm, retrograde ejaculation, erectile dysfunction, and premature ejaculation which negatively impact sex life of the co-infected patients which might lead to tension and breakup (Jha et al., 2019). 4.2.3.2. Divorce Some of the impact that HIV/AIDS and PTB co-infected patients are faced with are linked to the increased prevalence of marriage divorces. This result is mainly from the fact that HIV/AIDS and PTB heavily affect patients' physical, social and mental well-being. This in turn interferes with their love and family affairs. Participants revealed that being co-infected with HIV/AIDS and PTB interfered heavily with their marriage affairs to the detriment of their love life as the co-infected patients became less able to satisfy their partners in bed. This is supported by what one participant 7 had to say: "Yes, she would say she can't continue to stay with someone who can't meet her needs, and that it was better for her to return home because she had once advised me not to go to the prophet as there is no one who can cure HIV and I didn't listen." The participants also reported that after revealing their status to their partners they just went silent on them and never came back again to give them emotional support. From the participants' responses, it seems as if having PTB and HIV/AIDS co-infection is a curse, and people distance themselves. When the partners are informed of the co-infection, the relationship may become negatively affected. "The man that I was dating left me after I had told him that I was diagnosed with both HIV/AIDS and PTB. He has never called me since then. Even when I try to call him, he does not pick up the phone. We have been dating for more than 4 years. I guess he is afraid of being infected." The findings of the

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study conducted in Zimbabwe by Nkporbu (2017) revealed that Individuals diagnosed with PTB, and HIV/AIDS experience the challenges such as isolation, rejection, divorced, diminished marriage prospects and also have an impact on family cohesion. Families end up disintegrating upon realizing that either a partner is living with PTB and HIV/AIDS co-infection. Separation is more likely among couples affected by PTB and HIV/AIDS and that women co-infected with PTB and HIV/AIDS may experience a particularly high risk of abandonment (Othieno, 2018). Population-based surveys on PTB and HIV/AIDS co-infection in Malawi found that separation was more likely among patients with PTB and HIV/AIDS (Gebretsadik et al., 2020). Inevitably, some of the people who are co-infected with PTB and HIV/AIDS get married, being parents, and involved in disintegrating relationships with their spouses, ultimately get divorced (Othieno, 2018). The financial state of the patients co-infected with PTB and HIV/AIDS is negatively impacted because they face employment challenges. 4.2.4 Employment challenges The participants highlighted that pulmonary tuberculosis and HIV/AIDS co-infection financially had a negative impact on their daily lives. Some of the participants revealed that after having been diagnosed with pulmonary tuberculosis and HIV/AIDS co-infection they could no longer go to work as they were no longer physically fit to perform their job description mainly because of fatigue and stigma. 4.2.4.1 Loss of Job Employment challenges were the results of loss of jobs. Jobs were lost when the participants who were diagnosed with PTB and HIV/AIDS were told to go home and rest or expelled from work as they were seen to be very weird and waisted. Loss of jobs were characterised by food insecurity, and they failed to honour the follow-up visits. 4.2.4.1 Food insecurity When the co-infected patients stopped from going to work, it was the beginning of poverty in their families as some of them were breadwinners. The participants further revealed that they could no longer afford the basic food, even fruits and vegetables that were encouraged to eat at the hospitals. One of the participants stated that: "No, I don't have any specific diet, I just eat everything available at that moment plus I cannot afford to have a specific diet since I can no longer provide for myself and my aunt is not working, I don't have parents so it's just the two of us." Participant 6 Another participant also said that: "No, I don't have a diet. I'm just eating what is available at that time, but I make sure that I sometimes eat vegetables. I have the list of healthy food from the dietician, but I can't follow it because I can't afford some of the things" Participant 3 From what the participant mentioned one can clearly note that having pulmonary tuberculosis and HIV/AIDS co-infection contribute to many people losing their jobs while trying to concentrate on their health, but this also contributes to poverty as they did not have sources of income and could not access basic commodities that are needed for daily living. Participant 7 stated that: "No, I can't afford everything since I lost my job because I couldn't stand for long hours at work and we were expected to stand the whole day. I was working at Shoprite in Rustenburg so they just said I must go and rest at home and on the other side my mother is a pensioner, my sister is still at varsity it is tough." Study on PTB and HIV/AIDS co-infection in Ghana highlighted that PTB and HIV/AIDS is a major cause of poverty aggravation as the co-infected patients are often faced with the double burden of reduced income and increased expenses because most of took a long sick leave without pay due to sickness (Loveday, 2020). They are often too sick to work and don't have the required energy to work so their families had to cover all expenses in the house (McShane, 2019). The co-infected patients and their families become exposed to poverty because the breadwinner is no longer able to afford to buy food for them and himself/herself too can't afford the required nutritious food for the co-infected patients (Linsk and Land, 2019). PTB and HIV/AIDS result to loss of wait caused by inability to afford nutritious food. (McShane, 2019). The participants further explained that after having been diagnosed with pulmonary tuberculosis and HIV/AIDS co-infection they could no longer afford to pay the gardeners who used to help them to plough their backyard gardens. This even made their lives worse as they could neither work in the garden themselves due to sickness nor pay their gardeners. Life became so tough for them because they could no longer access some of the fruits and vegetables they used to get from their gardens. 4.4. 3. Loss of jobs Some participants developed low self-esteem because they were expelled from work and no longer had money to buy their beauty products. PTB and HIV/AIDS had a negative impact on how the participants preferred to look like since they could no longer afford to buy toiletries. Participants mentioned that they could no longer afford to buy their expensive cologne, makeup and bathing products which made them look beautiful and smell nice. "I feel like I'm no longer attractive since I can't afford the expensive cologne that I used to order online because I'm now unemployed, wherever I go people used to ask the name of the cologne that I was using since it was so strong and nice. These days I only bathe, but I can feel that something is lacking." Participant 3 confirmed: ''I feel like I'm now ugly because I used to apply makeup every day when I go to work, as you can see that I have small pimples. At that time, I was still beautiful and not sick. I didn't have anything on my face. The products that I used for my face to always be smooth I can't afford them anymore plus the makeup also makes the skin smooth and glow. I've even developed the dark spots all over my body and I'm emaciated." PTB and HIV/AIDS co-infected patients experience some changes in their body such as the fragile hair, dry skin texture and structure of the nails, which is a sign of inadequate protein intake, high viral load and low CD4 cell count (Ojo et al., 2020). Dental caries, gingivitis and periodontitis are common in patients with PTB and HIV/AIDS co-infection, during PTB and HIV/AIDS co-infection the common actions of the innate and adaptive immune responses result in a concentrated effort to eliminate the pathogenic threats (Ojo et al., 2020). There can be a negative energy balance as a result of PTB and HIV/AIDS, and the consequent usage of stored fat and eventually protein from muscle tissue, this often results in severe malnutrition and the condition known as cachexia which is an established feature of PTB and HIV/AIDS co-infection so when the co-infected patient can't afford basic things such as food and toiletries with negative body changes they tend to neglect themselves and feel like they are no longer approachable (Kintu, 2021). 4.2.4.1.3 Failure to honor follow up visits Patients diagnosed with PTB, and HIV/AIDS are given treatment for 2 weeks while still on the first 2 months then given an appointment date for the subsequent follow-up visits. Many participants highlighted that they were so weak in such a way that they could not do follow-up visits on their own. They were accompanied or sent someone to go and collect on their behalf while others couldn't afford to catch a taxi or hire a car to go and collect treatment. Participant 2 affirmed: ''I was always weak so I could not go to the facility to collect treatment because I could not walk on my own, my mother was collecting them for me. Sometimes if she is not around, she would send my sister to go and collect them but at least now I can go to collect on my own just that I must rest along the way and the clinic is a bit far." Participant 5 supported: I was bedridden so there was no

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way that I can go to the facility to collect treatment, at home there are cars but still they were not helping because I could not even lift my head. My daughter was the one collecting treatment and she would complain sometimes that people will start to think that she has got an infection as well because treatment for PTB they were issued for only 2 weeks then she would have to go back there after." According to the study conducted in Uganda, the co-infected patients experience the signs and symptoms such as nausea, appetite loss, fatigue, and severe weight loss (Krapić et al., 2021). When the patient is co-infected should take good care of his/her health when it comes to things like eating nutritious food, complying with treatment, attending all the check-ups, and exercising so usually when there is fatigue patient is no longer able to carry out such tasks (Kintu, 2021). The co-infected patients are mostly too sick to walk and go collect the treatment and attend all the follow-up visits from the facilities where they collect treatment (Krapić et al., 2021). 4.5 Summary In this chapter, the researcher presented Physical, Social and Economic Challenges as major themes, themes and sub-themes which stood out from the data collected from 8 HIV/AIDS and PTB co-infected patients. The co-infected patients experienced various challenge namely, Diminished energy level and poor nutritional status, Community and family related challenges, Marriage related challenges and Employment challenges and financial constraints. On the impact related to self-management, the following sub-themes have been identified: Poor personal hygiene, failure to prepare food, failure to do gardening, follow-up visits, discrimination and limited support, isolation and social withdrawal, lack of intimacy, divorce, food insecurity, release from work, and failure to honour follow-up visits. CHAPTER FIVE SUMMARY, LIMITATIONS, AND RECOMMENDATIONS 5.1 Introduction This chapter describes the summary, limitations, conclusion and recommendations, based on the study findings. The findings of the study revealed that having both PTB and HIV/AIDS impact on patient's self-management. Some of the patients deal with the situation through the support from their loved ones. The findings reveal of the patients find it very difficult to cope with PTB and HIV/AIDS co-infection. The population comprised of adult patients who have both PTB and HIV/AIDS co-infections at Bojanala district primary health care facilities of North- West Province, SA. The findings revealed that most adult patients diagnosed of PTB, and HIV/AIDS do not receive enough support from their families and people from their community and they also experience stigma. 5.2 Objectives of the study The objectives of the study were to explore and describe the impact of PTB and HIV/AIDS co- infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa. The researcher explored and described the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa. Adult patients described how PTB, and HIV/AIDS impact on their self- management, inadequate provision of support. The researcher observed that the objectives of the study were met. 5.3 Summary of the study This study was conducted in Bojanala district of North-West province, South Africa. The study broadly identified the impact of PTB and HIV/AIDS co-infection on self-management among adult patients who are on dual treatment for PTB and HIV/AIDS. The method of data collection was through unstructured in-depth individual face to face interviews. The primary data sources were adult patients from 25-45 years of age. Participants were picked from the population using a non-probability purposive sampling technique. The researcher established and enlightened the study purpose concerning the objectives in detail. Data saturation for this study was reached after interviewing 8 participants, nonetheless, the researcher did not just assume 52 that saturation has been reached instead the researcher continued interviewing four more participants to confirm saturation. The study used a qualitative research approach to explore the impact of PTB and HIV/AIDS co-infection on self-management among adult patients and reflected on descriptive phenomenological designs. The option of the study was consistent with the presented objectives. Permission to conduct the study was acquired from the University of Venda ethics committee, North-West province Department of Health Research Ethics committee and the clinical managers of the selected primary health care facilities. Informed consent was acquired from the participants giving the researcher an authorisation to interview them and the participants voluntarily signed the assent forms before they were interviewed. All participants interviewed were residing at Bojanala district from the four rural villages: Ledig, Mogwase, Chaneng and Phatsima. During the initial stage, participants were gathered at the primary health care facilities where they collect treatments on the dates of their appointments as it was the easy way to find them. The researcher informed the participants about the purpose of the study. The researcher then utilised their appointment dates for data collection while giving them their treatment assisting the nurses so that there won't be a queue, after the interview a list of participants who were interviewed was made with their contact detail in case if the researcher needs to make follow-ups for more information. Tesch's eight steps of systematic open coding were used to maintain the formalisation of proven, significant patterns (Creswell, 2014). The transcribing of data was verbatim, and transcripts were coded by the researcher. Trustworthiness was ensured through ensuring credibility which includes prolonged engagement and member checking, confirmability, transferability, and dependability of the study. The study findings were categorised into three major themes, four themes and twelve sub- themes on the impact of PTB and HIV/AIDS co-infection related to self-management and self- care. Co-infected adult patients experience stigmatisation, lack of resources and failure of marriages/social disintegration. On impact related to self-management and self-care, the following themes have been identified, physical challenges, social challenges and Employment challenges. Sub-themes such as name labelling and calling, and discrimination were identified under stigmatisation. Family disintegration, lack of intimacy and divorces have been identified as some of the impact related to social disintegration experienced by HIV/AIDS and PTB co- infected patients 5.4 Demographic data Participants were adult males and females between the age of 25-45 years who are on dual treatment for both PTB and HIV/AIDS. Of all the 8 participants, the majority (75.0%; n = 6) were females whilst the remaining 25% (n = 2) were males. All participants interviewed were from Bojanala a district, of North-West province in South Africa. Participants were collecting treatment for both PTB and HIV/AIDS in Chaneng, Bakubung, Mogwase and Phatsima primary health care facilities. 5.5 Discussion of the findings The impact of PTB and HIV/AIDs co-infection resulted into several challenges namely: Physical, Social and Financial challenges. 5.5.1. Physical challenges The findings of the study revealed that having PTB and HIV/AIDS co-infection has impacted the participant's physically/hygiene-wise. Participants who used to bathe themselves used to make sure that their hair is neatly done and those who used to put on makeup after being diagnosed with PTB and HIV/AIDS could no longer self-manage themselves. This clearly

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shows that after being diagnosed with PTB and HIV/AIDS co-infection the participants could no longer self-manage themselves like they used to do before. This made life difficult for the participants and their relatives who looked after them. Participants who had relatives to look after them were better off than those who had no one to help them. ? Poor personal hygiene Most of the participants after being diagnosed with PTB and HIV/AIDS co-infection they could no longer bathe themselves because of fatigue. Some were too sick to even wake up from the bed so their family members used to bathe them. Study also revealed that participants were no longer able to do makeup and hair due to PTB and HIV/AIDS co-infection which contributed to them having low self-esteem because they were gaining their confidence from their makeup and some from the beautiful hairstyles they will be having. Some participants were not able to go to the bathroom alone without being assisted. Not having people around to help it means one will end up messing himself/herself. ? Failure to prepare food Some co-infected adults could not cook food for themselves and wait for someone in the family to cook. If family members were not available they would sleep on an empty stomach. They did not have enough energy to stand for a long time and prepare food for themselves. This clearly shows that PTB and HIV/AIDS co-infection negatively impacted the participants' self- management. Not having people around to help it means one will end up sleeping with an empty stomach. Some participants even revealed that they would go to work without eating breakfast if there is no one to assist since they would spend much time on preparing slowly due to fatigue. ? Failure to do exercises The findings also revealed that they were no longer able to plough the garden as they used to before they were diagnosed with PTB and HIV/AIDS. They were no longer able to plough and plant their favourite veggies because of sickness. This clearly shows that PTB and HIV/AIDS co-infection affected the participants negatively as they could no longer access some of the fresh fruits and vegetables from the garden. Some adult patients were even malnourished because they were not able to eat a good diet that is inclusive of vegetables and fruits. This meant that in order to eat vegetables and fruits they had to buy and some could not afford. ? Follow up visits Co-infected patients are expected to attend all the follow up visits for the collection of treatment and to be assessed if there is an improvement in their condition. Some participants highlighted that for PTB they were given treatment for only 2 weeks after that they had to go back to the primary health care facility to collect another treatment so it was very difficult for them because they couldn't walk properly, they had to stop along the way because of chest pains and fatigue. For HIV/AIDS it was much better because the treatment could last for up to a month. The study indicated that there were those who couldn't walk at all so they used to send their relatives to go and collect treatment on their behalf. 5.5.2. Social changes Many co-infected adult patients are stigmatised by their families, friends and their communities. Stigma makes one feel unwanted, unloved and this contributes to one having low self-esteem. Findings revealed that some co-infected adult patients were not even going outside because of the fear of stigmatisation. It is more painful when one is being stigmatised by own family members. Usually when one gets sick, one relies on family members for care and support so being stigmatised by them is more painful. The findings also revealed that sometimes husbands don't allow their co-infected wives to prepare food or to prepare kids for school and they even move out of their main bedroom with an excuse that they would get infected and the children. Some of the people even make funny comments on how the co-infected would have lost weight and how they had changed due PTB and HIV/AIDS co-infection. ? Discrimination and name-calling The findings revealed that co-infected adult patients were being name-called and discriminated against due to their condition of having pulmonary tuberculosis and HIV/AIDS co-infection. Parents and other family members once they find out that one has PTB and HIV/AIDS stop going to visit them. It was also revealed that some were called ghosts by their colleagues, and it affected them a lot. People in the community always talk bad about the co- infected adult patients whenever they see them. Instead of giving them emotional support, they will be discriminating and labelling them. The findings further revealed that the discrimination and name-calling that people make towards the adult patients having pulmonary tuberculosis and HIV/AIDS co-infection made some of the participants default or miss their appointment date because they knew that when people in the community sees them they are going to make funny comments about their appearance and how they have lost so much weight. ? Isolation and withdrawal from people The stigma that participants received from their family members and community members wherever they go made some participants to stop going to places where there will be other people. Some co-infected participants even stop going to their family gatherings because they knew they were going to be stigmatised, other family members would even show that they don't want to sit next to them and also not allow their children to go near them. The study highlighted that some participants experienced discrimination and name-calling, they were given names such as skeleton, ghost etc. which made them stay indoors and not go outside meaning they'd also miss their follow up visits. Some participants mentioned that they sometimes had suicidal thoughts and that showed how negatively PTB and HIV/AIDS co- infection had an impact on their self-management. 5.5.3. Marriage related challenges ? Lack of intimacy Sex is crucial in a relationship or marriage so once one partner is no longer able to satisfy the other it put their marriage at stake. Some male participants explained that they were also tired which made women to complain. Another participant revealed that the family disintegration occurred as partners who live with HIV/AIDS and PTB developed survival strategies to the demise of their marriages. For instance, some devised well-calculated coping strategies to help them hide their long developed and co-infection induced incapability that made them fail to satisfy their partners in their sexual love life. There was no longer attachment between partners which made some to divorce, some didn't divorce but there was no happiness in the family. ? Relationship break-ups and divorce HIV/AIDS and PTB co-infected adult patients are linked to an increased prevalence of divorces. This result is mainly from the fact that HIV/AIDS and PTB heavily affect patients' physical, social and mental well-being. This in turn interferes with their love and family affairs as they became less able to satisfy their partners in bed. The findings also reported that co- infected adult patients after revealing their status to their partners just went silent on them and never came back again to give them emotional support. It seems as if having pulmonary tuberculosis and HIV/AIDS co-infection is a curse and no one will want to associate with you. 5.5.1.4 Financial challenges The findings revealed that PTB and HIV/AIDS co-infection financially affected the co-infected adult patients as they could no longer afford things they used to afford before they were diagnosed with the co-infection. Some after having been diagnosed with PTB and HIV/AIDS co-infection they could no longer go to work. Some were told to stop coming from work because they no longer had energy to perform their duties well. Loss of job was the beginning of poverty in their

families. Study revealed that some participants could no longer afford food and toiletries. ? Food insecurity Some participants after losing their jobs they could no longer afford the basic food, even fruits and vegetables that were encouraged to eat at the hospitals. Since some were breadwinners, it means hunger in the family as they had no other source of income. The study findings highlighted that most of the adult co-infected patients were not able to access the proper diet that is prescribed for the people living with PTB and HIV/AIDS co-infection due to lack of finance. Participants who depended on their gardens for fruits and vegetables since they no longer afford to pay the gardeners and no longer able to plough due to sickness don't have any plan. ? Job losses PTB and HIV/AIDS had a negative impact on how the participants preferred to look like since they could no longer afford to buy toiletries, some even mentioned that they can't afford a normal soap to bath with. Toiletries are one of the basic things that a person shouldn't lack but they need money in order to buy them. There are participants who were used to certain things expensive cologne and beauty products but because they lost their jobs due to sickness, they could no longer afford which made them feel like they are now ugly and unattractive. 5.6 Recommendations 5.6.1 Recommendations related to further research • The impact of PTB and HIV/AIDS could further be researched to establish the nature and intensity it could have on self-management within the same context of co-infected patients. • This study only focused on the impact of PTB and HIV/AIDS co-infection experienced by co-infected adult patients however, further research can be conducted on moral stress related to PTB and HIV/AIDS co-infection experienced by parents, children and other family members staying with the co-infected patients. • The study on the impact of PTB and HIV/AIDS co-infection could also be conducted in other districts of North-West Province to explore the intensity of self-management and the kind of needs that it would have within other co-infected adults patients elsewhere. 5.6.2 Recommendation related to physical challenges • Government should employ more home-based care workers who will assist those co- infected patients who can't do anything on their own and have no one to assist them. • The researcher recommends that respective stakeholders such as businesspeople, traditional leaders, churches, NGO's and political leaders assist those who are unable to go to the toilets because they are far by building toilets that are not that far from the house. • • The nurses can encourage the co-infected patients to try by all means to maintain their looks and not neglect themselves due to sickness because others feel like being co-infected means that one is going to die. Government, businesspeople, traditional leaders, churches, NGO's and political leaders Should also assist by providing some funds to the co-infected patients so that they can be able to pay their gardeners and still have access to fresh fruits and vegetables. 5.6.3. Recommendation related to health service in the rural PHC cervices • The government should provide counsellors who will be responsible for counselling the co-infected patients every time they go for their follow-up visits to ensure that they have accepted the conditions and are coping. • The nurses at the primary health care facilities should call family members to educate them about PTB and HIV/AIDS so that they become aware that once the patient is on treatment, he/she can't infect them by just sitting with them but rather by droplets. • • Nurses can also start a campaign and include the community to teach them about PTB and HIV/AIDS so that they gain knowledge and give support to the co-infected patients More nurses can be employed so that when people who have PTB and HIV/AIDS co- infections goes to the primary health care facilities for the collection of treatment they don't wait for so long in the queue being stigmatized by other patients but rather just go to their section and collect their parcels that are already sorted. 5.6.4. Recommendations related to social challenges • Nurses should provide health education to partners whose spouses are co-infected that PTB and HIV/AIDS co-infection might result to changes in sexual behaviour and partners should be patient and support each other. • Nurses should encourage partners to avoid discrimination against one another 5.6.5. Recommendations related to employment challenges • The researcher recommends that the respective stakeholders such as businesspeople, traditional leaders, churches NGO's and political leaders identify different projects that will intervene and assist patients who are co-infected with PTB and HIV/AIDS with food and toiletries as they are faced with so many challenges after being co-infected with PTB and HIV/AIDS and it needs collaborative support. 5.7 Delimitation of the study The researcher only included patients from the selected PHC facilities of Bojanala district who are infected with both PTB and HIV/AIDS. Patients who do not have PTB and HIV/AIDS were not part of the study and that restricted the population group that does not have the characteristics set by the researcher. 5.8 Dissemination and implementation of results The research findings will be communicated using presentations, workshops, and publications to a variety of audiences such as policy developers and professionals that deal with PTB and HIV/AIDS co-infection. Dissertation copies will be submitted to the UNIVEN library and various Government departments such Department of health. The dissertation will be published in the peer reviewed journals so that communities will be made aware of experiences faced by adult patients who have both PTB and HIV/AIDS. 5.9. Conclusion of the study The purpose of the study was to explore the impact of PTB and HIV/AIDS co-infection on self- management among adult patients at the selected primary health care facilities in Bojanala district of North-West Province, South Africa. The objectives of the study were to explore and describe the impact of PTB and HIV/AIDS co-infection on self-management among adult patients at the selected primary health care facilities in Bojanala district of North-West province, South Africa. The study findings revealed PTB, and HIV/AIDS have lots of impact on the self-management of the co-infected patients, after being diagnosed with pulmonary tuberculosis and HIV/AIDS co-infection the patients could no longer self-manage themselves as they used to do before. This made life difficult for them and their relatives who had to look after them. Having PTB and HIV/AIDS co-infection also reduces performance at work. Instead of working one will be concentrating on the pain and some of the medications make one be dizzy and tired and they end up not able to perform their duties hence they had to stop working and start having financial problems. Most of the co-infected patients become so weak that they can even walk, go to the bathroom on their own, feed themselves, bathe and dress so it becomes a burden to the family members. Some were being stigmatised by their families, friends and their communities which made them feel unwanted, unloved and this contributed to one having low self-esteem and some even start isolating themselves. They experienced name-calling and labelling. However, the study strongly recommends that education programs for co-infected patients need to also include other members of the community so that they can offer appropriate support and also put an end to stigmatisation. 1 3 4 5 6 7 8 9 10 13 14 16 17 18 19 20 21 22 23 24 25 26 27 29 30 31 32 33 34 35 36 37 39 40 42 43 44 45 46 47 48 49 50 51 53 54 55 56 57 58 59 60 61 62

**ANNEXURE G:** Editing certificates

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**Date 11 March 2022**

**This is to certify that I have edited Masters Dissertation for the following candidate**

**Name:** Nematahe Munei Nillivence

**Student no:** 15004614

**Title:** Impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province

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**Date 20 October 2022**

**This is to certify that I have edited Masters Dissertation for the following candidate**

**Name:** Nematahe Munei Nillivence

**Student no:** 15004614

**Title:** Impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province

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**FM editors**

**ANNEXURE H:** Coding report

# CODING REPORT

**Study Title**: Impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province

**INDEPENDENT CODER:** PROF AH Mavhandu- Mudzusi

**DATA ANALYSIS METHOD**: 8 Steps of Tesch's inductive, descriptive open coding criterion Creswell (2014) was used following the steps below:

***Step 1* – Reading through the data**

The researcher got a sense of the whole by reading all the verbatim transcripts carefully. This gave ideas about the data segments and how they look like/mean. The meaning emerged during reading were written down and all ideas as they come to mind. The researcher carefully and repeatedly read the transcripts of all the participants and understood them. An uninterrupted period to digest and thought about the data in totality was created. The researcher engaged in data analysis and wrote notes and impressions as they come to mind.

***Step 2* – Reduction of the collected data**

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

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

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

Table 1: Impact of HIV/AIDS and PTB co-infection on patient well being

| | | |
|---|---|---|
| Physical challenges | Poor Nutritional status | Poor personal hygiene |
| | | Failure to prepare food |
| | Diminished energy level | Failure to do exercises |
| Social challenges | Family and community-related challenges | |
| | | |
| | | Stigma |
| | | Limited support |
| | | Discrimination |
| | Marriage-related challenges | Lack of intimacy |
| | | Divorce |
| Economic challenges | Employment | Expelled from work |
| | | Cut pay |
| | | Lack of job opportunities |
| | Financial constraints | Lack of transport money<br>Failure to honor follow-up visits<br>Food insecurity |

## CONCLUSION

Data saturation was reached because the themes have saturated given the transcripts provided. The are themes saturated and subthemes saturated based on the data provided.

**ANNEXURE I:** Coding certificate

## Qualitative data analysis

MASTERS DISSERTATION

**OF**

MN Nematahe

Student number: 15004614

**THIS IS TO CERTIFY THAT**

Professor AH Mavhandu-Mudzusi has co-coded the following qualitative data

**Unstructured one-to-one interviews**

for the study

**Impact *of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province***

I declare that the candidate and I have reached a consensus on the themes reflected by the data. I further declare that adequate data saturation was achieved, as evidenced by repeating themes.

Prof AH Mavhandu-Mudzusi

Signature : AHMudzusi 26 June 2022

**ANNEXURE J:** Interview transcripts

Participant no 1

KEY: Researcher: R

Participants: P

Gender: Female

Age: 30

R:  Dumelang

P:  Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: Le English e siame

R: Thanks, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Yes

R: Currently I have registered for a master‘s degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic “Impact *of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province”* This is a tape recorder to audio tape the interview so that I don’t leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

R: Do you have any question before we start?

P: No, we can start

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient?

P: Eish I don't even know where to start, you mean now that I have both PTB and HIV/AIDS

R: Yes, did they affect your self-management?

P: Mmmmh the way you are seeing me now you can think that I'm very sick since I can't walk properly on my own without the use of the wheelchair but I'm very much better now. I was very sick you can even ask my sister who is sitting outside, it was difficult to even wake up from the bed, they had to help me at home, Yoh it was tough

R: Tell me more about the way you your self-management was affected were you able to bath?

P: I couldn't do anything on my own, my mother and my sister who is outside use to bath me and do everything for me. When I started being sick, I couldn't even go to the toilet, they had to bring me a bucket to help myself, at least I could talk that I want to go to the toilet and unfortunately the toilet was very far.

R: so, does it mean you couldn't even dress yourself?

P: Yes, I couldn't they use to dress me as well but as I was becoming better, they would just prepare water for men then I would bath my self being seated after that I would dress up. It was not easy at all after that I would be very tired.

R: So, does it mean they were also feeding you?

P: Yes, my sister use to feed me because I couldn't do it myself and you will find that I had no appetite so she would force me to eat, every morning she would prepare soft porridge to make it easy for me to eat, if she is not around my mom was the one feeding me.

R: Okay, so now can eat on your own?

P: Yes, now I can eat on my own it's just that I cannot prepare food for myself my mother or my sister they prepare food for me so that I can eat

R: Okay, do you have a certain diet now that you co-infected?

P: No, I don't have a diet I just eat everything that is available, but I do try to eat fruits and vegetables when they are available at home because at the clinic I was told that I must eat

lots of fruits and vegetables. The other thing that makes me eat fruits is that after taking my medications I feel like I want to vomit so if I eat some fruit afterwards, I become okay.

R: mmmh okay I understand, are you able to afford everything that you are expected to eat now that you are co-infected?

P: No, I can't afford everything since I lost my job because couldn't stand for long hours at work and we were expected to stand the whole day. I was working at Shoprite in Rustenburg so they just said I must go and rest at home and on the other side my mother is a pensioner, my sister is still at varsity it's tough my sister.

R: so, you never had a garden where you can plough some vegetables?

P: We do have it but I'm the one who use to plough so due to sickness I had to stop because I was weak, you know teenagers don't like ploughing so my sister was never involved in that, now we must buy everything. I used to plant spinach, carrots, potatoes and Monawa.

R: uhm so you said you eat fruits after taking medications because of side effects? Tell me more about all the side effect you experience after taking the medications

P: The treatment for HIV/AIDS when I was diagnosed with HIV/AIDS only it used to make me feel so dizzy and I couldn't sleep at night after taking it, so that's when I decided to stop taking it for a long time so now I no longer feel anything after taking it because they have changed it's not the one I use to drink in 2015. Coming to the one for PTB it's the one that makes me feel like I want to vomit after taking it so whenever I feel like that, I eat fruits.

R: I understand you said you experience some side effects after taking the treatment so tell me more about the side effects of the co-infections. In both HIV/AIDS and PTB we have weight loss, appetite loss, nausea, fever and chills. Please give me the signs and symptoms you have experienced since u have HIV/AIDS and PTB

P: The time I had HIV only I didn't have any symptoms because I found out early that I am HIV positive before I could have any signs and symptoms, but I just stopped taking treatment because I started taking herbs that I got from the sangoma. Early this year I started having excessive weight loss, so as time goes, I started being very sick in such a way that I couldn't even wake up from the bed, I was so weak, I couldn't eat, I had no appetite and I was coughing so bad.

R: Okay I heard what you said please tell me if you have experienced stigma because you are co-infected. How is your relationship with your family members after being infected with both HIV/AIDS and PTB and the community as well?

P: Ummm my family members are supportive, my mother always asks if I've taken the treatment because the way I was so sick they were thinking I won't make it and my sister is always there for me making sure that I'm okay. In the community people are always gossiping about me saying I look like a skeleton and they don't want me close to them as I will infect them with my PTB. At the clinic when I come to collect the treatment, I always find people looking at me others I can even see that they are talking about me but I don't care anymore.

R: I heard you only talk about you mom and your sister does it mean you don't have children?

P: I only have one child who is 10 years old, his father took him when we separated so I hardly see him.

R: I understand, After everything you said do you think the treatment is effective?

P: Yes, they are effective too much because if it's not for them maybe I would have been dead by now who knows? but since I have been re-initiated on HIV/AIDS treatment and started the PTB treatment I have improved a lot, like I said I couldn't do anything now I'm okay. I couldn't even hold that pen you holding there but because of the treatment here I am collecting treatment on my own.

R: Tell me more about the treatment you are taking, what is the dosage for both treatments?

P: For HIV/AIDS I'm taking Atroiza which is in a blue container and I only take it at night at 8 o'clock, so every time when the generations start, I know I have to take my medication. For TB I'm now taking two tablets in the morning I use to take 4 so at least they have reduced.

R: I'm glad you are taking your treatment well, thanks for your time. Is there anything you would like to ask me before you go?

P: No.

R: Thanks for your time.

Participant no 2

KEY: Researcher: R

Participants: P

Gender: Female

Age: 40

R:  Dumelang

P:  Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: Anything is fine sisi

R: Thank you, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Okay

R: Currently I have registered for a master‘s degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic “Impact *of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province”* This is a tape recorder to audio tape the interview so that I don’t leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

P: Okay sister

R: Do you have any question before we start?

P: No, I understood

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient?

P: I was always tired, so every time when I had to go to work it was a challenge because I had to bath, prepare my breakfast and clean the house so I couldn't do my routine anymore. I used to take more than 1 hour 30 minutes just to bath, apply lotion and to dress up because I had to take a break to rest then continue so I would go to work without eating my breakfast sometimes if my husband is not around to help me by preparing the breakfast. I was also struggling to do my house chores such as washing the dishes, doing laundry and preparing food for my husband and children

R: Tell me how was that affecting your relationship with the family was there any stigma?

P: I think so because my husband moved out of the room with an excuse that I will infect him, and he will infect the children and he wouldn't allow me help in preparing the children to school he would make it seem like he is just concerned about my health. I was feeling lonely and I would end up locking myself in the room.

R: Tell me more on how was your relationship with the children affected?

P: Like I said I could no longer prepare them to go to school, help them with the homework and sing bed songs to the last born who is 5 years so I would miss them while they are in the house. The older one knows about PTB so he would say he doesn't want to get infected because at school they said it can kill and I could see that he was stressed that I have it.

R: how many children do you have? Is your relationship with your husband and kids okay now?

P: I have two children the older one is 11 years old and the last born 5 years. The relationship is becoming better with time.

R: Okay, tell me more about the stigma in the community and at work if u have experienced any?

P: I have friends who are also my neighbours, the time I had HIV only they would come in my house and spend the whole day here so ever since they heard that I've got PTB they no longer come and they also told their children not to come anymore because I will infect them

with my PTB. So, when I'm walking around if I come across a group of people I can see when I pass that they are talking about me. At work before I submitted the sick note they used to say they are now working with a ghost

R: What made them to say that?

P: Because I lost so much weight and I didn't have the energy anymore

R: How does that made you feel?

P: I would cry in my house and feel like I can just die once or just stay indoors and not go anywhere but now I'm okay I've accepted that people will talk but as long as I'm taking my medications well I will bounce back and they won't believe.

R: Yes, that's the spirit. Tell me about your diet, do u have a specific diet now that you are co-infected?

P: yes, I eat lots of fruits and vegetables and make sure that I drink a lot of water. Before I had PTB I use to consume too much alcohol and when I'm drunk, I would forget taking the treatment, so I have stopped consuming alcohol.

R: Meaning you were not taking your treatment well?

P: Yes, I must admit that I was not taking it well, sometimes I could not take my medications with no reason.

R: Let's talk about finance relating to diet, are you able to afford everything that you are expected to eat now that you are co-infected?

P: Yes, I can afford everything because I work in Bakubung mine, so they are still paying me even when I'm on sick leave and my husband is also employed, he also makes sure that I have everything that I need to eat so food to me is not an issue.

R: so, you never had a garden where you can plough some vegetables?

P: No, we don't have a garden because my husband and I don't have time to plough. We have hired a small boy who always comes to cut the flowers and trees for us, so we normally buy everything that we need.

R: I understand, please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB. In both HIV/AIDS and PTB we have weight loss, appetite loss, nausea, fever and chills

P: The time I had HIV only I lost weight and gain again when I started taking the treatment but this time around when I had both HIV/AIDS and PTB I lost weight so severely, I had severe productive cough that I couldn't even spend 5 minutes without coughing, I had nausea after eating everything and after taking medications. I also had fever, sweating at night and fatigue when trying to do some activities and sometimes when I'm not even doing anything.

R: I heard u said you used to feel nauseated after taking medications, please tell me more about all the side effect you experience after taking the medications.

P: vomiting, but it was not everyday. Sometimes I would only experience nausea sometimes I would also vomit thereafter.

R: so, does it mean when you only had HIV/AIDS you didn't experience any side effects after taking your medications?

P: No, I didn't experience any.

R: After everything you said do you think the treatment is effective?

P: Yes, they are very effective because I'm even gaining weight, I'm no longer having fatigue and I can also clean the house.

R: Tell me more about the treatment you are taking, what is the dosage for both treatments?

P: For HIV/AIDS I'm now taking the new one, the one which they say if I'm ready to have a baby I must inform them so that they can change and I'm only taking 1 tablet at night at 21HOO. For TB I'm taking two tablets in the morning, they are written rifampicin.

R: Okay thanks a lot for your time. Is there anything you would like to ask me before you go?

P: No.

R: Thank you so much have a nice day.

Participant no 3

KEY: Researcher: R

Participants: P

Gender: Female

Age: 33

R:  Dumelang

P:  Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: English is fine I can hear that you are not Tswana

R: Thank you, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Mmmh okay

R: Currently I have registered for a master‘s degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic “Impact *of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province”* This is a tape recorder to audio tape the interview so that I don’t leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

P: Okay

R: Do you want to ask a question before we start?

P: No

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient

P: I can no longer do things that I use to do, I Can no longer provide for my family like I used to do and I am a breadwinner. If I walk a long distance I easily become tired and where I was working, I had to walk for a long distance. I used to always have manicure and I would change hairstyles every week but now I can't afford.

R: Tell me more on how maintaining your personal hygiene was affected?

P: I use to bath 2 times a day but now I only bath once in the morning or sometimes don't bath at all because I don't go anywhere and I know that bathing always makes me tired. I can no longer do laundry for myself because I can't finish without having chest pains so my aunt she is the one doing it for me and she is old, so it breaks my heart. On the other hand, I can no longer prepare the food for the family because I'm no longer allowed to do so because I have HIV/AIDS and PTB.

R: Tell me more about the stigma you experiencing in the family and in the community?

P: My aunt when she is in a bad mood she always reminds me of how she used to warn me about dating many guys at the same time but she forgets that I was the one providing for the family, they don't even know where I was getting all that money from and the KFC I used to buy every week. I sometimes feel like helping her in cooking so she would refuse and say people who have my conditions are not supposed to prepare food for others, the utensils and plates that I use they are washed and stored separately so that nobody in the family uses them. I only help in sweeping the yard. People in the community they always talk about me I heard they are saying I deserve it because I have been sleeping around and whenever I go to the clinic to collect my treatment others will just start a topic about HIV/AIDS and PTB so that I can hear then.

R: Tell me about your diet, do u have a specific diet now that you are co-infected?

P: No, I don't have, I just eat everything that is available at that moment plus I cannot afford to have a specific diet since I can no longer provide for myself and my aunt is not working, I don't have parents so it's just the two of us.

R: so, you never had a garden where you can plough some vegetables?

P: There is a garden, but I had a guy from Mozambique who use to help in planting vegetables then I will pay him so now I can't afford to pay him and I can't plough because of chest pains whenever I try to do some activities I start having chest pains.

R: I understand, please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB.

P: I've already told you about chest pains is my major problem, I was very malnourished now I am becoming much better, I always had severe headache, frequent diarrhoea and fatigue.

R: Does that mean you never had the above mentioned signs and symptoms the time you only had HIV?

P: No, I never had any signs and symptoms because I just decided to test after getting the ARV's inside my boyfriend's car.

R: Okay since we all know that medications for both PTB and HIV/AIDS have side effects such as dizziness, nausea, vomiting etc. do you experience any after taking the medications?

P: The first month when I started taking medications for both PTB and HIV/AIDS I couldn't sleep at night, I could even watch a movie for the whole night and not fall asleep. Sometimes I used to feel like there was something moving on my skin and when I check there would be nothing but now, I'm no longer experiencing anything. Sometimes after taking my PTB treatment, I feel dizzy.

R: so, does it mean when you only had HIV/AIDS you didn't experience any side effects after taking your medications?

P: No, I never had any problems when I was still taking ARV only just that I was not complying because I was a busy person and was embarrassed to carry them around.

P: Yes, they are working very well because the chest pains are no longer that strong, my aunt even said I'm gaining weight, frequent diarrhea is gone so yah I can say they are working.

R: Tell me more about the treatment you are taking, what is the dosage of both treatments?

P: Two tablets for PTB in the morning and 1 for HVI/AIDS at 7pm.

R: Okay thanks for your time. Is there anything you would like to ask me before you go?

P: No, I'm okay

Participant no 4

KEY: Researcher: R

Participants: P

Gender: Male

Age: 45

R: Dumelang

P: Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: English e siame

R: Thanks, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Yes

R: Currently I have registered for a master's degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic "Impact *of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province"* This is a tape recorder to audio tape the interview so that I don't leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

P: Okay

R: Do you want to ask a question before we start?

P: No let's start

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient

P: It didn't have an impact on my self-management that much because I could still do everything that I used to do, I could still maintain my hygiene without any problems, I could still go to work and work but I will get tired faster than I used to be plus I don't do a lot of things in the house because my wife does everything so I had enough time to rest while watching the television.

R: I heard u you said at work you easily become tired. Please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB.

P: I lost weight so much, I used to wear size 4XL now I'm wearing size 38. The time I was diagnosed with HIV I had lost weight but I was still wearing 2XL then I gained my weight back because I was on treatment for a long time so my friend took me to this other prophet in Gauteng whom they believe he can cure HIV, so we went there, he prayed for me and said I was free from HIV. I then stopped taking treatment for a period of 3 years then I started coughing so bad, sweating a lot at night so when I started having fatigue at work and when doing my bedroom activities as a man that's when I realised that something is wrong them my wife forced me to go the clinic and they found that I'm HIV/AIDS positive and PTB positive.

R: How was your bedroom activities affected and how was the wife taking it?

P: I couldn't do it like I normally do, I would get tired easily, my chest will start burning like I was running and end up not completing the round. The moment I realised that I can no longer satisfy my wife I started avoiding making love, so when we go to the bedroom I would act like I'm sleeping.

R: So was there a stigma from your wife

P: Yes, she would say she can't continue to stay with someone who can't meet her needs, is better for her to go home because she told me not to go to the prophet since no one can cure HIV and I didn't listen.

R: Tell me more about the stigma you experiencing from other family members and in the community?

P: I feel like people don't want to be closer to me because ever since my relatives were told that I have PTB they no longer come to my house, they don't know about my HIV/AIDS status. Last weekend there was supposed to be a society and we know nobody would miss it if its coming to my house, but nobody came. One of my relatives who came to my wife 2 days after the society told her that people told one another not to come because I have PTB. People in the community who knows that I have HIV/AIDS and PTB they no longer buy from our spaza shop.

R: Do you have children? If yes is there a stigma from them?

P: Yes, we have two children who are twins but both are in wits university, we don't stay with them so they always call to find out if I'm becoming better.

R: Okay I understand. Tell me about your diet, do u have a specific diet now that you are co-infected?

P: Yes, I eat a diet which is low on sugar and salt, eat lots of fruits and vegetables. I used to drink too much coffee so I have stopped, I no longer consume alcohol and I've also stopped smoking cigarette.

R: Are you able to afford everything that you need on your diet?

P: Yes, I don't have financial problems I always buy the healthy food that I need on daily basis.

R: so, you never had a garden where you can plough some vegetables?

P: I do have a small garden at the back of the house, but I have stopped ploughing because I couldn't do anymore due to fatigue so I will continue when I become totally fit and have regained all my strength back.

R: I get you, please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB.

P: Fatigue every time when doing some activities, sweating at night, excessive weight loss and persistent productive cough.

R: Does that mean you never had the above mentioned signs and symptoms the time you only had HIV?

P: when I had HIV only yes I lost weight but this time around its too much, I had fever and persistent diarrhoea. So other symptoms I only experienced them now that I'm co-infected.

R: Okay since we all know that medications for both PTB and HIV/AIDS have side effects such as nausea, dizziness, vomiting etc. do you experience any after taking the medications?

P: ever since I've been re-initiated on ARVs after taking them I would have a severe headache but it's becoming much better now I think my body is getting used to the treatment. Treatment for PTB it gives me tingling sensation of the feet and fingers, I reported they have started giving me pyridoxine so I'm okay now.

R: so, does it mean when you only had HIV/AIDS you didn't experience any side effects after taking your medications?

P: No, I never experience any side effects when I was taking ARVs only before defaulting.

R: After everything you said do you think the treatment is effective?

P: Yes, they are working very well because I'm okay now.

R: Tell me more about the treatment you are taking, what is the dosage of both treatments?

P: I'm taking tribuss for HIV/AIDS, I only drink one tab at 8 pm and for PTB I'm taking rifampicin 2 tablets and pyridoxine 1 tab in the morning.

R: Okay thanks for your time. Is there anything you would like to ask me before you go?

P: No, I'm okay

R: Thank you once more.

Participant no 5

KEY: Researcher: R

Participants: P

Gender: Female

Age: 43

R:  Dumelang

P:  Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: English so that you don't struggle (laughs)

R: Thank you, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Okay

R: Currently I have registered for a master's degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic "Impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province" This is a tape recorder to audio tape the interview so that I don't leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion

of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

P: Okay

R: Do you want to ask a question before we start?

P: No

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient

P: I can no longer take care of myself like I used to do. I used to be a clean lady as you can see that I'm beautiful. These days I just bath in the morning but I no longer put my makeup on to look neat. Before I was re-initiated to ART and started the PTB I used to struggle to bath because my body was always painful and tired that was the time I found out that I also had PTB, it was a struggle to even wear my clothes. My daughter was the one helping me to put my clothes on. She would make sure that I eat breakfast because I couldn't stand for a long time and not become dizzy, at least now I can bath and dress myself because this is my fourth month on both HIV/AIDS and PTB treatment and I have been taking them very well as instructed.

R: Tell about the stigma you experiencing in the family and in the community?

P: My daughter was starting to change, I think she was becoming tired of helping me to bath everyday then on the other hand making sure that I always have food to eat. The other day she told me that her relationship with the boyfriend is suffering because she can't leave me alone in the house so she will end up single like me, it broke my heart so much that I cried and felt like my daughter is possessed with the evil spirit but all in all she really did her best to look after me .The man that I was dating left me after telling him that I was diagnosed with both HIV/AIDS and PTB. He has never called me since then, when I try calling him, he no longer picks up the phone and mind you we have been dating for more than 4 years now so I guess he no longer want to be with me

R: Eish I understand your pain. Tell me about your diet, do u have a specific diet now that you are co-infected?

P: No, I don't have a diet but I just make sure that I eat healthy.

R: can you please elaborate on what do u mean by eating healthy.

P: I now eat vegetables so I make sure that even when I am eating meat because I love meat there must be some vegetable on the side. I even bought some fruits to snack with during the day.

R: so, you never had a garden where you can plough some vegetables?

P: No I don't have a garden, my house is so big so there is no space for a garden plus I don't have time for gardening so I think it's not important on my side, I always buy what I want.

R: I understand, please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB.

P: I lost weight so much in such a way that people wherever I go were asking what's wrong? I always had severe headache especially at night, persistent diarrhea, fatigue, productive cough and hemoptysis.

R: Does that mean you never had the above mentioned signs and symptoms the time you only had HIV?

P: I only had diarrhea in all the signs above before I was diagnosed with HIV/AIDS in 2016 so I took the treatment well for about 7 months then I became so busy with my business and couldn't take it anymore, so I stopped. Now when I was diagnosed with both HIV/AIDS and PTB the diarrhea was persistent.

R: Okay since we all know that medications for both PTB and HIV/AIDS have side effects such as dizziness, nausea, vomiting etc. do you experience any after taking the medications?

P: After taking the treatment for HIV/AIDS only I just feel nauseous but at first I used to also vomit sometimes. After taking my PTB treatment, I feel so dizzy in such I way that if I don't sit down, I can even fall, now after taking the treatment I know that I must sleep in order to become okay.

R: so, does it mean when you only had HIV/AIDS you didn't experience any side effects after taking your medications?

P: I used to have nausea even when I was still taking the ARV only, it also contributed to my defaulting but this time around I told myself to be patient with the treatment because I heard someone at the clinic saying she used to feel the same way but now she is okay.

R: After everything you said do you think the treatment is effective?

P: Yes, they are very effective because I've regained my strength, im no longer coughing at all and the hemoptysis is gone.

R: Tell me more about the treatment you are taking, what is the dosage of both treatments?

P: I'm taking rifampicin for PTB in the morning two tablets and 1 for HVI/AIDS at 9pm it's written tribuss.

R: Okay thanks for your time. Is there anything you would like to ask me before you go?

P: Not at all.

R: Thank you once more.

Participant no 6

KEY: Researcher: R

Participants: P

Gender: Female

Age: 38

R:  Dumelang

P:  Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: You can choose dear

R: Thanks, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Okay

R: Currently I have registered for a master‘s degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic “Impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province” This is a tape recorder to audio tape the interview so that I don’t leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

P: Okay

R: Do you want to ask a question before we start?

P: No

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient

P: I can't say it has affected my self-management because I can still do the things that I used to do, for example I never struggled to maintain my personal hygiene. No one has ever helped me to bath and dress up at home up to date. They only help by making sure that I have food for breakfast, lunch and supper.

R: Who is that person helping you with preparations for breakfast, lunch and supper?

P: My aunt who is staying with me now that I'm sick

R: Tell about the stigma you experiencing in the family and in the community now that you have co-infections?

P: People who use to visit my place they no longer visiting, this includes my friends and my other relatives but they never said anything they just stopped coming after finding out that I have both PTB and HIV/AIDS. One of my friends once came and started making funny comments about my weight so we ended up fighting, since then she has never set her foot in this yard. My mother is staying with my kids so someone told her that PTB is infectious so she no longer allows them to come and visit me like they used to. Every weekend they would come and spend time here.

R: I understand, so how about the stigma from the community members?

P: I don't normally go out unless if I'm going to the clinic to collect my medications, so I hardly hear what people are saying about me but what I have realised is that they don't want to sit next to me at the clinic que because I'm always coughing and sometimes it comes out with blood (hemoptysis).

R: I heard u talked about your friend making funny comments about your weight and that you are coughing blood, please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB

P: Mmmh, weight loss but I think it's not that bad compared to others that I'm seeing at the clinic, productive cough, hemoptysis, severe persistent headache and chest pains.

R: Does that mean you never had the above-mentioned signs and symptoms the time you only had HIV?

P: No, I never had any signs because I found out about my HIV status when I was pregnant with my last born.

R: So have you been taking the treatment for HIV/AIDS well?

P: To be honest with you I was not taking the treatment well, I only took them well when I was pregnant then after giving birth, I only took them when I was breastfeeding then stopped.

R: What made you to stop taking them?

P: They used to make me feel sick after taking them.

R: Okay since we all know that medications for both PTB and HIV/AIDS have side effects such as dizziness, nausea, vomiting etc. do you experience any now that you are taking the medications for the co-infections?

P: I only feel dizzy after taking the treatment for PTB only, with the HIV/AIDS treatment in doing just fine.

R: Tell me about your diet, do u have a specific diet now that you are co-infected?

P: No, I don't have a diet I'm just eating what is available at that time but I make sure that I sometimes eat vegetables. I have the list of healthy food from the dietician but I can't follow it because I can't afford some of the things

R: So, you don't have a garden where you can plough some vegetables?

P: Yes, I do but now I have stopped because I'm not well.

R: Tell me about the treatment you are taking, what is the dosage of both treatments?

P: For PTB I'm taking 4 tablets and pyridoxine 1 tablet. For HIV/AIDS I'm taking atroiza 1 tablet at 7pm.

R: After everything we've talked about do you think the treatment is effective?

P: Yes, they are very effective because I'm becoming much better, I'm no longer coughing up blood like I used to do.

R: Okay thanks for your time. Is there anything you would like to ask me before you go?

P: No sister

R: Thank you once more.

Participant no 7

KEY: Researcher: R

Participants: P

Gender: Female

Age: 30

R:  Dumelang

P:  Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: English will be fine since you are not Tswana.

R: Thank you, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Okay

R: Currently I have registered for a master‘s degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic “Impact of

pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province" This is a tape recorder to audio tape the interview so that I don't leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

P: Okay

R: Do you want to ask a question before we start?

P: No

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient

P: what do you mean by self-management?

R: The you take care of yourself starting from maintaining personal hygiene and preparation of food

P: I become very tired when bathing so I spend a lot of time bathing and dressing myself because I must pause then continue when feeling better so I sometimes don't bath because I don't have enough energy to do so and there is no one to help me at home because my sisters are saying they are afraid that they can also become sick.

R: so, since they can't help you to bath do they help you by making sure that you eat?

P: Yes, they always make sure that I have food to eat starting from breakfast. After preparing food they just come in my room and put food then I feed myself but at least I can feed myself without any problem.

R: Tell me about the stigma you experiencing in the family and in the community?

P: My sisters told me straight that they don't want to be infected with PTB because they have children to raise so even their children are no longer allowed to come closer to me because I am sick. What they only help me with is food and clothes because whenever they do laundry, they also include mine so I guess they are trying. The utensils, plates and cups that I use when eating are washed separately from other dishes in the house because they believe they may become infected.  I feel like it's better to be alone, I always lock myself in

the room or sit under the tree alone. People in the community they are always talking about me, even when they are passing by my home when I'm sitting under the tree you can easily tell that I am the topic. There is one woman who stays 3 streets away from my home who once came and said she kept quiet when I was trying to ruin her family by dating her husband so I got what I wanted.

R: Tell me more about what she meant when she said u got what you wanted.

P: I also don't understand but I heard they have been HIV/AIDS positive for so many years.

R: Okay tell me about your diet, do u have a specific diet now that you are co-infected?

P: Yes, I eat lots of fruits, vegetables and drink a lot of water. I make sure that after eating breakfast, lunch and supper I must also eat some fruit afterwards.

R: Are you able to afford everything that you need for your diet?

P: Yes, I'm employed at Sun City the vacation club, they are still paying me even when I'm on sick leave

R: So, you never had a garden where you can plough some vegetables?

P: No, I don't have a garden, I'm always busy because I even work on weekends so I don't have time for domestic farming. My sisters are lazy and there's no other person to do it.

R: I understand, please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB.

P: Severe weight loss, fatigue, dizziness, night sweats, swollen lymph nodes and persistent diarrhea

R: Does that mean you never had the above-mentioned signs and symptoms the time you only had HIV?

P: No, the time I only had HIV I used to have severe headache only so when I went to consult at the facility, they decided to test me because they were testing everyone who is coming to the clinic, that's when I found out that I'm HIV positive.

R: Where you taking the HIV treatment well?

P: Yes, for the first 2 years but after that I don't know what happened just felt like I'm okay then stopped taking the treatment.

R: Okay since we all know that medications for both PTB and HIV/AIDS have side effects such as dizziness, nausea, vomiting etc. do you experience any after taking the medications?

P: No, they are treating me well I can't complain.

R: After everything you said do you think the treatment is effective and why?

P: Yes, they are very effective because everyday I feel like there some changes, I'm becoming much better than I was.

R: Tell me more about the treatment you are taking, what is the dosage of both treatments?

P: I'm taking rifampicin for PTB in the morning two tablets, pyridoxine 1 tablet and 1 tablet HIV/AIDS at 22h00 but the containers are always changing so I don't know the name.

R: Okay thanks for your time. Is there anything you would like to ask me before you go?

P: Uhhhhm nope

R: Thank you once more

Participant no 8

KEY: Researcher: R

Participants: P

Gender: Male

Age: 44

R: Dumelang

P: Agee

R: lekae?

P: Re teng lekae?

R: Ke teng. Would prefer us to use Setswana or English?

P: Anything young girl

R: Thanks, I am Nematahe Munei. I work in Moses Kotane Hospital

P: Oh okay

R: Currently I have registered for a master‘s degree with the University of Venda and as one of the requirements; I have to conduct research. I have chosen the topic “Impact of pulmonary tuberculosis and HIV/AIDS co-infection in self-management among adult patients at the primary health care facilities in Bojanala district of North-West province” This is a tape recorder to audio tape the interview so that I don’t leave out anything. During transcribing your name will not be included and the information related to the interview will only be accessible to me and the promoters. Recorded information will be erased on the completion of transcribing the tapes. I will request you to sign the consent form, but you can still withdraw anytime you feel like without any penalty.

P: Okay

R: Do you want to ask a question before we start?

P: No

R: Kindly share with me how PTB and HIV/AIDS co-infection has an impact on your self-management as an adult patient

P: As you can see that I can’t walk on my own without the use of the wheelchair and that my son brought me to the clinic. At home my wife is the one who is helping me to bath and dress me up after bathing, she then prepares breakfast and feed me. I’m much better now, she was the one collecting medications for me because I couldn’t even wake up from the bed. Did I answer your question well?

R: Yes, but I heard you said you couldn’t even wake up where they also taking you to the toilet?

P: Yes, my wife and my elder son used to carry me to the bathroom fortunately it is inside our bedroom.

R: Okay, tell about the stigma you experiencing in the family and in the community?

P: I used to consume alcohol too much and my friends used to come here almost everyday to come and take me so that we can go to the tavern. When I was very sick they only came maybe for a week, so rumours started spreading about my conditions that's when they decided not to come anymore, all of them are gone. I no longer have any visitor including my relatives. The neighbours are always talking about me, my last-born son heard them talking about me saying that the way I'm so sick they might hear the bad news anytime.

R: What did they mean by hearing bad news?

P: That I'm dead, when they see me coming to the clinic on my wheelchair with my wife some even laugh at me, some even say I must thank God for raising me from the dead.

R: okay I understand, does it mean you don't experience any stigma in the family?

P: No, my wife and children are supportive, but I can see that my wife don't really what the children to come closer to me. I heard her the other day talking to her sister over the phone that she used to tell me that one day I will get what I wanted and it's like God spoke to her when she decided that we must start using protection when we have sex. We use to eat together in the same plate but since it came to her knowledge that I have PTB and HIV/AIDS she no longer eats with me.

R: Tell me more about your wife telling you to start using protection, what really happened?

P: I used to cheat on her with lots of women from work and those that I used to hang with from the tavern so at first whenever she finds out she would shout at me, one day she told me that she is tired of shouting we must start using protection or she is going home so as time goes I started having severe headache now and then, persistent diarrhoea and loosing weight, I went to the clinic I tested HIV positive. The nurse told me to bring my wife so that she can test as well so we went there and she tested HIV negative so since then she no longer have sex with me at all.

R: So, where you taking the treatment well?

P: No, I would take my treatment sometimes up until I decided not to take it at all when I felt like I was okay and has gained some weight.

R: Tell me about your diet, do u have a specific diet now that you are co-infected?

P: No, I don't have any diet because the time when I was very sick, I could only eat soft porridge at least now I can have a proper meal a little bit.

R: Have you ever participated in domestic farming?

P: Yes, I had a small garden where I used to plant some veggies but due to the illness I had to stop.

R: I understand, please tell me about the signs and symptoms that you have experienced since you have both HIV/AIDS and PTB.

P: severe weight loss, persistent diarrhea, fatigue, fever, productive cough and hemoptysis.

R: Does that mean you never had the above-mentioned signs and symptoms the time you only had HIV?

P: I only had persistent diarrhoea, weight loss but it was not that much like now and severe headache and they were all resolved when I started taking the treatment for HIV.

R: Okay since we all know that medications for both PTB and HIV/AIDS have side effects such as dizziness, nausea, vomiting etc. do you experience any after taking the medications?

P: After taking the treatment for PTB I just feel so dizzy if I take them after eating so I now take them in an empty stomach then eat afterwards. Coming to HIV/AIDS treatment they make me nauseous for few minutes after taking them.

R: How do you deal with the side effects?

P: I just try to eat some sweets then become okay.

R: After everything you said do you think the treatment is effective? And why?

P: Yes, I'm no longer coughing like I used to, no longer bed ridden and I can now eat food since was only eating soft porridge.

R: Tell me more about the treatment you are taking, what is the dosage of both treatments?

P: I'm taking two tablets for PTB that are in the brown cover and pyridoxine 1 tablet in the morning for HIV//AIDS I'm taking two Alluvia 2 tablets and 1 tenemine at 9am and 21h00.

R: Okay thanks for your time. Is there anything you would like to ask me before you go?

P: No.

R: Thank you so much