EXPLORING BARRIERS AND FACILITATORS FOR MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS IN PRIVATE PRACTICE, ZIMBABWE

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KEY WORDS

Hypertension

Medication adherence

Barriers

Facilitators

Zimbabwe

Private health care

ACRONYMS AND ABBREVIATIONS

ACE	- Angiotensin-converting enzyme
BMREC	- Biomedical Science Research Ethics Committee
BP	- Blood Pressure
HCT	- Hydrochlorothiazide
MRCZ	- Medical Research Council of Zimbabwe
SMS	- Short Message Service
UN	- United Nations
USA	- United States of America
WHO	- World Health Organization

ABSTRACT

Background: The current study explored the barriers and motivators for anti-hypertensive medication adherence among private health care patients in Masvingo, Zimbabwe. Hypertension is common in Zimbabwe and adherence to anti-hypertensive medication remains a major challenge. The study was motivated by presence of many hypertension-related challenges despite the existence of conventional medicine.

Methodology: The study adopted a qualitative study methodology, and the data was collected from 16 purposively selected people living with hypertension who bought their medication from a selected pharmacy. The respondents were interviewed and the data was analyzed using thematic analysis.

Results: The results indicated a limited level of adherence to anti-hypertensive medicine among the study participants as they reported failure to stick to prescribed medication dosage frequency, reduction in the amount of medication to be taken, missing doses and taking medication erratically. The study also demonstrated that adherence to anti-hypertensive medication was a result of several factors that encompassed family responsibilities, associated fear of death, fear of the effects of uncontrolled hypertension and presence of social support systems. Non-adherence was attributed to patient-related, socio-economic, socio-cultural, medicine-related and health systems barriers. Socio-economic barriers included limited financial resources to buy the medicine while patient related barriers involved the general dislike of medication and denial. In addition, socio-cultural barriers revolved around negative peer influence based on indigenous knowledge, lack of knowledge and lack of social support systems. Moreover, medicine related barriers included the negative side effects of the medicine. Other barriers encompassed health systems barriers inclusive of access challenges and wrong medical advice.

Conclusions and recommendations: It was noted that adherence to anti-hypertensive medication is driven by patient-related, medication-related, health system related, socioeconomic and socio-cultural factors. Strengthening the facilitators and reducing the barriers to medication adherence at national level may reduce the mortality and morbidity rates. Future researchers are encouraged to broaden the scope of inquiry and collect information from a larger sample size for eventual generalizability of the results.

DECLARATION

I declare that "*Exploring barriers and facilitators for medication adherence in hypertensive patients in private practice, Zimbabwe"* is my work, that it has not been submitted for any degree or examination in any university, and that all sources I have used or quoted have been indicated and acknowledged by complete references.

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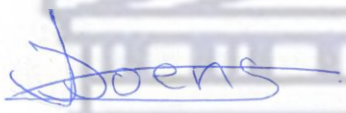
Signature: 

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CHAPTER 1

INTRODUCTION

1.1 Background

The World Health Organization (WHO, 2022) defines hypertension as consistently elevated blood pressure with systolic pressure of more than 140 mmHg and diastolic pressure being more than 90 mmHg. Hypertension represents a global public health concern whose prevalence has grown exponentially (Hamrahian, Maarouf and Fülöp, 2022). It has permeated all socio-economic strata and impacted human societies thereby posing a major risk factor for the global burden among cardiovascular diseases. It is assumed that by 2025 over 1.6 billion of the global adult population will have hypertension, a 60% increase since the year 2000 according to Hamrahian and colleagues. There is, however, growing evidence that the level of control, treatment and awareness is disproportionately lower in developing countries compared to developed ones. More than two-thirds of all patients with hypertension are from low- and middle-income countries. These countries are also associated with reduced rates of controlled blood pressure (BP), reduced treatment rates and awareness about the dangers of uncontrolled hypertension (Unger *et al.*, 2020). Africa has seen a gradual increase in the number of people living with hypertension as the number rose from 54.6 million in 1990 to 130.2 million in 2010, while being projected to increase to 216.8 million by 2030 (Asgedom, Atey and Desse, 2018). In general, evidence demonstrate that the management of hypertension in Africa remains poor owing to delayed presentation, limited access to advanced diagnostics and lack of follow-up care (Boratas and Kilic, 2018). There are also challenges related to the poor state of the public health care sector (Choudhry *et al.*, 2022). Despite increased awareness regarding hypertension, the rate of control for blood pressure remains largely unsatisfactory especially in the context of low-to-middle income countries (Lee, Jang and Park, 2017).

Adherence to anti-hypertensive medication constitutes a key component in the fight to control blood pressure levels in patients who are hypertensive as this reduces morbidity and mortality (Asgedom, Atey and Desse, 2018). This is because poor adherence to anti-hypertensive

medication fosters the development of hypertension-related complications while increasing the risk of cardiovascular challenges that affect overall clinical outcomes (Aberhe *et al.*, 2020). Poor adherence leads to unnecessary over prescription of medicine, worsening of the disease, growth in the rate of avoidable hospital admission rates, longer hospital stays and various other medical burdens (Baker-Goering, Roy and Howard, 2019). It has also been noted that in cases where patients persist in non-adherence to their medication, there is reduction in their overall effectiveness (Vrijens *et al.*, 2017).

In South Africa, around 14 000 people suffer from ischemic heart disease, more than 13 300 patients have a stroke, and there are 6 100 cases of chronic kidney failure per year and all these conditions have uncontrolled hypertension as a risk factor (Kohli-Lynch *et al.*, 2022). Kohli-Lynch and associates also state that direct healthcare costs related to hypertension are approximately R10.1 billion, and costs to society are approximately R 29.4 billion per annum. Uncontrolled hypertension usually leads to long term patient hospitalizations and resultant healthcare costs. Indirect costs include but are not limited to loss of income due to productivity loss (Adane, Atnafu and Aschalew, 2020). The proper use of anti-hypertensive medication is therefore a central driver for the control of blood pressure which leads to reduction in the incidence of stroke and related cardiovascular events (Asgedom, Atey and Desse, 2018).

The World Health Organization (WHO, 2022) reports that poor adherence is one of the major drivers of uncontrolled blood pressure and that global estimates indicate that between 50% and 70% of global patients that are hypertensive do not follow their prescriptions. It is estimated that generally, about 50% of the people do not adhere to their medicine (Gurumurthy, 2018) and for hypertensive patients around 30%- 65% are non-adherent to their medication (Lane *et al.*, 2022). Given the asymptomatic nature of the condition and its indefinite treatment duration, medication adherence among hypertensive patients remains a major challenge (Desta *et al.*, 2022). In Pakistan, Yousof and co-workers realized an adherence rate of between 60% and 65% (Yousuf *et al.*, 2023). Such poor adherence to anti-hypertensive medication is a result of individual patient factors as well as external factors such as socio-economic and cultural factors. This means that the first step towards ending non-adherence to medication is to understand the factors influencing medication adherence. Lee and Lee (2022) express that non-adherence is more likely

to occur when patients have limited knowledge of their condition (Lee and Lee, 2022). On the other hand, there may be negative beliefs regarding hypertension and its treatment, poor patient provider relationships as well as lack of support from healthcare service providers. The risk of non-adherence was considered to be higher among patients with new diagnosis, poor insurance status, subject to polypharmacy and multiple co-morbidities as in the case of patients with psychiatric disorders. Adherence to anti-hypertensive medication depends upon several factors that include healthcare system-related factors like the nature of the patient-clinician relationship, patient-centeredness and the communication style of the physician. These also involve therapy-related factors such as the choice of complex regimens, frequent treatment changes, adverse effects, lack of refill frequency and consolidation (Kvarnström *et al.*, 2021). The study added that patients are more likely to resist medication if they are personally subject to depression, alcohol abuse, dementia or are disabled. In most cases, this also occurs when patients have a poor understanding of the disease or the efficacy of treatment or if they deny the diagnosis made. However, despite the general non-adherence to anti-hypertensive medication, there is willingness to adhere which confirms the presence of motivating factors. Research demonstrate that there are factors for example relatives and reminders which can increase the level of adherence (Lee, Jang and Park, 2017; Tozivepi *et al.*, 2021).

In Zimbabwe, there is a high hypertension prevalence rate of 30% (Tozivepi *et al.*, 2021). A related study by Mungati and colleagues indicated a 23% prevalence rate and the major drivers of hypertension were poor diet, smoking, alcoholism and poor exercise habits (Mungati *et al.*, 2016). Basopo and Mujasi added that hypertension is the most prevalent cardiovascular disease in Zimbabwe. However, in spite of high prevalence of hypertension, evidence show very low adherence levels to anti-hypertensive medication (Basopo and Mujasi, 2017). This shows that in general, although patients know the dangers of non-adherence to anti-hypertensive medication, some fail to take the medication the way it is supposed to be taken. Patients from poor communities often have limited awareness of hypertension alongside poor treatment and control of the condition (Chimberengwa and Naidoo, 2019). It was noted that when patient knowledge about hypertension was low, adherence to medication was also reduced. The study showed that the default rate was over 30% and this was due to the fact that there were no immediate effects associated with non-adherence hence the threat to personal health was not discerned. Non-

adherence was further promoted by shortage of medication, weak health related educational platforms and poor health funding. In addition, anti-hypertensive medicine can be expensive which increases the chances to default the medication. It is also important to note that in the context of the near collapse of the public health sector, most patients in need of immediate care opt for the private sector which however charges higher prices for the same medication. Regardless of spirited efforts to revive the local pharmaceutical industry in Zimbabwe through government interventions, there has been limited progress thereby committing a lot of health seekers to the private sector.

1.2 Problem Statement

Just like the rest of Africa, Zimbabwe is subject to reduced treatment rates and limited awareness in relation to the dangers of uncontrolled hypertension. Extensive knowledge about the effects of non-adherence and the increase in the number of hypertensive patients exists. However, there seems to be limited empirical evidence of the anti-hypertensive medication adherence situation in Zimbabwe given that most studies were done in other countries. None of the research which was done in Zimbabwe focused on Masvingo hence the need to explore barriers and facilitators for medication adherence in hypertensive patients in private practice in this city. It is against this background that the current study explored the barriers and facilitators for medication adherence in hypertensive patients in private practice in Masvingo.

1.3 Aim

The aim of the study was to explore the barriers and facilitators for medication adherence among hypertensive patients in private practice in Masvingo.

1.4 Research Objectives

The objectives of the study were:

- To explore patient-related factors that influence lack of adherence to anti-hypertensive medicine.
- To explore medication-related factors that influence patients' lack of adherence to anti-hypertensive medicine.
- To explore socio-economic factors that influence medication adherence.
- To explore health systems factors that influence medication adherence.
- To explore socio-cultural factors that influence patients' lack of adherence to anti-hypertensive medicine

1.5 Research Questions

- What are the barriers to medication adherence among private hypertensive patients in Masvingo, Zimbabwe?
- What facilitates adherence to anti-hypertensive medication among private health care patients in Masvingo, Zimbabwe?

1.6 Study Outline

This study is divided into six chapters where the first chapter offers the context of the study and indicates the problem to be investigated. Chapter two provides a detailed empirical review of the literature which enables the researcher to identify the gap to be addressed by the current study. Chapter three is the methodology inclusive of the study design, population, sampling criteria, data collection techniques and data analysis approaches. It also touches on aspects related to the credibility of research as well as the inherent ethical considerations. Chapter four presents the data gathered starting off with the profile of the study participants before presenting the results on the basis of emerging themes in the data. Chapter five discusses the results and Chapter six is the concluding part of the research which offers conclusion and recommendations as well as the study limitations.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

Hypertension is considered a global public health concern. This is because of its effects upon the general health of the populace and the fact that it is a major driver of mortality currently (Burnier and Egan, 2019). A systematic review by Dhar, Dantas and Ali (2017) noted that coronary heart disease has become one of the most common ailments that afflicts the global community particularly those within urban setups. The study recorded a rise in the amount of the hypertensive population due to lifestyle changes and lack of physical activities (Dhar, Dantas and Ali, 2017). In view of the above, adherence to medication remains a primary concern as part of the measures to reduce hypertension and its effects. The following literature review entails a detailed search of scholarly articles on barriers and facilitators for medication adherence in hypertensive patients. The review enabled the researcher to extensively interrogate the subject matter from the perspective of other scholars who researched on the same or related subject thereby promoting the identification of gaps in literature.

2.2 Defining Medication Adherence

The concept of adherence relates to compliance to medical prescriptions (Lee, Jang and Park, 2017). Medication adherence is the extent to which a patient's behavior when it comes to taking medication corresponds with recommendations from a health care service provider. An example of non-adherence is when a patient starts off by forgetting their medication until they completely discontinue the medication despite the fact that the medication may have been refilled. On the other hand non-adherence relates to behaviors that contradict the suggestions of health care service providers (Napolitano, Napolitano and Angelillo, 2016). This could be skipping doses, reducing doses, mixing doses with domestic remedies or defaulting (Guo *et al.*, 2023).

2.3 Factors Influencing Medication Adherence

Medication adherence is affected by a range of factors, for example patient, healthcare system, socio-economic and medication-related factors as discussed below.

2.3.1 Patient-related Factors

Hamrahian *et al* (2022) highlight that non-adherence is often attributed to patient related factors such as lack of understanding or lack of knowledge regarding both their medical condition and the medication, poor perception of illness and the effectiveness of treatment, denial of diagnosis and fear of dependence on medication. The study noted that in most emerging economies the levels of patient awareness, treatment and control rates are lower compared to their more developed counterparts (Hamrahian, Maarouf and Fülöp, 2022). This was further supported by Dhar *et al* (2017) who noted that limited knowledge about hypertension also contributed to limited levels of medication adherence. Vrijens *et al* (2017) also agrees that medication adherence in hypertension remains problematic as only about 60% of global hypertensive patients adhere to their prescriptions. The study cited that one of the most common drivers of non-adherence was medical inertia, lack of persistence in the use of the medicine among patients and poor day to day taking of the prescribed medicine regimens (Vrijens *et al.*, 2017). Worku Kassahun *et al* (2020) noted that in Ethiopia most hypertensive patients lacked knowledge of their condition and were unable in invest in self-care (Worku Kassahun *et al.*, 2020). This also confirms observations by Edmealem and associates (2022) who noted the validity of self-care and medicine adherence in the reduction of hypertension-related complications among patients (Edmealem, Ademe and Gedamu, 2022). Andualem, Gelaye and Damtie (2020) noted a 23.06% adherence rate among patients with hypertension in Ethiopia. Their study showed the need to adjust one's lifestyle as a useful way to lower BP coupled with what the clinician prescribed (Andualem, Gelaye and Damtie, 2020). In a cross-sectional survey with 350 purposively selected outpatients in Mutare, Tozivepi *et al* (2021) realised lower levels of patient adherence to clinician prescriptions. The results indicated that adherence to medication was associated with

lower risk of cardiovascular complications and that the tendency to be non-adherent was attributed to lack of patient education regarding hypertension in general.

2.3.2 Healthcare System Factors

Vrijens *et al* (2017) cited that medical institutions that lack the capacity for effective diagnosis contribute to ineffective therapies leading to limited adherence. Kvarnström *et al* (2021)noted that medication non-adherence is often associated with poor clinical outcomes wherein patients feel that certain medication does not work. The study declares that patients visit health care facilities for effective remedies to their conditions but when this does not occur it affects their adherence to the given medication. They further wrote that at times patients fail to adhere to their medicine due to potential adverse effects of the medicine especially if the clinician did not explain the possibility of such as well as effects of not refilling medication at the prescribed frequency. At times patients may not adhere to treatment regimens if their relationship with the clinician is negative for example if approaches being used by the system are not patient-centered and if the clinician communication style is not empathetic. These views concur with Roumie *et al* (2011) who documented that the quality of the relationship between the clinician and the patient is an important adherence factor. This tends to increase the level of patient trust and confidence in the clinician which enhance the level of adherence to medication (Roumie *et al.*, 2011).

These observations resonate with those of Fortuna *et al* (2018) who noted that medication adherence is dependent upon effective patient-provider interaction as patients are more likely to adhere to treatment if they have a positive experience with the service provider. The results were based upon a survey in the USA (United States of America). The results indicated an overall adherence rate of 62.5% and that adherence levels tend to increase if clinicians demonstrated care for the patients, included patients in their decisions and offered information. The study concluded that better experiences with care contributed to higher medication adherence to anti-hypertensive regimens. It was also concluded that the quality of communication was a critical aspect of medication adherence (Fortuna *et al.*, 2018). Boratas and Killic (2018) evaluated medication adherence in hypertension patients as well as established the influential factors and noted that the mean medication adherence score was 70.29% in Pakistan. It was realized that

higher levels of adherence were achieved if patients were able to monitor their own blood pressure and were included in decision making concerning their health.

2.3.3 Socio-economic Factors

Baker-Goering, Roy and Howard (2019) noted that 41% of hypertensive patients did not adhere to their medical prescriptions in the USA (Baker-Goering, Roy and Howard, 2019). They indicated that out of pocket costs related to medication often compel other patients to be non-adherent. The study noted that given the prohibitive costs of medicine it is highly likely that patients experiencing economic challenges are more prone to being non-adherent. The relationship between non-adherence and out of pocket costs was found to be a direct one where non-adherence increased as the cost of medication rises and this was particularly true for elderly patients who were no longer employed.

These results support observations of a study by Vrijens *et al* (2017) involving 21 clinical trials targeting 4783 hypertensive patients. The results showed that persistent taking of anti-hypertensive medication tend to decline over time to the extent that by the end of the first year over 50% of patients would have completely discontinued their medication. In Ethiopia, Asgedom, Atey and Dese (2018) noted that only 61.8% of the patients were adherent to their medication, and this was due to the fact that most of the patients had to buy their own medication. The above views correspond with Roldan, Ho and Ho (2018) who cited the importance of costs of medication in reducing adherence levels (Roldan, Ho and Ho, 2018). Dhar *et al* (2017) pointed out that factors which contribute to higher levels of non-adherence include limited household income and lower socio-economic status among patients. Mungati *et al* (2016) also noted that hypertension remains a major public health concern in Zimbabwe and their study revealed that most patients did not adhere to medication particularly the patients in poorer rural settings where access and affordability issues affected adherence.

2.3.4 Medication-related Factors

Vrijens *et al* (2017) noted that lower levels of medication adherence were a result of pill burden. This means that patients are often reluctant to take medication if it involves a large number of tablets to be taken at a time. These views correlate with Asgedom *et al* (2018) who noted in a

hospital based cross sectional study in Ethiopia that limited adherence to anti-hypertensive medication was attributed to combinations of anti-hypertensive medicine (Asgedom, Atey and Desse, 2018). It was realized that more often patients feel burdened by the number of tablets they have to take at any given moment.

2.4 Consequences of Poor Medication Adherence in Hypertension

Research has demonstrated that poor adherence to anti-hypertensive medication promotes a range of negative health outcomes in patients. Examples include impact on blood pressure control, increase in the risk of cardiovascular events and the economic burden on the health care system.

2.4.1 Impact on Blood Pressure Control

In Ethiopia, Gebremichael and colleagues (2019) noted that uncontrolled hypertension could be traced back to medicine non-adherence among patients. The study noted that regardless of the existence of improved diagnosis and therapeutic interventions, the level of control of hypertension remained poor and grossly inadequate. Hypertension was shown to be a major challenge affecting around 69.9% people (Gebremichael, Berhe and Zemichael, 2019). These results correspond with Tesfaye *et al* (2017) who noted that in Ethiopia hypertension is a leading health problem among adults. They stated that uncontrolled hypertension which stood at 52.7% was caused by non-adherence to medication (Tesfaye *et al.*, 2017). The findings are in agreement with Masilela *et al* (2020) who noted that in South Africa, achieving the desired blood pressure treatment is challenging given the prevalence of non-adherence (Masilela *et al.*, 2020).

2.4.2 Increased Risk of Cardiovascular Events

In Ethiopia, Asgedom, Atey and Dese (2018) noted that poor adherence to anti-hypertensive medicine leads to hypertension-related complications and the increase in the number of cardiovascular diseases. Vrijens *et al* (2017) wrote that despite growing awareness of hypertension there remains poor patient adherence to treatment thereby increasing the risk of cardiovascular diseases. Chimberengwa and Naidoo (2019) also found out that hypertension is a major contributor to cardiovascular and renal diseases in Zimbabwe and that there is poor

management of hypertension because of medicine non-adherence in the Matabeleland South province. Poor adherence to anti-hypertensive medication fosters the development of hypertension-related complications while increasing the risk of cardiovascular challenges that affect the overall clinical outcomes (Aberhe *et al.*, 2020). Adherence to anti-hypertensive medication is therefore pivotal in controlling blood pressure which leads to reduction in the incidence of stroke and related cardiovascular events (Asgedom, Atey and Desse, 2018).

2.4.3 Economic Burden on Healthcare Systems

Brasoveanu and associates (2019) assert that hypertension poses significant challenges upon the public health care system. As the number of hypertension cases increases, more resources would be channeled towards controlling hypertension which negatively affect other programs that could use those resources (Brașoveanu *et al.*, 2019). Iqbal *et al* (2014) declared that there is an inverse relationship between hypertension and the public health care delivery system. The study showed that an increase in the number of hypertensive patients strains the healthcare system as hypertension is prioritized over other competing programs (Iqbal *et al.*, 2014). Since it is a chronic condition, allocation of resources towards hypertension is constant hence some competing programs would suffer continuously (Vo *et al.*, 2023).

2.5 Methods for Assessing Medication Adherence

There are various measures to assess medication adherence in patients. There are objective measures in which the assessor is detached from the subjects of inquiry and subjective measures in which the assessor depends upon the input of the patients.

2.5.1 Objective Measures

2.5.1.1 Medication Possession Ratio (MPR)

This ratio is calculated on the basis of the number of days that a patient is stocked with sufficient medication in comparison to the actual number of days that the patient should be fully stocked with their medication (Vo *et al.*, 2023). This is also known as the percentage time that the patient

has access to medication (Sperber, Samarasinghe and Lomax, 2017). It has been noted that more often patients fail to adhere to their medication due to limited access to their medication hence the MPR helps in determining whether the non-adherence was because of the absence of the medication or other factors. Thus, MPR is the most commonly used method for calculation of patient adherence to single medicine categories. This ratio can in turn be converted into a percentage thereby allowing for comparison between different patients (Guo *et al.*, 2023).

2.5.1.2 Pill Count

This involves the counting of pills that are still remaining and then comparing these to the actual number that should be remaining at that given time (Vo *et al.*, 2023). In addition, it is an economical and a rapid process of assessment. The challenge however is that it depends upon the pills that the patient brings to the health facility hence the patient may falsify information especially if they are aware that the information collected will be used to assess their adherence (Roldan, Ho and Ho, 2018). There are instances where patients may share their medication but give the impression that they are being taken by one patient which may falsify results. Moreover, it requires accurate prescription data relative to fill dates and quantity dispensed and this information is not always easily available (Kearney *et al.*, 2005).

2.5.1.3 Biomarker Monitoring

This process involves the use of laboratory tests to determine the amount of medicine taken by a patient. It provides objective information regarding the medicine that is within the blood stream of the patient. The process provides direct proof that the medication has been taken rather than depending on the patient's claims. This means that the researcher can easily verify whether the patient has recently taken the medication or not (Kearney *et al.*, 2005). In addition, substances are easily detected within the blood stream through other means rather than dependency upon patient claims. The challenge, however, is that it is potentially invasive, and the measures are dependent upon patient characteristics. Given its dependency on technology, it is potentially expensive and may be difficult to apply in poor rural setups. It is also clear that markers are not available for every medication hence making the process selective. The results are also affected by a range of other factors such as diet, other drugs or the rate of excretion (Vo *et al.*, 2023).

2.5.2 Subjective Measures

2.5.2.1 Self-Reported Adherence

Self-reported adherence is dependent upon the information provided by the patients who often write down about how they are taking their medication. In other instances the researcher also inquires from the patient through face to face in-depth interviews (Kravitz and Melnikow, 2004). Interviews are conversations where the researcher learns more about the respondent's medication adherence based on direct interaction (Fortuna *et al.*, 2018). More often interviews produce fewer specific data compared to diary entries because they depend upon the interpretation of the researcher rather than the patient.

Validated self-reports however enable the clinician to assess those patients that may be in need of external support following observations of non-adherence (Osterberg and Blaschke, 2005). The method provides an economical means of collecting respondent information which can form the basis for patient counseling. This also means that the researcher can easily obtain data about circumstances, behavioral or social factors that influence medication adherence. The challenge, nonetheless, is that the practice is subject to recall bias and also the respondents may be inclined to offer responses that make them be socially acceptable in the eyes of the researcher (Alipanah *et al.*, 2018).

2.5.2.2 Questionnaires and Surveys

In some instances the patients are asked a set of questions to which they respond and ascertain the manner and extent to which they take their medication (Burnier and Egan, 2019). These are often used where the assessor needs to cover a large area of potential respondents in a cost effective way (Ostchega *et al.*, 2020). The questionnaire enables the researcher to collect valid and reliable information without subjective bias (Kravitz and Melnikow, 2004).

2.5.2.3. Health Belief Models

It is simply a model used in order to explain and predict patient health-related behaviors especially in relation to how people take their medication as noted by Osterberg and Blaschke (2005). It represents a theoretical model developed by USA based scientists in the 1950s in order

to understand why people often fail to adopt disease prevention strategies in the form of medication adherence (Vo *et al.*, 2023). The model assumes that if people believe in the threat of an illness and the effectiveness of a prescribed medical remedy, they are more likely to be adherent to their medication. It is based on psychological and behavioral theory, and it contends that patients are keen on avoiding illness or to get well when they are ill. The model is also based on the assumption that patients believe that a specific health action prevents, or cures a given illness. This means that the individuals' eventual action is dependent upon their perception of the benefits of a given medication (Burnier and Egan, 2019).

2.6 Interventions to Improve Medication Adherence

Several measures have been suggested to improve medication adherence among people with hypertension as explained in detail below.

2.6.1 Patient Education and Counseling

In a study carried out in Vietnam, it was noted that patients were more likely to adhere to their medication if awareness of the complications related to hypertension increased. This pointed towards the importance of knowledge when it comes to improving adherence to medication. It was realized that when patients are introduced to interactive educational sessions, health related coaching and behavioral counseling, there is an increase in medication adherence (Roldan, Ho and Ho, 2018). In seeking to understand the role of educational interventions on medication adherence in hypertensive patients, Ampofo *et al* (2020) noted that medication adherence has remained a problem despite the existence of various educational endeavors (Ampofo, Khan and Ibitoye, 2020).

2.6.2 Tailored Information and Empowerment

More often patients fail to adhere to their medication due to lack of empowerment (Vrijens *et al.*, 2017). This means that when patients feel less in control of the medication process they are more likely to be non-adherent (Guo *et al.*, 2023). It has been observed that when information is tailored to suit the specific needs of the individual patient, it brings about a sense of empathy that

resonates with medication adherence. Thus, patients who are more in control of their medication process while also having access to personalized communication are more likely to adhere to their medication. The use of tailored information and empowerment efforts reflect a clinician's attempt to understand each patient's medication-related behaviors and be in a position to provide appropriate advice to promote medication adherence (Guo *et al.*, 2023).

2.6.3 Simplification of Medication Regimens

More often, patients fail to take their medicine in the recommended quantities or time frames because of the complexity of the process as noted by Roldan *et al* (2018). Thus, reducing the complexity of the drug regimens is one pertinent strategy for the promotion of adherence because patients feel that the process is less cumbersome from both a physical and psychological perspective. More often, it has been discovered that the complexity of medication regimens stems from the fact that different types of medication are given to patients at different times. This means that if the process of taking the medication is hinged on genuine effort on the part of the patients they are more likely to not adhere to their medication (Tozivepi *et al.*, 2021). Thus, the provision of fixed dose drug combination products has been considered an effective solution against limited adherence among hypertensive patients (Boratas and Kilic, 2018).

2.6.4 Technology-Based Interventions

The introduction of technology in promoting medication adherence has also been widely acclaimed. This involves a whole range of interventions that include the use of automated tablet dispensers, pill boxes and timers as well as alarm watches which provide patient reminders to enhance medication adherence and eliminate forgetfulness (Vrijens *et al.*, 2017). It has been proven that more often, medication non-adherence is attributed to forgetfulness especially among elderly patients hence technology provides constant prompts for patients to take their medication. Mobile health applications wherein patients can get access to health related information *via* their mobile applications can be made use of as well (Guo *et al.*, 2023). In other instances, advanced pill boxes have been used that can send remote monitoring messages each time a patient opens their pill box, and this can be used to assess patient adherence to medication. In other instances,

Short Message Services (SMS) alerts can be used to remind patients when it is time to take their medication and this addresses issues associated with forgetfulness (UN, 2021).

2.6.5 Electronic Pill Dispensers

Electronic pill dispensers which record the time and date when the pill bottle is opened can be made use of. These record medication events which are then transferred to a computer to assess dosage and frequency of uptake (Guo *et al.*, 2023). They assess dose frequency, dosing interval and time when doses are taken. This technology has been considered to be highly effective given accurate recordings of how the patient is taking their medication. The pill dispensers have been considered effective especially for people suffering from dementia, Alzheimer or other cognitive conditions that contribute to forgetfulness (Hoffmann *et al.*, 2018).

2.6.6 Collaborative Care Models

Hamrahian *et al* (2022) noted that adherence can be enhanced through patient centered approaches, non-judgmental communication skills, collaborative multidisciplinary management and patient engagement in conducting self-blood pressure monitoring. The collaborative care model represents a systems strategy for the treatment of behavioral health conditions within primary health care through the efforts of care managers and psychiatric consultants. This means that rather than rely upon the input of a single clinician, modern health care facilities offer their clients access to multiple health care specialists who collaborate in providing solutions to patient problems. It represents a complex medical intervention that fosters a closer working relationship among members of the treatment team. It is an integrated approach to health care that combines general and behavioral medical practices hence, it is mostly suited for psychiatric patients or those with co-morbidities (Lane *et al.*, 2022).

2.6.7 Telemedicine and Remote Monitoring

The concept of telemedicine has been in existence for a very long time, but its enthusiastic adoption was noticeable under the COVID 19 pandemic when patients could not move around safely. Telemedicine offers opportunities for the distribution of health related information *via*

electronic information and communication devices (Lee *et al.*, 2000). In this regard, patients use their communication devices to communicate with health care service providers thereby allowing for remote monitoring which in turn reduces the cost of health care while also allowing for long distance contact with clinicians for care, reminders, advice, intervention and monitoring (Adane, Atnafu and Aschalew, 2020). In this vein, telemedicine offers opportunities for remote clinical services in a real time manner thereby allowing for the establishment of more interpersonal relations in health care (Lee *et al.*, 2000).

2.7 Special Populations and Adherence Challenges

Research shows that the extent of medication adherence is dependent upon several factors that affect special populations such as the elderly or those with co-morbidities.

2.7.1 Geriatric Patients

Hamrahian *et al* (2022) argue that non-adherence to medication is often driven by a patient's age where elderly patients tend to be forgetful resulting in missed doses especially if there is no one to remind them or collect their refills when needed. Barker Goering *et al* (2019) wrote that elderly patients fail to adhere to their medication regimen regularly due to resource constraints. Given that they are no longer gainfully employed it is highly likely that they struggle to access and afford medical drugs and must rely on other people. Even where they could, more often medication is not available in close proximity leading to potential mobility challenges that affect the elderly more (Sadeghi *et al.*, 2020).

2.7.2 Paediatric Patients

Research has demonstrated that more often children do not show any symptoms unlike older people. Which means that though the children may have hypertension the symptoms may not show until they are older (Gurumurthy, 2018). Additionally, it was observed that while hypertension is typically considered a challenge for older individuals, it is also prevalent among children, ranging from 2% to 5%. This emphasizes the importance of early detection to implement effective interventions (Burnier and Egan, 2019).

2.7.3 Patients with Co-morbidities

Asgedom and associates (2018) noticed that non-adherence to medication was related to the presence of co-morbidities. Hamrahian *et al* (2022) also attribute medication non-adherence to multiple co-morbidities such as psychiatric disorders. The risk of non-adherence is higher among patients with co-morbidities (UN, .2021).

2.7.4 Socioeconomically Disadvantaged Populations

Hamrahian *et al* (2022) agree that despite awareness of the dangers of hypertension the rate of blood pressure control has remained unsatisfactory especially within middle- and low-income countries. The study relates the medication non-adherence to poverty. Choudhry (2022) adds that adherence is a subject of economic importance and disadvantaged social groups often struggle to follow their prescriptions. This aligns with findings from Mungati (2016), who highlighted that hypertension is primarily driven by inadequate diet, smoking, alcohol consumption, and insufficient physical activity, all linked to patients' unfavorable economic circumstances (Mungati *et al.*, 2016). Moreover, Chimberengwa and Naidoo (2021) discovered that within economically disadvantaged communities, there exists a lack of awareness regarding hypertension, accompanied by inadequate treatment and control of the condition.

2.8 Successful Adherence Strategies

Burnier and Egan (2019) propose that understanding each patient's medication taking behavior is the best approach to improve medication adherence. This implies that instead of clinicians imposing their decisions on patients, they should exhibit empathy by inquiring about potential challenges in adhering to medication. Recognizing the significance of establishing a non-judgmental atmosphere during consultations with hypertensive patients, they aim to foster trust and rapport between the patients and healthcare providers.

In the context of Chinese hypertensive patients, Guo *et al* (2023) noted that successful adherence strategies comprise of involving patients in decision making and explaining things in detail. This

promotes a sense of empowerment that enhances the degree of medication adherence as the patients feel in control and can also develop knowledge that aids in their treatment.

Research has pointed out the fact that there is a financial burden that accrues upon patients due to anti-hypertensive medication. Effective interventions to mitigate this would encompass measures aimed at easing this financial burden, for example offering free medication. Patients who struggle to afford the medication may stop taking it or ration the medication despite knowing the negative impacts on their health (Unger *et al.,* 2020) .

CHAPTER 3
RESEARCH METHODOLOGY

3.1 Research Philosophy

The current study adopted the interpretivism philosophy based on the need to interpret the subjective experiences of hypertensive patients who obtained their medication from SafenLoyal pharmacy. In line with observations by Maxwell (2020) the researcher wanted to understand the world in terms of how the hypertensive patients interpret it (Maxwell, 2020). The researcher understood that the attitudes and feelings of the patients could not be seen or measured, hence the best way to understand the experience of the respondents was to interpret them from their perspectives and in their natural setting. The researcher noted that the social nature of hypertension and medication adherence were far too complex to be reduced to law-like generalizations as would be the case under a positivism philosophy. Thus, the researcher sought to collect richer insights into the world of hypertension and medication adherence through focusing on the personal experiences and interpretations of the respondents which justified the choice of interpersonal techniques for data collection in the form of interviews.

3.2 Research Design

The research employed an exploratory qualitative design due to several factors. Quantifying facilitators and barriers to medication adherence is challenging and given the necessity to comprehend the underlying reasons for non-adherence to medication, a qualitative research methodology proved to be more appropriate for data collection. Qualitative research allows for flexibility when asking questions (Manchester, 2011), follow up questions can be asked and probing for more answers is possible so that the researcher is satisfied with the responses provided and understands them completely (Hancock, 2006). The qualitative exploratory design implies that the researcher approached the studied phenomenon from an uninformed perspective thereby allowing for respondents to freely express their views and experiences. This in turn enabled the researcher to develop theory from the collected data rather than seek to test theories as would be the case under a quantitative explanatory design. Saunders and associates (2007) state that qualitative studies enable collection of interpretations and descriptions of how people

perceive their world which can lead to new concepts or theories (Saunders, Lewis and Thornhill, 2007). The need to get insights into the subject to medication adherence among patients living with hypertension justified the choice of in-depth interviews as a way of collecting data which is consistent with qualitative research. The study is done to understand the experience and views of people without imposing pre-existing expectations (Lewin and Glenton, 2018). Open ended questions were asked which enabled the researcher to deeply probe the subject matter which in turn promoted obtaining unexpected information on medication adherence (Maxwell, 2019). As noted by Mohajan (2018) in qualitative exploratory studies, the researcher does not seek to manipulate the variables as the respondents will be in their natural environment making the respondents to relax, feel in control and consequently feel free and comfortable to be honest (Mohajan, 2018).

3.3 Study Setting

The study was done in areas surrounding the Runyararo South West shopping centre in Masvingo, Zimbabwe. The data was collected at a private pharmacy situated at the shopping centre. The centre is surrounded by four high-density suburbs, namely Mucheke F, Runyararo South West, Zexcom as well as KMP. Mucheke F is mainly dominated by soldiers or their dependents since the houses were built by a defense forces scheme, and its population is around 4 000 (Chuma *et al.*, 2013).The criteria for inclusion and exclusion comprised individuals residing in the mentioned neighborhoods who had hypertension and obtained their anti-hypertensive medication from the pharmacy. Anyone meeting these criteria was considered a potential participant. Interviews were arranged and carried out at a suitable time for the participant in a private consultation room within the pharmacy. The study location is outlined in the blue colored section of the map provided below (Figure 3.1).

Figure 3.1: Map of Zimbabwe

Source: Zimbabwe Central Statistical Office (2023)

3.4 Population

The participants were selected from a private pharmacy. Anyone diagnosed with hypertension and taking medication from the mentioned pharmacy was eligible to participate in the study regardless of gender, age, or medicine adherence status. Patients with medical insurance or those paying out of pocket were also eligible for inclusion in the study.

3.5 Sampling and Sample Size

Sampling is the process through which a subset of the population can be selected (Kumar and Sundaram, 2021). The researcher deliberately selected respondents who bought anti-hypertensive medication at the pharmacy which is a non-probability sampling technique also known as purposive sampling. Purposive sampling entails the selection of people who are willing and able to provide the information due to their experience and knowledge (Etikan, 2016). Data was retrieved from the pharmacy database and for the purpose of this study, those who filled their monthly prescriptions late, for example, more than 7 days after the month has passed (28 days) were considered to be non-adherent while those who filled their monthly supplies on time (less than 7 days after the due date) were considered to be adhering to their medical prescriptions.

Heterogeneous sampling was used in purposive sampling through which the researcher sought to gain multiple perspectives of the participants. Thus, it was used to capture the realities of male, female, young and older people. To explore the facilitators and barriers to medication adherence, sixteen (16) participants were selected to take part in the study of which saturation was reached at 14 participants. Huyler and McGill recommended using 12 to 20 participants for interviews (Huyler and McGill, 2019).

3.6 Data Collection Criteria

The researcher sought managerial authority to collect information while also reassuring management that the data collection process would not interfere with normal business processes. Once the approval to collect data was obtained, participation sheets (Appendix 1 and 2) with basic information in the local language (Shona) and English about the study were distributed to potential participants so that they could make the decision to participate followed by signing of consent forms (Appendix 3 and 4) to show their willingness to participate.

3.7 Data Collection Instruments

Research instruments are tools that are utilized to collect research information for purposes of solving research questions and meeting the research objectives (Huyler and McGill, 2019). In the current study, an interview guide (Appendix 4 and 6) with probes was used to facilitate data collection. An interview is a conversation between the researcher and the selected respondent (Saunders, Lewis and Thornhill, 2007). As stated by Bryman and Bell (2017), interviews are social encounters in which researchers and respondents collaborate to produce retrospective and prospective accounts of their past or future actions, perceptions, experiences, knowledge, opinions, thoughts and feelings. The interview guide consisted of open-ended questions that allowed for detailed probing. Each interview session lasted for about 20 minutes. In order to conduct the interview, the researcher asked for permission from the pharmacy management to interview their clients and received it. Upon being given informed consent forms, the respondents were asked to show their willingness to participate in the study through signing the forms. The researcher also requested permission to audio record the interview for ease of transcription. The interviews were conducted in Shona or English depending on the preferences of the respondents. Given the need to take note of both verbal and non-verbal cues, the

researcher used a notebook to note interviewee emotions during the interview. The choice of the semi structured interview was based on the fact that it allowed the researcher the flexibility to ask follow up questions and get as much information as deemed necessary while at the same time being focused on the topic at hand through the use of an interview guide (Ruslin *et al.*, 2022). In addition, the researcher asked follow up questions leading to a detailed understanding of the subject of anti-hypertensive medication adherence.

3.8 Data Analysis

Exploratory research uses the qualitative methodology which involves interplay between data collection and analysis thereby enabling the researcher to be deeply immersed into the subject (Maxwell, 2019). Thus, the qualitative analytic framework (Figure 3.2) was adopted in order to promote the emergence of patterns, theories and relationships from the collected and analyzed data.

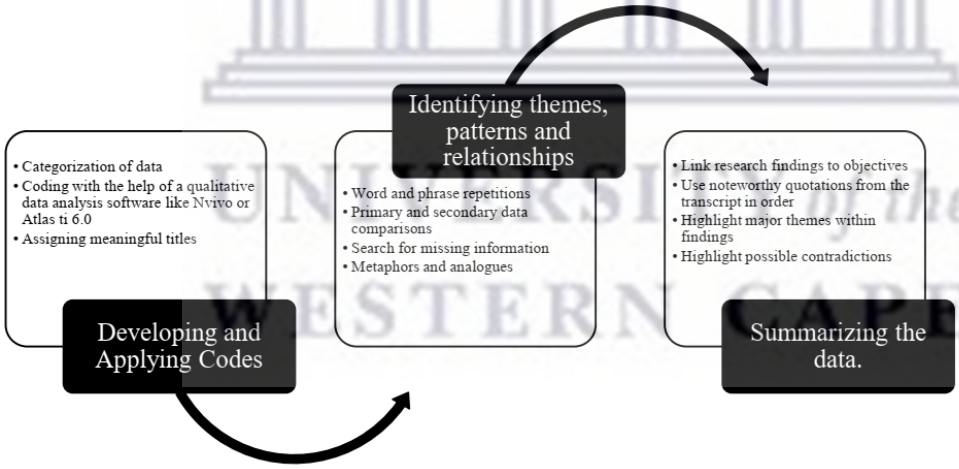

Figure 3.2: Qualitative Data Analysis Research Model (Flick 2014)

Thematic analysis was used to analyze data as shown in Figure 3.2. It is a technique that involves exploring data to identify, analyze, and report recurring patterns (Kiger and Varpio, 2020). The researcher conducted the analysis manually so that she could remain in control of the whole process. The different phases of the data analysis process are as explained in detail below. The

first step entailed familiarization whereby soon after the interview, the researcher summarized the interview data while it was still fresh, then listened, transcribed, read and re-read the transcription of the interview until patterns emerged. The next step entailed coding which is where the researcher coded symbols to represent certain things, for example, emotions, situations and so on. Right from the first interview, the researcher defined the codes, and as the analysis went on, more codes were created if existing ones did not fit the existing data. The researcher then identified the themes where the obtained codes were put together to make up themes which show what the data meant. The researcher put codes which shared common ideas under a broad description which helped to focus on broader patterns. The researcher then defined and named the themes through refining the themes and merging or separating the themes as deemed fit. The themes needed to form coherent patterns and if the new coding was necessary, it was done to capture all the data. The last step encompassed integration and interpretation when themes were integrated, and conclusions drawn from the data. Perceptions of people towards medicine adherence were then clear at this point.

3.9 Trustworthiness

Trustworthiness in research involves credibility, transferability, dependability, and confirmability. Leedy and associates (2018) characterized credibility of a qualitative research in terms of its fitness of material to meeting the objectives and expectations of stakeholders (Leedy, Ormrod and Johnson, 2018). Credibility is defined by instruments applied by the researcher to collect the data, the targeted population, the period taken by the researcher to gather information, the systems applied by the researcher to collect data and the status of the researcher in the field (Saunders, Lewis and Thornhill, 2007). To ensure the credibility of the research, the researcher prolonged engagement with the community, gathering data for some time (Cresswell, John and Miller, 2000). Instead of interviewing all the participants at once, the respondents were interviewed at different times as time may affect the mood of people and hence the study results. This means that data was collected on different days as well as different times of the day. This ensured that the researcher obtained data from varied respondents which increased the validity and reliability of the collected information. After collecting and interpreting data, the researcher returned to the participants to confirm if the data or interpretation captured their perceptions accurately.

Qualitative material should be transferable, which implies that the findings should be able to be applied in some other areas as well and getting the same results. The researcher managed to establish a comprehensive understanding of the issues being investigated using a variety of samples and situations (Huyler and McGill, 2019). Transferability was achieved through the use of a standard data collection tool which was the semi structured interview guide that other researchers can use in related inquiries.

Maxwell (2019) highlighted that qualitative research should enable the researcher to gather dependable information by use of standard data collection tools. Dependability was achieved through conducting an in-depth study which is confined by a protocol which is traceable, structured, and well-coordinated such that the results produced are relied upon. The researcher followed guidelines from the University of Western Cape to collect information from participants. The approach was supported by rigor to register credibility (Huyler and McGill, 2019).

Confirmability refers to the application of themes in qualitative research that meet the expected requirements of academic research. Huyler and McGill stress the use of an evaluation system of the study by focusing on the choice of population, the methodology used to collect data, the qualifications of the targeted audience, the interview questions or the focus study groups used to establish the results. The conformance establishes fitness of the targeted audience to get results. The research results meet the criteria of being long-established somewhere by some other researchers or scholars in the academic world.

3.10 Data Management

A laptop which can only be unlocked using a password, the researcher's fingerprint and face recognition was used to store the data to protect the identifications of the participants. A backup copy was also stored in a safe as a precaution. Data will be kept for five years and, after that, destroyed.

3.11 Ethical Consideration

Given that the study involved human beings it was imperative to observe a range of ethical considerations. Firstly, ethical approval was sought from Biomedical Research Ethics Committee (BMREC) reference number BM22/10/28. The researcher obtained permission from the Medical Research Council of Zimbabwe, reference number MRCZ/B/2448 as well as from the pharmacy management whose premise the researcher used to meet the respondents. Participation in the research was voluntary, and the participants were informed of their rights to reject the invitation to participate and withdraw from the study at any time in line with informed consent. The respondents were informed that there would be no penalty for refusing or withdrawing from the research at any time. In terms of confidentiality and anonymity, identifiable and traceable patient identifiers (such as name, surname, identification number, case number, practice number, employee number, etc.) were not recorded/included in the study or revealed at any point during the study. This means that during data transcription for instance the researcher made a deliberate effort to mask the identity of respondents which also aided in fostering objectivity in data analysis. Non-identifiable numbers were assigned to each interview participant based on the order in which data collection occurred. In conducting this study, the Protection of Personal Information Act was adhered to (Republic of South Africa, 2013). The consent of the participants was sought and confirmed through their signing of the informed consent forms. The participants were also furnished with the participant information sheet and consent forms in both Shona and English. For those who could not read, the information was provided orally. The study brought no harm and discomfort to the participants, even emotionally, and hence there was no need to refer anyone to the local clinic for interface with a trained psychologist. The researcher explained to the participants what she intended to do with the information they provided and how the information would be stored and disposed of.

CHAPTER 4

RESULTS

4.1 Overview

This chapter presents the results on barriers and facilitators for anti-hypertensive medication adherence among private healthcare patients in Masvingo, Zimbabwe. The results were obtained from 16 key informant interviews. Thematic analysis was used for a comprehensive data analysis. The analysis of the findings revealed distinct domains, fundamental concepts, and categories. In order to emphasize the experiences of the participants regarding hypertension while ensuring their anonymity and confidentiality, the study employed detailed descriptions. Pseudonyms such as Ki1 through Ki16 were utilized to represent the first to the last key informant, respectively.

4.2 Participant Information

The details provided by the study participants were crucial in creating a comprehensive profile of the respondents, encompassing various demographic aspects such as age, gender, religious affiliation, marital status, employment status, educational level, and residency status. These aspects would in turn enable the researcher to determine factors that affect medication adherence among the various study participants. Participants' ages ranged from 25 to 62 years with a mean age at 47 years. The results indicate that most participants (50%) were aged over 50 years while 25% were between 41 and 50 years and the rest (25%) were aged between 25 and 40 years. The results also show that most of the respondents (69%) were female while 31% were male, 75% were married while 13% were single, 6% were divorced and 6% were widowed. With regard to education, 25% of the respondents had attained 'O' levels, 25% had Master's degrees while 19% had Grade seven, 13% had gotten to Form two, 6% had diplomas, 6% had 'A' level and 6% had first degrees. With reference to employment, 44% of the participants were self-employed, 31% were employed, 13% were unemployed and 12% were retired. The results also indicated that 50% of the participants lived in Mucheke F and 50% lived in Runyararo. In terms of how they

were residing at home, 75% of the respondents lived with their families while 19% stayed alone and 6% stayed with husbands or wives only as shown in Table 4.1 below.

Table 4.1: Interviewee biographical information

Code	Sex	Age (years)	Marital status	Education status	Employment status	Residential Area	Residence status (Lives with)
Ki1	F	25	Single	O level	Employed	Mucheke	Alone
Ki2	M	62	Married	O level	Retired	Runyararo	Two grand children
Ki3	F	50	Married	Form 2	Unemployed	Mucheke	Husband and three children
Ki4	F	45	Married	O level	Unemployed	Mucheke	Husband and one child
Ki5	F	58	Married	Grade 7	Self employed	Runyararo	Husband and three grand children
Ki6	F	52	Married	Grade 7	Self employed	Mucheke	Lives alone- asthmatic
Ki7	F	40	Married	Master's degree	Employed	Runyararo	Husband and three children
Ki8	F	49	Widowed	Master's degree	Employed	Runyararo	Two children and two cousins
Ki9	F	29	Married	Master's degree	Self employed	Mucheke	Lives with husband
Ki10	F	54	Married	Grade 7	Self employed	Mucheke	Husband three children and one grand child

Ki11	M	37	Married	Diploma	Self employed	Mucheke	Lives with wife and two children
Ki12	M	59	Married	First Degree	Employed	Runyararo	Lives with wife and three children
Ki13	M	62	Married	Form 2	Retired	Runyararo	Lives with wife and three grand children
Ki14	F	55	Divorcee	Master's degree	Employed	Runyararo	Lives with two children
Ki15	F	42	Married	O level	Employed	Mucheke	Lives with husband and three children
Ki16	M	28	Single	A Level	Self employed	Runyararo	Lives alone

Source: (Researcher, 2023)

Key:

F= Female

M= Male

Ki= Key informant

4.3 Emerging Themes

Following the analysis of interview transcripts several themes were observed and these involved medication adherence, barriers to medication adherence, motivators for medication adherence and measures to increase anti-hypertensive medicine adherence among patients in Masvingo as in (Table 4.2).

Table 4.2: Areas of inquiry and emerging core themes

DOMAIN	CORE IDEA	CATEGORY
Medication adherence	Adherence to medication in terms of taking medication on time, in the right quantities, at the right frequency as prescribed	- Failure to follow the dosing frequency prescribed- (Ki4, Ki8) - Reducing one's dose without consulting a prescriber - (Ki3, Ki14) - Missing doses- (Ki1, Ki4, Ki5, Ki6, Ki7, Ki9, Ki10, Ki11, Ki12, Ki15, Ki16) - Erratic taking of medication- (Ki2) - Defaulting for some months- (Ki2, Ki8, Ki9)
Motivators for medication adherence	Social considerations	- Family responsibilities- (Ki15, Ki8, Ki12)
	Medical considerations	- Fear of the effects of hypertension- (Ki2, Ki5, Ki7, Ki13, Ki14, Ki16, Ki11, Ki10, Ki9, Ki6, Ki4, Ki1) - Presence of social support systems- (Ki3)

Barriers to medication adherence	Socio-economic barriers	- Lack of money (Ki4, Ki1, Ki3, Ki5, Ki6, Ki9, Ki10, Ki11, Ki14, Ki15, Ki16)
	Patient- related barriers	- Denial, too young to take medication- (Ki1, Ki9, Ki11) - Dislike of medication- (Ki9, Ki2)
	Socio-cultural barriers	- Negative influence about alternative medicine being superior to conventional medicine- (Ki4, Ki5, Ki3, Ki12, Ki14, - Lack of knowledge on need to continue taking medication- (Ki6, Ki1, Ki2,
	Medical barriers	- Medication side effects - (Ki7, Ki3, Ki5, Ki6, Ki8, Ki9, Ki11, Ki12, Ki14, Ki15, Ki16 - Ineffectiveness of medicine- (Ki9, Ki11)
	Health systems factors	- Access challenges- (Ki3, Ki12, Ki14) - Inadequate medical advice (Ki5)
Measures to enhance medication adherence	Access-related measures	- Offering free medication and subsidized health care (Ki16, Ki13, Ki12, Ki11, Ki10, Ki9, Ki8, Ki6, Ki5, Ki3, Ki4) - Increasing number of pharmacies (Ki12)
	Medical-related measures	- Support tools like reminders, medicine boxes- (Ki16, - Reduction of the pill burden- (Ki1) - Raising awareness on BP- (Ki12,

		Ki11, Ki8)

Source: Primary data (2023)

4.3.1 Medication Adherence

The results show that most respondents were not adhering to their anti-hypertensive medication in terms of taking medicine on time, in the right quantities and at the right frequency as prescribed. The results indicate that the participants failed to stick to prescribed timetable, reduced doses on their own, missed their doses and had erratic medicine intake habits as the following statements indicate. Three participants claimed that they failed to take their medication on time.

> *Ki4- I can forget the times to take but as soon as I remember I then take the medication.*

> *Ki8- If I sleep without taking the pills I will feel that something is not right so I wake up to take.*

> *Ki1- I sometime forget to take the medication.*

Two participants claimed that they often reduced their doses for one reason or another.

> *Ki3- I sometimes failed to take my medication when I was in the rural areas. I reduced the dose and concentrated on losartan only.*

> *Ki14- Sometimes my medication run out when I have no money so sometimes I take one type of medicine at a time because I will still have some leftover since they all do not run out at the same time.*

Eleven participants claimed that they missed doses altogether as evidenced in the quotes below.

Ki5- I once forgot to take my medication in the evening and the next morning I went somewhere and delayed taking the medication, so I missed two doses.

Ki6- I often miss my doses sometimes when you travel you forget to take your medicine along.

Ki7- I sometime miss my dose when I don't buy my medicine on time due to forgetfulness.

Ki9- I defaulted the first 6 months when I was first diagnosed because I was in denial but since then I have not missed my doses. What happens is that I sometimes forget to take the medicine on time but then I make an effort to take as soon as I recall.

Ki10- I once failed to take my medication when my grandson lost my and tablets I could not get them easily as I am not on medical aid.

One participant indicated erratic taking of medication.

Ki2- I only take as and when I feel sick otherwise, I don't take medicine on a regular basis. Right now, I don't think that I should have a habit of taking tablets every day when my BP is normal, I feel that taking tablets is not important as I consider exercise to be more important but when I feel it's necessary I take the medication. When there are no signs or symptoms I skip because I am not a BP patient or something like that. My BP rises when I am in pain as I have stomach ulcers so I take the medication when I am in pain as I can feel that the BP has rose because my left arm gets numb.

4.3.2 Motivators for Medication Adherence

The results showed that the research participants were motivated to adhere to their anti-hypertensive medication by various reasons.

4.3.2.1 Social Considerations

Some participants indicated that they are motivated to take their medication because they want to stay alive for social reasons like living long so that they can take care of their children:

Ki8- My children motivate me to continue taking the medication because I want to see them grow.

Ki15- Besides back pain I am motivated by the fact that I have a family history of people such as my father and aunt as well as my grandmother who all died due to BP. So I am afraid that I may die and leave my children.

4.3.2.2 Medical Considerations

Fear of the pain and other symptoms associated with hypertension motivated twelve participants to take their medication.

Ki5- I have however continued taking the medication because I felt that if I failed to take the medicine the situation would get worse.

Ki12- I know it's dangerous if I don't take my medication there are no two ways about it. My father passed away due to BP and he was living in the rural areas so he simply defaulted.

Ki10- It's important to adhere because non-adherence has negative effects like dizziness.

Ki13-… when I was first diagnosed the doctor told me that if you want to see how bad things can get skip the medication you will develop a stroke.

Ki1- As for me what pushes me whether I like or not is what I said that when I abandoned my medication, I had to be admitted to the hospital not knowing what I was doing so I just woke up in hospital so I feel that if I leave my medication, I will lose my life.

4.3.2.3 Presence of Social Support Systems

Some participants mentioned that the presence of a social support system motivated them to take their medication.

Ki13- when I was first diagnosed the doctor ... we had a long discussion about the situation and all the information I got made it easy for me. He told me that the disease is related to age. He said you should eat porridge in the morning and take the medication.

Ki3- I have never missed my medication because my husband would insist that I take the medication though I told him that they were painful due to the side effects and I did.....

4.3.3 Barriers to Medication Adherence

Medication adherence was affected by a range of barriers that include patient related-, socio-cultural-, medication related- and health systems barriers.

4.3.3.1 Socio-economic Barriers

Eleven participants cited that they experienced financial challenges as shown in the statements below:

Ki4- There are money related challenges as the tablets sometimes run out while you don't have the money so I request for assistance from my children to buy the medication.

Ki1- What happens is that you often fail to get money to buy the medication such that you skip taking the medication for two or three days looking for the money to buy the tablets.

Ki3- Sometimes we face money challenges as in the case of losartan which is taken twice. The state of the economy is difficult because of financial challenges and at times pharmacies refuse to take local currency.

Ki11- The challenges are related to money to buy tablets for example tenoric which is a bit expensive and due to financial constraints, I buy one week supply rather than one month supply.

4.3.3.2 Patient-related Barriers

Patient related barriers include denial and the general dislike for medicine.

Ki11- I was told that I had BP and was ordered to buy medication but was in denial and did not take the medication because I thought that I was too young to suffer from BP and there was no history of the condition in our family.

Ki2- I only take as and when I feel sick otherwise, I don't take medicine on a regular basis.

Other respondents claimed that they do not like medicine in general.

Ki2-… I don't think that I should have a habit of taking medication every day ..... I am not a BP patient ....

Ki09- I don't like the medication but I have to adhere to them. I personally do not like pills….

4.3.3.3 Socio- cultural Barriers

There were also socio-cultural barriers such as negative peer influence, lack of knowledge and lack of social support systems.

Ki5- Others will tell you that don't get used to pills because you may fail to find them in the future.

Ki3- At times when you talk to others, and you tell them that you have been diagnosed with BP they will say you are too young to have been diagnosed with the problem so they discourage you to take the medicine. They also suggest remedies….

Ki12- ... faith healers and other opinion leaders often lead people astray. I have often heard people saying that if you take cacti leaves the BP will go down.

Ki14- What affects BP medication are misconceptions as some people will tell you that since you take BP medication at night you will not wake up in the morning. These myths also originate from other medical practitioners so when they give you advice you tend to listen.

Yet others claimed that they lacked knowledge of the need to continue taking medication.

Ki1- I am clearly understanding how to take the medicine now, at first I thought that after taking the medication that I was giving the first time, I would stop soon after the medicine ran out. So at first when I got the medication I took them for a month since it was a monthly supply then I stopped until I got sick and was admitted.

Ki2- I used to forget to take my medication because I had no knowledge of BP

Ki6- I defaulted for three years because I did not know that I was supposed to continue taking the medicine even when I was not sick.

Some participants claimed that they lacked the support of other people who could remind them of the need to take their medication.

> *Ki16- I also stay alone I sometimes forget to take my medication as there is no one to remind me to take the medication.*

4.3.3.4 Medication-related Barriers

Medication side effects and the ineffectiveness of medicine were a hindrance to some participants.

> *Ki7- I took HCT and reacted badly to it as I could not even open my eyes so my dose was reduced but it still did not help. I visited another doctor who prescribed Methyldopa*

> *Ki14- I was given Methyldopa which caused me a severe headache I did not go on taking it. I was given HCT and some painkillers but after two or three days I became shortsighted…. After series of reactions on my lips and persistent cough, I then went to the nurse and told her that the doctor wanted to kill me. The nurse told me that those were common side effects of ACE (Angiotensin-converting enzyme) inhibitors.*

> *Ki15- I am still on HCT but I want it changed because it lowers the BP too much and I can't do anything even at work because I would be too tired. Another problem is that I tend to visit the toilet repeatedly.*

> *Ki12- I was given HCT which I have been taking for the past three years after which I started developing a cough and I went to a specialist who changed my medication to losartan but I need to change it because I now have side pains.*

Others seemed to indicate that the medication is ineffective to some extent.

Ki11- I bought some nifedipine tablets in 2021 and then upon my return I got the same medication but my BP didn't go down so I was given atenolol 50mg and after a month BP did not go down to normal so the doctor prescribed tenoric and nifedipine.

Ki9- I was given Methyldopa but could not respond hence moved to nifedipine. In 2019 I was moved to Losartan 100mg, atenolol 100mg and nifedipine 200mg.

4.3.3.5 Health Systems Factors

Some respondents were affected by the health system they pointed out.

Ki5- I went back and told the doctor about the persistent numbness and I was changed to 100mg losartan. I was told that if I feel dizzy I should not take the medication so I really got scared and I lost interest in it.

Others claimed that they experienced medicine access challenges

Ki3- I sometimes failed to take my medication when I was in the rural areas. So the challenges are related to … limited access to medicine especially in rural areas.

Ki12- Medication is rather cheaper using medical aid but it is laborious to go to town for my medication and wait in long queues.

Ki14- At times my medical aid card does not work and at times the hospitals do not have the medicine. Our particular medical aid closed most of its local pharmacies.

4.3.4 Measures to Increase Medication Adherence

The results indicated that measures to enhance medication adherence encompassed access-related measures, medical-related measures and public awareness campaigns. In terms of access-

related measures the participants thought that the health system should offer free medication, reduce the cost of medication and increase the number of public pharmacies. In relation to the need for free medication and subsidized health care, some respondents claimed that:

Ki16- ... give us free medicine even at community level because absence of money makes us experience these challenges.

Ki13- They should give the medication for free in our clinics.

Ki6- The government should help us get the medication.

Ki11- Also in relation to the cost of medication the government should subsidize medical care to promote access to these drugs.

Ki10- The health sector should provide medication for chronic diseases and I have a relative who takes nifedipine and last time she developed stroke because she did not have the medication. So the government should consider giving all people including the unemployed access to this medicine because of access challenges.

Ki5- I always feel pain that sometimes my children have put me on medical aid but in the past we used to get this medication for free. We were hoping that we should get free medication. So you see that sometimes there are two people taking the medicine in the house and it increases the cost involved.

Ki3- It is also important for the government to offer this medication for free just like the case with ARVs because it is hard if one is taking more than one type of medicine especially if you do not have the money.

Ki4- Given the high cost associated with this medicine I was thinking that perhaps if we can find a donor for the medicine this would help us a lot.

Other participants indicated the need to increase the number of public pharmacies as evidenced by the following quotes:

> *Ki12- There should be more distribution centers to enhance access as there are no access points for medication in the middle of suburbs and this contributes to non-adherence.*

Others cited the need to raise awareness on hypertension as most people fail to adhere due to lack of knowledge. This is evidenced in the statements below:

> *- Ki11- ...the government needs to help people manage their stress as well as promote mental health awareness.*

> *Ki08- The government should also do campaigns to inform people that BP is a common condition that one can live with. The government should also teach people not to pay attention to faith healers who tell people to try home remedies such as avocado leaves.*

> *Ki12- People should also be educated because BP is a silent killer so awareness campaigns really help.*

The health care system was also urged to reduce polypharmacy as shown in the following statement:

> *Ki- I think the government or the health ministry is to make sure that the medication is packaged as one tablet for example the fixed dose drug combinations for tuberculosis because when it is just one tablet people will not forget to take the medication.*

CHAPTER 5

DISCUSSION

5.1 Overview

This study explored the barriers and motivations for medication adherence among hypertensive patients in Masvingo, Zimbabwe. This chapter discusses the results through offering a detailed analysis of the findings.

5.2 Medication Adherence

The findings revealed a lack of consistent adherence to anti-hypertensive medication among the individuals in the study. This lack of adherence was evident in their tendency to deviate from prescribed medication schedules, decrease the prescribed dosage, skip doses, and take medication at their own discretion. It can be inferred from the results that missing doses was the most cited form of non-adherence and this was attributable to forgetfulness as well as other social commitments that the participants had. Some respondents failed to take along their medicine when they travelled while others simply failed to fill up on time, thereby missing doses at the required time. Others felt that they were not ill so they took the medication when they felt they were sick enough which can be an indication of denial of their medical condition. This shows that non-adherence is a common practice among hypertensive patients in the area leading to potential complications. Medication adherence is the extent to which a patient's behavior when it comes to taking medication corresponds with recommendations from a health professional. These findings concur with the World Health Organization (WHO, 2022) which indicates that between 50% and 70% of global hypertension patients do not follow their prescribers' instructions. This correlates with Gurumugurrthy (2018) who estimated that generally, about 50% of the people do not adhere to their medicine and Lane and colleagues (2022) also add that for hypertensive patients around 30%- 65% are non-adherent to their medication. Desta *et al* (2022) concluded that given the asymptomatic nature of hypertension and its indefinite treatment duration, medication adherence among hypertensive patients remains a major challenge.

5.3 Motivators for Medication Adherence

The results demonstrated that adherence to anti-hypertensive medicine was a result of several factors that encompassed family responsibilities, associated fear of death, fear of hypertension effects and presence of social support systems. In relation to family responsibilities, most hypertensive patients are family people with social responsibilities towards their children and other dependents hence they are motivated to continue taking the medication on the basis that they want to elongate their lives to be able to see their children through school and related activities. This implies the inherent belief in the capacity of medication to preserve their lives in a manner that will enable them to fend for their families. Evidence demonstrates that the economic situation in Zimbabwe at the moment is untenable hence parents are concerned about the future of their children in the unfortunate case of their untimely death due to hypertension thus they continue to take the medication. Other scholars such as Lee *et al*, (2013) concur that medication adherence is a result of fear of death since hypertension is a common ailment for older citizens with extended responsibilities. This concurs with Burnier and Egan (2019) who argued that the global hypertension pandemic is increasing while anti-hypertensive medication is available on the market.

In addition, the results proved that most respondents were motivated by medical considerations that comprise the fear of hypertension effects, for example dizziness, stroke and so on. It is evident from the results that patients sought medical attention as a result of several negative health outcomes such as dizziness, headaches, joint aches and general infirmity. The taking of medication was also associated with reduction in such challenges leading to more normal living for the patients hence failure to adhere to the medication would result in unintended health effects. In essence, most respondents claimed that the issues that might have disappeared as a result of medication may resurface following failure to adhere to medication. More often these challenges are worsened by relapse in adherence, and this could contribute to morbidity and mortality. This correlates with observations by Guo *et al* (2023) who noted that the fear of remission is a major driver towards medication adherence in hypertensive patients. Reeves *et al* (2021) noted in a related study that withdrawal from anti-hypertensive medication was associated with adverse effects such as high blood pressure and its effects (Reeves *et al.*, 2021).

The results also showed that medication adherence was motivated by the presence of social support systems such as relatives and other family members which acted as a constant reminder to the patients. This could imply that patients who live alone are more likely to miss their doses compared to those living with other family members. These social support systems are not only in relation to immediate family members, but they could also be other stakeholders such as medical personnel who offer full information to patients about hypertension and how best to deal with it. These results indicate that humans are social beings who are more likely to be positively influenced by those around them hence the strength of the social bond contributes to higher medication adherence compared to solitude. This correlates with Lee and Lee (2022) who also noted the centrality of strong social support systems in anti-hypertensive medication adherence. This also corresponds with observations by Guo *et al* (2023) who noted the validity of social support to medication adherence among Chinese people with hypertension. In addition, most social support systems that are associated with familial setups are characterized by patient-centeredness and empathetic communication styles that could contribute to higher medication adherence levels. Roumie *et al* (2011) agreed that the quality of the relationship between social support systems and the patient are important adherence drivers as this reflects patient centeredness. These observations correlate with Fortuna *et al* (2018) who noted that positive social support systems based on trustworthy health care service providers as well as supportive family structures creates positive experiences for hypertensive patients leading to medication adherence.

5.4 Barriers to Medication Adherence

The results demonstrate that medication adherence among people living with hypertension is affected by several factors inclusive of patient-related, socio-economic, socio-cultural, medicine-related and health systems barriers.

In terms of socio-economic barriers, it was noted that anti-hypertensive medicine in Zimbabwe are not free as in the case of antiretroviral therapy especially in the private sector. The public health care systems have also collapsed to the extent that patients are unable to access their medication from public health facilities. In order to survive, most patients have to procure their

medicine from the private sector which is costly. This means that affordability pose a major barrier to medication adherence in Zimbabwe considering that most people are unemployed. Similar observations were made by Burnier and Egan (2019) who noted that sub- optimal adherence was associated with the higher cost of medication in most instances (Burnier and Egan, 2019). This concurs with observations by Baker-Goering, Roy and Howard (2019) who pointed out that given the prohibitive costs of medicines it is likely that patients experiencing economic challenges are more likely to being non-adherent. The study further deduced that non-adherence was directly related to the cost of medication which was especially those without a steady source of income. Similar observations were made by Roldan, Ho and Ho (2018) who cited that where costs are relatively higher the rate of medication adherence goes down not because patients deliberately avoid medication but because of affordability constraints.

The study revealed the centrality of patient-related barriers in the failure to adhere to anti-hypertensive medication and these barriers encompassed the aspect of denial as well as the general dislike of medicine. This implies that some patients felt that hypertension is a disease that is commonly associated with age. They do not believe that hypertension poses a significant threat to them and their health, and therefore are less likely to take the medication or seek medical attention when needed. In addition, some respondents indicated their dislike of tablets leading to general aversion of those tablets in general. Hamrahian *et al* (2022) established that non-adherence was related to limited understanding regarding one's medical condition and the medication, poor perception of illness and denial of diagnosis and fear of dependence on medication.

The results displayed the role of socio-cultural barriers in limited adherence to hypertension medication. It was noted that patients suffering from hypertension were more likely to solicit information on their condition from their peers. In other cases, the patients simply do not understand the need to continuously take the medicines, especially when they are not ill. This made them vulnerable to negative peer influence where some suggested the need to stop taking the medicine while other suggested natural remedies as opposed to conventional medicines. This means that where there are stronger beliefs in indigenous knowledge systems the extent of hypertension medication adherence tends to diminish, and this is also the case where negative

perceptions regarding taking medication are present. These views were confirmed by other scholars such as Lee and Lee (2022) who contend that non-adherence is more likely where patients have limited knowledge of hypertension and its treatment. Chimberengwa and Naidoo (2021) noted that in poorer communities there is limited awareness of hypertension and when patient knowledge of the problem was low this was likely to result in reduced adherence to medication. The study also noted that the limited knowledge was also attributable to a strong belief in the power of traditional herbal remedies. Dhar, Dantas and Ali (2017) established that lower anti-hypertensive medication adherence levels were a result of limited knowledge about hypertension and the use of alternative medicine such as domestic remedies.

The results further indicated that the non-adherence to anti-hypertensive medication was attributed to the fact that most medicine were noted to have some negative side effects such as numbness, headaches and swollen body parts among others. This implies that when patients are afraid of side effects, they are more likely to avoid taking prescribed medication. This was in agreement with Osterberg and Blaschke (2005) who observed that complex medication regimens, dosing frequency and treatment side effects contribute to medication non-adherence in hypertensive patients (Osterberg and Blaschke, 2005).

The results indicated that in the healthcare system, some medical practitioners appeared to be passing negative medication information which could lead to non-adherence. It was also noted that besides negative professional perceptions regarding available medication there were also issues to do with access to medication especially in rural areas where there are no private pharmacies as the public sector is failing to meet the demand for the anti-hypertensive medication. This means that when patients do not get their medication from the public health facilities, some people will just stop taking the medication until the next time the facility restocks because of financial constraints resulting in non-adherence. Some of the respondents claimed that their particular medical aid provider had closed its pharmacies in the city leading to their clients using out of pocket money to buy medication which is expensive for them especially with part of their salaries still being deducted by the medical aid society. Choudhry (2022) noted that there are also challenges related to the poor state of the public health care sector across most developing countries. Vrijens *et al* (2017) alluded to sub-optimal adherence to anti-hypertensive

medication which is a result of lack of access to medication when needed. Mungati *et al* (2016) agreed that most patients did not adhere to medication especially in the case of patients in remote rural settings where access and affordability issues affected adherence.

5.5 Measures to Increase Medication Adherence in Zimbabwe

The participants suggested several measures that can be taken to enhance medication adherence among patients with hypertension and these were rooted around issues of access and public awareness. Since limited access to medication increases chances of non-adherence, most respondents suggested that the healthcare system offer free medication or subsidize the medication prices. Other respondents also cited the need for increasing the number of pharmacies in the communities which would improve access and in turn improve medication adherence.

Given the general lack of knowledge of the hypertension, the respondents recommended that there should be general education and awareness campaigns for hypertension which in turn would lead to improved adherence.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The study showed that there are different factors that affect medicine adherence in hypertensive patients. Several types for non-adherence were cited which include taking the medicine whenever convenient instead of following the prescribed dose frequency, reducing one's dose without consulting a prescriber, missing doses and defaulting. Some of the reasons why people would adhere to their medication were, fear of death, fear of hypertension effects, presence of a strong social support system and family responsibilities. Patient-related barriers consisted of denial and general dislike for medication. Medication- related factors that hindered medicine adherence were medicine side effects and ineffectiveness of the medicine. Lack of money to buy medication was a socioeconomic barrier that was stated. The health system flaws which caused nonadherence were lack of accessibility and provision of inadequate medical information about anti-hypertensive medicine. Enhancing the facilitators for medicine adherence and reducing the barriers will improve anti-hypertensive medicine adherence and consequently decrease the number of people with uncontrolled blood pressure.

6.2 Recommendations

In view of the above findings the researcher recommends the government to improve its health care delivery system through improving accessibility, affordability and availability of medication so that everyone can fill their prescriptions timely. The government could facilitate workshops to sensitize the health professionals to provide adequate information to the patients and also about customer centered service delivery as well as increased awareness about hypertension and its dynamics to the public. The mentioned recommendations will lower socioeconomic barriers as people will be able to afford the medication. Patient-related barriers could also be lessened because through awareness campaigns, people will be taught more about hypertension and how it does not discriminate age hence people will not get into denial. When health professionals

provide adequate information which include the fact that anti-hypertensive medicine are not once off medication, but the prescription has to be refilled monthly or as prescribed, people would not stop taking medicine when they finish the dispensed medication. Potential side effects and what to do when they happen is information that can be shared when health professionals provide adequate medical advice to avoid medication-related barriers to medicine adherence. Future research could be done to expand the scope of inquiry through looking at patients in other pharmacies and health care settings such as rural areas who did not participate in the current study. A study with a greater sample size is recommended which enables generalizability of results.

6.3 Limitations

The results of the study were affected by several factors such as the fact that the researcher was known to most of the respondents as they came to buy their medicine from the pharmacy where she worked. This indicates the possibility of social desirability bias, which could influence the accuracy of the findings. To mitigate this, the researcher maintained objectivity and rigor in both data collection and analysis. Since a small sample size was used, it is tough to generalize findings to a larger population and also the perceptions obtained may be specific to the individuals studied and may not represent broader perspectives. This limits the depth and the comprehensiveness of the study.

REFERENCES

Aberhe, W. *et al.* (2020) 'Prevalence and factors associated with uncontrolled hypertension among adult hypertensive patients on', *Pamj*, 36(187), pp. 1–14.

Adane, E., Atnafu, A. and Aschalew, A.Y. (2020) 'The cost of illness of hypertension and associated factors at the university of gondar comprehensive specialized hospital northwest Ethiopia, 2018', *ClinicoEconomics and Outcomes Research*, 12, pp. 133–140. doi:10.2147/CEOR.S234674.

Alipanah, N. *et al.* (2018) 'Adherence interventions and outcomes of tuberculosis treatment: A systematic review and meta-analysis of trials and observational studies.', *PLoS medicine*, 15(7), p. e1002595. doi:10.1371/journal.pmed.1002595.

Ampofo, A.G., Khan, E. and Ibitoye, M.B. (2020) 'Understanding the role of educational interventions on medication adherence in hypertension: A systematic review and meta-analysis.', *Heart & lung : the journal of critical care*, 49(5), pp. 537–547. doi:10.1016/j.hrtlng.2020.02.039.

Andualem, A., Gelaye, H. and Damtie, Y. (2020) 'Adherence to Lifestyle Modifications and Associated Factors Among Adult Hypertensive Patients Attending Chronic Follow-Up Units of Dessie Referral Hospital, North East Ethiopia, 2020.', *Integrated blood pressure control*, 13, pp. 145–156. doi:10.2147/IBPC.S275575.

Asgedom, S.W., Atey, T.M. and Desse, T.A. (2018) 'Antihypertensive medication adherence and associated factors among adult hypertensive patients at Jimma University Specialized Hospital, southwest Ethiopia.', *BMC research notes*, 11(1), p. 27. doi:10.1186/s13104-018-3139-6.

Baker-Goering, M.M., Roy, K. and Howard, D.H. (2019) 'Relationship Between Adherence to Antihypertensive Medication Regimen and Out-of-Pocket Costs Among People Aged 35 to 64 With Employer-Sponsored Health Insurance.', *Preventing chronic disease*, 16, p. E32. doi:10.5888/pcd16.180381.

Basopo, V. and Mujasi, P.N. (2017) 'To what extent do prescribing practices for hypertension in the private sector in Zimbabwe follow the national treatment guidelines? An analysis of insurance medical claims', *Journal of Pharmaceutical Policy and Practice*, 10(1), pp. 1–11. doi:10.1186/s40545-017-0125-7.

Boratas, S. and Kilic, H.F. (2018) 'Evaluation of medication adherence in hypertensive patients and influential factors', *Pakistan Journal of Medical Sciences*, 34(4), pp. 959–963. doi:10.12669/pjms.344.14994.

Brașoveanu, A.M. *et al.* (2019) 'The Treatment of Arterial Hypertension.', *Current health sciences journal*. Romania, pp. 358–365. doi:10.12865/CHSJ.45.04.03.

Burnier, M. and Egan, B.M. (2019) 'Adherence in Hypertension.', *Circulation research*, 124(7), pp. 1124–1140. doi:10.1161/CIRCRESAHA.118.313220.

Chimberengwa, P.T. and Naidoo, M. (2019) 'A description of community-based participatory research of hypertension awareness, prevention and treatment in a district of Matabeleland South Province, Zimbabwe', *African Journal of Primary Health Care and Family Medicine*, 11(1), pp. 1–9. doi:10.4102/phcfm.v11i1.1839.

Choudhry, N.K. *et al.* (2022) 'Medication Adherence and Blood Pressure Control: A Scientific Statement From the American Heart Association.', *Hypertension (Dallas, Tex. : 1979)*, 79(1), pp. e1–e14. doi:10.1161/HYP.0000000000000203.

Chuma, M. *et al.* (2013) 'Survival Model – Internal Savings and Lending Schemes as Livelihood Strategy for female-headed Households in an Urban Context: The Case of Mucheke Suburb in Masvingo City, Zimbabwe', *Leena and Luna International Co Ltd*, 2(2), pp. 587–594. Available at: www.ajssh.leena-luna.co.jp/AJSSHPDFs/Vol.2(2)/AJSSH2013(2.2-62).pdf.

Cresswell, John & Miller, D.L. (2000) 'Creswell & Miller 2000.pdf', *Theory into Practice*, pp. 124–131.

Desta, R. *et al.* (2022) 'Interventions Incorporating Therapeutic Alliance to Improve Medication Adherence in Black Patients with Diabetes, Hypertension and Kidney Disease: A Systematic Review.', *Patient preference and adherence*, 16, pp. 3095–3110. doi:10.2147/PPA.S371162.

Dhar, L., Dantas, J. and Ali, M. (2017) 'A Systematic Review of Factors Influencing Medication Adherence to Hypertension Treatment in Developing Countries', *Open Journal of Epidemiology*, 07(03), pp. 211–250. doi:10.4236/ojepi.2017.73018.

Edmealem, A., Ademe, S. and Gedamu, S. (2022) 'Adherence to Self-Care among Patients with Hypertension in Ethiopia: A Systematic Review and Meta-Analysis.', *International journal of hypertension*, 2022, p. 5962571. doi:10.1155/2022/5962571.

Etikan, I. (2016) 'Comparison of Convenience Sampling and Purposive Sampling', *American Journal of Theoretical and Applied Statistics*, 5(1), p. 1. doi:10.11648/j.ajtas.20160501.11.

Fortuna, R.J. *et al.* (2018) 'Patient Experience With Care and Its Association With Adherence to Hypertension Medications.', *American journal of hypertension*, 31(3), pp. 340–345. doi:10.1093/ajh/hpx200.

Gebremichael, G.B., Berhe, K.K. and Zemichael, T.M. (2019) 'Uncontrolled hypertension and associated factors among adult hypertensive patients in Ayder comprehensive specialized hospital, Tigray, Ethiopia, 2018.', *BMC cardiovascular disorders*, 19(1), p. 121. doi:10.1186/s12872-019-1091-6.

Guo, J. *et al.* (2023) 'Influencing factors of medication adherence in schizophrenic patients: a meta-analysis.', *Schizophrenia (Heidelberg, Germany)*, 9(1), p. 31. doi:10.1038/s41537-023-00356-x.

Gurumurthy, R. (2018) 'Importance of medication adherence and factors affecting it', (June).

Hamrahian, S.M., Maarouf, O.H. and Fülöp, T. (2022) 'A Critical Review of Medication Adherence in Hypertension: Barriers and Facilitators Clinicians Should Consider.', *Patient preference and adherence*, 16, pp. 2749–2757. doi:10.2147/PPA.S368784.

Hancock, B. (2006) ‘An Introduction to Qualitative Research Au t hors’, *Qualitative Research*, 4th, p. 504. doi:10.1109/TVCG.2007.70541.

Hoffmann, C. *et al.* (2018) ‘Enhanced Adherence in Patients Using an Automated Home Medication Dispenser.’, *Journal for healthcare quality : official publication of the National Association for Healthcare Quality*, 40(4), pp. 194–200. doi:10.1097/JHQ.0000000000000097.

Huyler, D. and McGill, C. (2019) ‘Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, by John Creswell and J. David Creswell. Thousand Oaks, CA: Sage Publication, Inc. 275 pages, $67.00 (Paperback).’, *New Horizons in Adult Education and Human Resource Development*, 31, pp. 75–77. doi:10.1002/nha3.20258.

Iqbal, J. *et al.* (2014) ‘Selection of a mineralocorticoid receptor antagonist for patients with hypertension or heart failure.’, *European journal of heart failure*, 16(2), pp. 143–150. doi:10.1111/ejhf.31.

Kearney, P.M. *et al.* (2005) ‘Global burden of hypertension: analysis of worldwide data.’, *Lancet (London, England)*, 365(9455), pp. 217–223. doi:10.1016/S0140-6736(05)17741-1.

Kiger, M.E. and Varpio, L. (2020) ‘Thematic analysis of qualitative data: AMEE Guide No. 131’, *Medical Teacher*, 42(8), pp. 846–854. doi:10.1080/0142159X.2020.1755030.

Kohli-Lynch, C.N. *et al.* (2022) ‘Hypertension in the South African public healthcare system: A cost-of-illness and burden of disease study’, *BMJ Open*, 12(2), pp. 1–10. doi:10.1136/bmjopen-2021-055621.

Kravitz, R.L. and Melnikow, J. (2004) ‘Medical Adherence Research: Time for a Change in Direction?’, *Medical Care*. Kravitz, Richard L.: UC Davis Center for HSR in Primary Care, 4150 V Street, Suite 2500 PSSB, Sacramento, CA, US, 95817, rlkravitz@ucdavis.edu: Lippincott Williams & Wilkins, pp. 197–199. doi:10.1097/01.mlr.0000115957.44388.7c.

Kumar, S. and Sundaram, H. (2021) ‘Attribute-Guided Network Sampling Mechanisms’, *ACM Transactions on Knowledge Discovery from Data*, 15(4). doi:10.1145/3441445.

Kvarnström, K. *et al.* (2021) ‘Factors contributing to medication adherence in patients with a chronic condition: A scoping review of qualitative research’, *Pharmaceutics*, 13(7), pp. 1–41. doi:10.3390/pharmaceutics13071100.

Lane, D. *et al.* (2022) ‘Nonadherence in hypertension: How to develop and implement chemical adherence testing’, *Hypertension*, 79(1), pp. 12–23. doi:10.1161/HYPERTENSIONAHA.121.17596.

Lee, D.S.U. and Lee, H. (2022) ‘Adherence and persistence rates of major antidiabetic medications: a review’, *Diabetology and Metabolic Syndrome*, 14(1), pp. 1–23. doi:10.1186/s13098-022-00785-1.

Lee, H.J., Jang, S.-I. and Park, E.-C. (2017) ‘Effect of adherence to antihypertensive medication on stroke incidence in patients with hypertension: a population-based retrospective cohort study’, *BMJ Open*, 7(6), p. e014486. doi:10.1136/bmjopen-2016-014486.

Lee, S. *et al.* (2000) 'Telemedicine : challenges and opportunities', (January), pp. 14–30.

Leedy, P.D., Ormrod, J.E. and Johnson, R. (2018) 'PRACTICAL', pp. 1–20.

Lewin, S. and Glenton, C. (2018) 'Are we entering a new era for qualitative research? Using qualitative evidence to support guidance and guideline development by the World Health Organization', *International Journal for Equity in Health*, 17(1), pp. 1–5. doi:10.1186/s12939-018-0841-x.

Manchester, R.A. (2011) 'Qualitative research in performing arts medicine', *Medical Problems of Performing Artists*, 26(2), pp. 63–64. doi:10.21091/mppa.2011.2010.

Masilela, C. *et al.* (2020) 'Cross-sectional study of prevalence and determinants of uncontrolled hypertension among South African adult residents of Mkhondo municipality', *BMC Public Health*, 20(1), p. 1069. doi:10.1186/s12889-020-09174-7.

Maxwell, J. (2020) 'Why qualitative methods are necessary for generalization.', *Qualitative Psychology*, 8. doi:10.1037/qup0000173.

MOHAJAN, H.K. (2018) 'Qualitative Research Methodology in Social Sciences and Related Subjects', *Journal of Economic Development, Environment and People*, 7(1), p. 23. doi:10.26458/jedep.v7i1.571.

Mungati, M. *et al.* (2016) 'Factors Associated With Uncontrolled High Blood Pressure Amongst Patients With Hypertension At Harare Central Hospital In Zimbabwe', *Journal of Hypertension and Cardiology*, 2, pp. 1–10. doi:10.14302/issn.2329-9487.jhc-16-1020.

Napolitano, F., Napolitano, P. and Angelillo, I.F. (2016) 'Medication adherence among patients with chronic conditions in Italy.', *European journal of public health*, 26(1), pp. 48–52. doi:10.1093/eurpub/ckv147.

Ostchega, Y. *et al.* (2020) 'Hypertension Prevalence Among Adults Aged 18 and Over: United States, 2017-2018.', *NCHS data brief*, (364), pp. 1–8.

Osterberg, L. and Blaschke, T. (2005) 'Adherence to medication.', *The New England journal of medicine*, 353(5), pp. 487–497. doi:10.1056/NEJMra050100.

Reeves, L. *et al.* (2021) 'Pharmacist Interventions in the Management of Blood Pressure Control and Adherence to Antihypertensive Medications: A Systematic Review of Randomized Controlled Trials.', *Journal of pharmacy practice*, 34(3), pp. 480–492. doi:10.1177/0897190020903573.

Republic of South Africa (2013) 'Protection of Personal Information, Act 4 of 2013', *Government Gazette*, (912), pp. 1–75. Available at: http://www.gov.za/sites/www.gov.za/files/37067_26-11_Act4of2013ProtectionOfPersonalInfor_correct.pdf.

Roldan, P.C., Ho, G.Y. and Ho, P.M. (2018) 'Updates to Adherence to Hypertension Medications.', *Current hypertension reports*, 20(4), p. 34. doi:10.1007/s11906-018-0830-x.

Roumie, C.L. *et al.* (2011) 'Patient centered primary care is associated with patient hypertension medication adherence.', *Journal of behavioral medicine*, 34(4), pp. 244–253. doi:10.1007/s10865-010-9304-6.

Ruslin *et al.* (2022) 'Semi-structured Interview: A Methodological Reflection on the Development of a Qualitative Research Instrument in Educational Studies', *IOSR Journal of Research & Method in Education*, 12(1), pp. 22–29. doi:10.9790/7388-1201052229.

Sadeghi, C. *et al.* (2020) 'Multifaceted strategies to improve blood pressure control in a primary care clinic: A quality improvement project.', *International Journal of Cardiology. Hypertension*, 7, p. 100060. doi:10.1016/j.ijchy.2020.100060.

Saunders, M., Lewis, P. and Thornhill, A. (2007) *Research Methods for Buniess Students, Pearson*. Available at: https://www.researchgate.net/publication/330760964_Research_Methods_for_Business_Students_Chapter_4_Understanding_research_philosophy_and_approaches_to_theory_development.

Sperber, C.M., Samarasinghe, S.R. and Lomax, G.P. (2017) 'An upper and lower bound of the Medication Possession Ratio.', *Patient preference and adherence*, 11, pp. 1469–1478. doi:10.2147/PPA.S136890.

Tesfaye, B. *et al.* (2017) 'Uncontrolled hypertension and associated factors among adult hypertensive patients on follow-up at Jimma University Teaching and Specialized Hospital: cross-sectional study', *Research Reports in Clinical Cardiology*, Volume 8, pp. 21–29. doi:10.2147/rrcc.s132126.

Tozivepi, S.N. *et al.* (2021) 'The Nexus Between Adherence to Recommended Lifestyle Behaviors and Blood Pressure Control in Hypertensive Patients at Mutare Provincial Hospital, Zimbabwe: A Cross-Sectional Study.', *Patient preference and adherence*, 15, pp. 1027–1037. doi:10.2147/PPA.S306885.

Unger, T. *et al.* (2020) '2020 International Society of Hypertension Global Hypertension Practice Guidelines', *Hypertension*, 75(6), pp. 1334–1357. doi:10.1161/HYPERTENSIONAHA.120.15026.

Vo, H.-K. *et al.* (2023) 'Prevalence and risk factors of prehypertension/hypertension among freshman students from the Vietnam National University: a cross-sectional study', *BMC Public Health*, 23(1), p. 1166. doi:10.1186/s12889-023-16118-4.

Vrijens, B. *et al.* (2017) 'Current Situation of Medication Adherence in Hypertension.', *Frontiers in pharmacology*, 8, p. 100. doi:10.3389/fphar.2017.00100.

Worku Kassahun, C. *et al.* (2020) 'Knowledge on Hypertension and Self-Care Practice among Adult Hypertensive Patients at University of Gondar Comprehensive Specialized Hospital, Ethiopia, 2019.', *International journal of hypertension*, 2020, p. 5649165. doi:10.1155/2020/5649165.

Yousuf, F.S. *et al.* (2023) 'Medication Adherence in Patients With Uncontrolled Hypertension & Hypertensive Crisis Presenting to a Hospital Setting in Karachi, Pakistan.', *Cureus*, 15(1), p.

e33995. doi:10.7759/cureus.33995.

APPENDIX

Appendix 1: English Participant information sheet

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21 959 2809 Fax: 27 21 959 2872
E-mail: soph-comm@uwc.ac.za

INFORMATION SHEET

Research Title: *Facilitators and barriers to medicine adherence in hypertensive patients in private practice.*

This is a research project being conducted by Jubilate Jonas at the University of the Western Cape (UWC). She will be responsible for the collection and storage of data. She is inviting you to participate in this interview because you have hypertension, and you buy your medication from SafenLoyal pharmacy. The purpose of this interview is to understand the facilitators and barriers to medication adherence in hypertensive patients in private practice. If you are comfortable, the interview will be audio recorded.

What kind of information will be collected if I agree to participate?

You will be asked to give information about your experiences and opinions towards medicine adherence. The interview may take approximately an hour.

Would my participation in this study be kept confidential?

The researcher undertakes to protect your identity and the nature of your contribution. To ensure your anonymity, a pseudonym will be assigned to you and your real name will not be known by anyone except the researcher

To ensure your confidentiality, your name will not be disclosed to anyone and this interview as well as the data therein will not be published.

How will my personal information be stored?

Data collected from you will be stored in a password-protected laptop, and a backup copy will be stored in a safe. The collected data will be destroyed after five years.

What are the risks of this research?

All human interactions and talking about self or others carry some amount of risks. The researcher will nevertheless minimize such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this interview. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What do I benefit from this research?

This research is not designed to help you personally, but the results may help the investigator learn more about the facilitators and barriers to medicine adherence. The hope is that, in the future, other people might benefit from this study through improved understanding of facilitators and barriers to medicine adherence.

Do I have to be in this research, and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This interview is being conducted by Jubilate Jonas at the University of the Western Cape. If you have any questions about the research study itself, please contact me on +263771467338.

Should you have any questions regarding this interview and your rights as interviewee or if you wish to report any problems you have experienced related to the interview, please contact the researcher's supervisor or the Biomedical Research Ethics Committee (BMREC). The reference number for BMREC is BM22/10/28.

Prof Renier Coetzee (Supervisor)
School of Public Health
University of the Western Cape
Private Bag X17
Bellville 7535

Prof Uta Lehmann (Director)
School of Public Health
University of the Western Cape
Private Bag X17
Bellville 7537

Tel: +27 21 959 3665 Tel: +27 21 9592809

Email: recoetzee@uwc.ac.za Email: ulehmann@uwc.ac.za

Biomedical Research Ethics Committee (BMREC)

Room 28 C Block New Arts Building

University of the Western Cape

Robert Sobukwe Road

Bellville, 7535

Tel: +2721 9592988

Email: research-ethics@uwc.ac.za

Appendix 2: Shona Participant Information Sheet

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21 959 2809 Fax: 27 21 959 2872
E-mail: soph-comm@uwc.ac.za

BEPA RINE RUZIVO

Musoro wetsvakurudzo: *Zvikonzero zvinoita kuti vanhu vane chirwere cheBP vanwe kana kutadza kunwa mishonga semanyorerwo azvakaitwa nachiremba.*

Tsvakurudzo iyi iri kuitwa na Jubilate Jonas weku University of the Western Cape (UWC) ndiye achange achitora nekuchengeta ruzivo rwamuchamipa. Munokukokwa kuti muitewo rupande mutsvakurudzo ino nekuti mune chirwere cheBP uye munotora mishonga yenyu kuSafenLoyal pharmacy. Donzvo retsvakurudzo iyi kuti tiwane ruzivo maererano ne zvikonzero zvinoita kuti vanhu vane chirwere cheBP vanwe kana kutadza kunwa mishonga semanyorerwo azvakaitwa nachiremba.

Ndichabvunzwei kana ndabvuma kuita rupande mutsvakurudzo iyi?

Muchavhunzwa zvamakambosangana nazvo uye maonero amunoita nyaya yekutorwa kana kusatorwa zvakanaka kwemishonga yeBP nevane hosha yacho. Nhaurirano yacho inokwanisa kutora awa rimwe chete.

Kutora rupande kwandichaita mutsvakurudzo iyi kuchavigwa here?

Zita renyu chairo harishandiswe asi remadunurirwa richabva kuna Jubilate Jonas risingazikanwe ndiro richashandiswa renyu romene richavigwa. Richange richingozikanwa naJubilate Jonas chete chete akuna umwezve kuUWC kana kunze kweUWC achaziva nezvaro uye nhaurirano yedu iyi haishambadzwe. Ruzivo rwunenge rwawanikwa na Jubilate Jonas rwuchaparadzwa kupera kwemakore mashanu.

Tsvakurudzo iyi ine njodzi here?

Kwete haina, asi kuri kuti mune zvamanzwa munguva yenhaurirano muchaendeswa kuchipatara chiri pedyo kuti munoonekwa namazvikokota.

Ndine zvandinowana here ndikaita rupande mutsvakurudzo iyi?

Hapana mari kana zvimwe zvakadero zvamungawane kubva mutsvakurudzo iyi asi chivimbo chedu kuti tichakwanisa kubetsera vakawanda kuwedzera utano zvichienderana nezvatinenge tawana.

Ndinokwanisa kurega kuita rupande mutsvakurudzo iyi pandinodira here?

Kuita rupande mutsvakurudzo iyi kuda kwenyu, mukafunga kuti hamuchade kuramba muchiita rupande mutsvakurudzo iyi munokwanisa kungoregera pamunodira pasina zvakaipa zvingakuwirai nenyaya yetsvakurudzo iyi.

Ko kana ndine mivhunzo?

Nhaurirano iyi iri kuitwa naJubilate Jonas weku University of the Western Cape. Kana muine mivhunzo kana zvamungade kunzwisia maererano ne tsvakurudzo iyi munomubata apa +263771467338.

Kana pane zvisina kukubatai zvakanaka zvaitwa na Jubilate Jonas kana zvamusina kufarira, munokwanisa kubata mukuru wake vanonzi Prof Renier Coetzee muchishandisa kero iri pazasi kana kuti bazi reBiomedical Research Ethics Committee (BMREC). Nhamba dzekuBMREC dzetsvakurudzo ino dzinoti BM22/10/28.

Prof Renier Coetzee (Supvervisor)
School of Public Health
University of the Western Cape
Private Bag X17
Bellville 7535

Prof Uta Lehmann (Director)
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Appendix 3 : English Consent Form

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21 959 2809 Fax: 27 21 959 2872
E-mail: soph-comm@uwc.ac.za

CONSENT FORM

Title of Research Project: *Facilitators and barriers to medicine adherence in hypertensive patients in private practice*

1. The study has been described to me in language that I understand.
2. My questions about the study have been answered.
3. I understand what my participation will involve, and I agree to participate of my own choice and free will.
4. I understand that my identity will not be disclosed to anyone.
5. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

In terms of the requirements of the Protection of Personal Information Act (Act 4 of 2013), personal information will be collected and processed:

☐ I hereby give consent for my personal information to be collected, stored, processed and shared as described in the information sheet.

☐ I do not give consent for my personal information to be collected, stored, processed and shared as described in the information sheet.

Participant's name: _____

Participant's signature: _____

Date: _____

Appendix 4: Shona Consent Form

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21 959 2809 Fax: 27 21 959 2872
E-mail: soph-comm@uwc.ac.za

BEPA RECHIBVUMIRANO

Musoro wetsvakurudzo: *Zvikonzero zvinoita kuti vanhu vane chirwere cheBP vanwe kana kutadza kunwa mishonga semanyorerwo azvakaitwa nachiremba.*

1. Ndaudzwa nezvetsvakurudzo mururimi rwandinonzwa ndikanzwisisa.
2. Mibvunzo yangu yese yapindurwa.
3. Ndinonzwisa kuti rupande mutsvakurudzo iyi kuda kwangu.
4. Ndinonzwisisa kuti zita rangu kana chii zvacho chinopandidza ini chichavigwa uye akuna achaziva kuti ndakaita rupande patsvakurudzo iyi.
5. Ndinonzwisisa kuti ndinokwanisa kungoregedza kuita rupande mutsvakurudzo iyi ipi neipi nguva yandada ndisingazokanganiswi upenyu hwangu nekuda kwekuregedza uku.

Zvichienderana nemutemo we Protection of Personal Information Act (Act 4 of 2013), ruzivo rwunoenderana neupenyu hwenyu (South Africa).

☐ Ndinobvuma kupa rwunoenderana neupenyu rwuchizoshandiswa zvinoenderana nezvandanzwa mubepa reruzivo

☐ Handibvumi kupa rwunoenderana neupenyu rwuchizoshandiswa zvinoenderana nezvandanzwa mubepa reruzivo

Zita remunhu ane rupande mutsvakurudzo: _____

Bharabhadzoyebvumirano yemunhu ane rupande mutsvakurudzo: _____

Zuva: _____

Appendix 5: Semi-structured Interview Guide

Welcome the participant, and thank them. Explain the importance of understanding facilitators and barriers to medication adherence in hypertensive patients in private practice. Is the Informed Consent form complete? Take the following socio-demographic information:

- Sex
- Age in years
- Religion
- Marital status
- Highest level of education attained
- Employment status
- Where do you live?
- Whom do you live with? [10-15 mins]

1. Who is [**name of the participant**]? [To get the conversation going]

Probes:

1.1 Can you list the medicine you are currently on?

1.2 Before the current treatment, have you been on other anti-hypertensive drugs?

1.3 If yes, which drugs were on?

1.4 If yes to 1.3, why was the medicine changed?

2. Are you adhering to your medication? [after the participant has finished answering this section explain what medicine adherence is and what medication non-adherence entails before going to section 3]

Probes :

2.1 What does medicine adherence mean to you?

2.2 How do you take your medicine?

2.3 Do you sometimes find it difficult to take your medicine?

2.4 Why?

2.5 Do you sometimes miss doses?

2.6 Why?

2.7 Do you feel anything when you miss your dose?

2.8 How important is medicine adherence to you?

3. What are some of the challenges you face when it comes to adhering to your medication?

[Look in particular for opportunities to explore barriers to medication adherence. Explore individual and systemic issues. Clarify whether they feel they are prioritising their health. Option: To keep the interview focused: Use a spider diagram visible to both of you: as the interviewee describes challenges, jot them down on the diagram so that they are clearly visible. Work through the challenges indicated; add more if mentioned].

Probes:

3.1 Can you explain this challenge in more detail?

3.2 What do you think you would need to be able to eliminate the challenge?

3.3 What do you think the health system can do to tackle the challenge?

4. What motivates you to adhere to your medication? [look out for intrinsic and extrinsic facilitators for drug adherence]

Probes:

4.1 What makes you take your medication?

4.2 Why?

5. What do you think can be done to improve medicine adherence?

Conclude the interview and ask if the interviewee has any questions for the researcher and thank them again for their time.

Appendix 6: Shona Interview Guide

Gamuchira nekutenda vatori vechikamu. Tsanangura kukosha kwakaita kunzwisisa zvikonzero zvinoita kuti vanhu vane chirwere cheBP vanwe kana kutadza kunwa mishonga semanyorerwo azvakaitwa nachiremba. Bepa rechibvumirano rabharabhadzwa here? Nyora ruzivo maererano nezvinotevera:

- Munhu uyu murume kana mukadzi
- Makore ekuberekwa
- Chitendero chenyu ndechipi?
- makaroorwa kana kuroora here?
- makasvika papi panyaya yekudzidza?
- munoshanda here uye kupi?
- munogarepi?
- munogara nani? [10-15 mins]

1. mungandiudzewo here zvizere kuti anonzi .....[zita remubati wechikamu] ndiani? [Nhanganyaya]

Zvinokuchidzirira :

1.1 mungandiudzawo here mishonga yamuri kunwa pari zvino?

1.2 musati matanga kunwa mushonga wamuri kunwa iyezvino, mune umwe mushonga here wamaimbonwa?

1.3 kana mabvuma zviri pamusoro izvo, makachinjirwei?

1.4 maimbonwa mishonga ipi pakutanga?

2. muri kunwa mishonga sezvamakaudzwa nachiremba here? [tsanangura zvinoreva kunwa mishonga zvinoenderana nezvakataurwa nachiremba. Usati waenda kuchikamu chechitatu nyatsoona kuti mubati wechikamu anzisisa zvawatsanangura here

2.1 kunwa mishonga zvakataurwa nachiremba zvinorevei kwamuri?

2.2Munonwa sei mushonga wenyu?

2.3 zvinombokuremerai kunwa mushonga wenyu here?

2.4 chikonzero?

2.5 munombotadza kunwa mushonga wenyu nenguva here?

2.6 chikonzero?

2.7 mune zvamunombonzwa here mukakanganwa kunwa mushonga?

2.8 zvakakukosherai kuti munwe mushonga sezvakatarwa nachiremba?

3. ndezvipi zvimwe zvigozhero zvamunonomposangana nazvo?

[nyatsotarisisa mukana wekuona zvinoita vanhu vasanwe mushonga semaudzirwo avakaitwa nanachiremba.

Zvinokuchidzira:

3.1 mungandiudzawo here zvigozhero zvamunosangana nazvo nemazvo here?

3.2 chii chamunofunga chingaitwa kupedza dambudziko iri?

3.3 mune zvamunofunga zvingaitwe nehurumende kupedza zvigozhero zvamataura?

4. chii chinoita kuti mude kunwa mushonga wenyu sezvakataurwa nachiremba? [tarisisa zvikonzero zvinobva pamunhu uye zvinobva munharaunda]

Probes:

4.1 chii chinokukwezvai kuti mumwe mushonga?

4.2 chikonzero?

5. zvii zvamunofunga zvingaitwa kuti vanhu vatore mushonga semaudzirwo zvanenge vaitwa?

Petera bvunzurudzo wobva wapa mubati wechikamu mukana wekukubvunzawo mivhunzo. Ibva wamutenda zvekare.

Appendix 7: Facility Access Request Letter

UNIVERSITY OF THE WESTERN CAPE
Private Bag X 17, Bellville 7535, South Africa
Tel: +27 21-959 9390, Fax: 27 21-959 2872
E-mail: soph-comm@uwc.ac.za

The Manager
SafenLoyal Pharmacy
16953 Runyararo Southwest
Masvingo

26 January 2023

Dear Sir

Re : Request for permission to use the pharmacy database and clients for research purposes

I hereby write this letter asking for permission to access and use the pharmacy database and clients for research purposes. As mentioned in interview and also indicated on my CV, I am currently doing a Masters in public health with the University of Western Cape. As part of the degree requirements, I need to submit a mini thesis. I have chosen the title ***Exploring the facilitators and barriers of medication adherence in hypertensive patients in private practice, Zimbabwe*** and I will use the semi- structured interviews to collect data.

The objectives of this study are:

- To explore patient-related barriers that influence lack of adherence to anti-hypertensive medicine.

- To explore medication-related factors that influence patients' lack of adherence to anti-hypertensive medicine.
- To explore socio-economic factors that influence medication adherence.
- To explore health systems factors that influence medication adherence.
- To explore socio-cultural factors that influence patients' lack of adherence to anti-hypertensive medicine.

In order to get suitable participants I need to access the database and look for patients with hypertension whom I will ask for permission to interview in the private consultation room in the pharmacy if you would allow me.

Participation in the research is going to be voluntary, and the participants are going to sign consent forms after reading the participation information sheet. The identities of the participants are going to be kept confidential. The study is not expected to bring any harm to the participants, but if it does, the affected participants shall be referred to the local clinic for professional help.

I hope to receive a favorable response from you.

Yours sincerely

Jonas Jubilate
School of Public Health, University of the Western Cape, Robert Sobukwe Road, Bellville, 7535
Tel: +26 377 146 7338
Email: 4104487@myuwc.ac.za

Supervisor:

1. Professor Renier Coetzee,
   School of Public Health, University of the Western Cape, Robert Sobukwe Road, Bellville, 7535
   Tel: +27 021 959 2632
   Email: recoetzee@uwc.ac.za

2. Biomedical Research Ethics Committee (BMREC)
   Room 28 C Block New Arts Building
   University of the Western Cape
   Robert Sobukwe Road
   Bellville, 7535
   Tel: +2721 9592988

Email: research-ethics@uwc.ac.za

UNIVERSITY of the WESTERN CAPE

60 YEARS of hope, action & knowledge

25 January 2023

Ms J Jonas
School of Public Health
Faculty of Community and Health Sciences

BMREC Reference Number: BM22/10/28

Project Title: Exploring the facilitators of barriers of medication adherence in hypertensive patients in private practice, Zimbabwe.

Approval Period: **25 January 2023 – 24 January 2026**

I hereby certify that the Biomedical Science Research Ethics Committee of the University of the Western Cape approved the scientific methodology and ethics of the above-mentioned research project.

Any further amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report annually by 30 November for the duration of the project.

For permission to conduct research using student and/or staff data or to distribute research surveys/questionnaires please apply via: https://sites.google.com/uwc.ac.za/permissionresearch/home

The permission letter must then be submitted to BMREC for record keeping purposes.

The Committee must be informed of any serious adverse event and/or termination of the study.

Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

NHREC Registration Number: BMREC-130416-050

FROM HOPE TO ACTION THROUGH KNOWLEDGE.

Telephone: +2638644073772
E-mail: mrcz@mrcz.org.zw
Website: http://www.mrcz.org.zw

Medical Research Council of Zimbabwe
20 Cambridge Road
Avondale
Harare
Zimbabwe

APPROVAL

Ref: MRCZ/B/2448 **03 March 2023**

Jubilate Jonas
No. 4 Stanley Ave
Lundi Park
Gweru

RE: - EXPLORING BARRIERS AND FACILITATORS FOR MEDICATION ADHERENCE IN HYPERTENSIVE PATIENTS IN PRIVATE PRACTICE, ZIMBABWE

Thank you for the application for the review of research activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has reviewed and **approved** your application to conduct the above-titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review: -

- Completed MRCZ 101 new application form
- Full Protocol
- Informed Consent Forms
- Data collection tools

- **APPROVAL NUMBER : MRCZ/B/2448**

This number should be used on all correspondence, consent forms, and documents as appropriate.

- **TYPE OF MEETING : EXPEDITED**
- **APPROVAL DATE : 03 March 2023**
- **EXPIRATION DATE : 02 March 2024**

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ offices should be submitted three months before the expiration date for continuing review.

- **SERIOUS ADVERSE EVENT REPORTING**: All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.
- **MODIFICATIONS**: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.
- **QUESTIONS**: Please contact the MRCZ on Telephone at No. 0864407377203 or by e-mail at mrcz@mrcz.org.zw

Other

- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.
- **In addition to this approval, all clinical trials involving drugs, devices, and biologies (including other studies focusing on registered drugs) require approval of the Medicines Control Authority of Zimbabwe (MCAZ) before commencement**

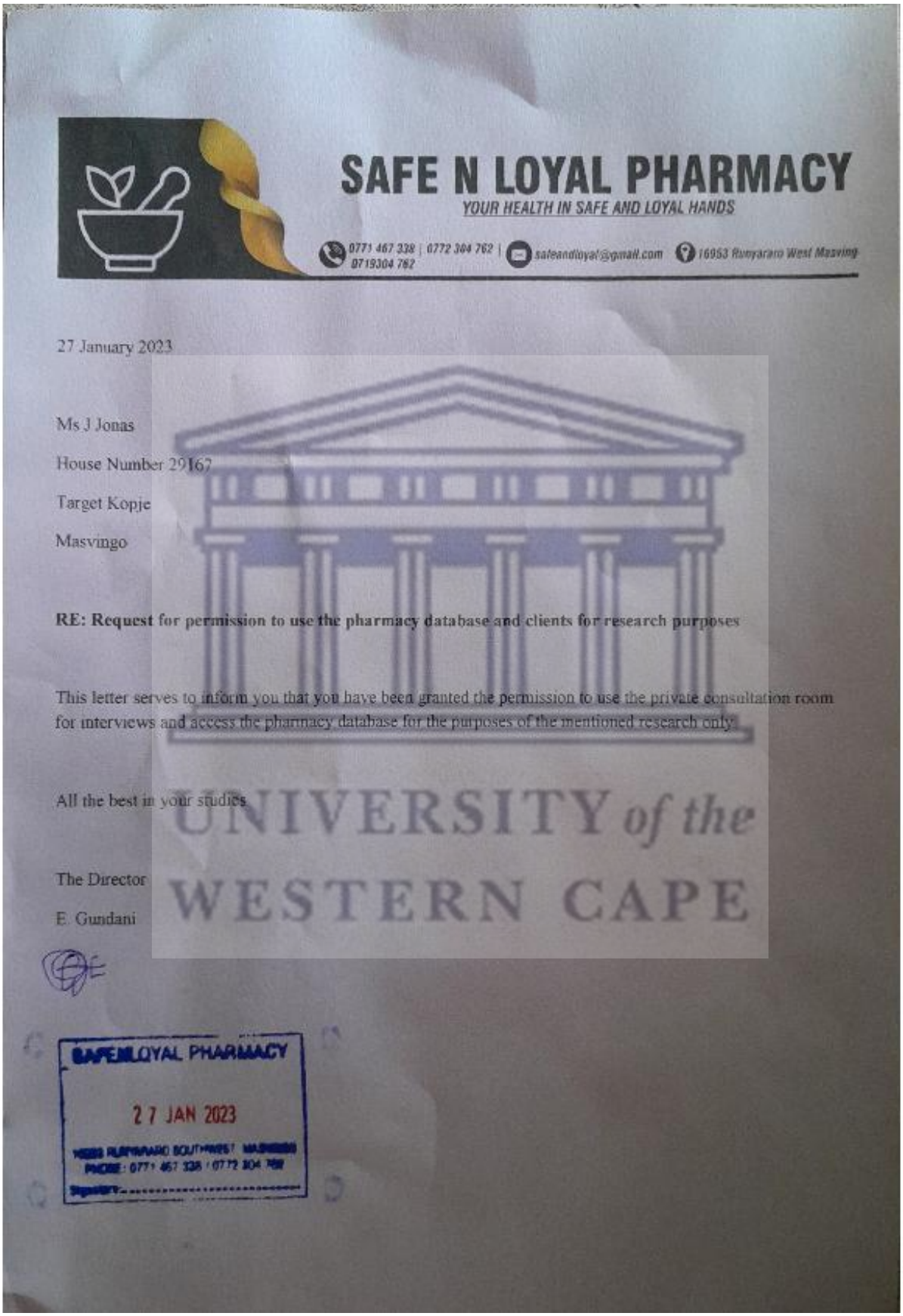
Yours Faithfully

.....

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
APPROVED
03 MAR 2023
20 CAMBRIDGE ROAD
AVONDALE, HARARE

PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH



SAFE N LOYAL PHARMACY

YOUR HEALTH IN SAFE AND LOYAL HANDS

0771 467 338 | 0772 304 762 | 0719304 762 | safeandloyal@gmail.com | 16953 Runyararo West Masvingo

27 January 2023

Ms J Jonas

House Number 29167

Target Kopje

Masvingo

RE: Request for permission to use the pharmacy database and clients for research purposes

This letter serves to inform you that you have been granted the permission to use the private consultation room for interviews and access the pharmacy database for the purposes of the mentioned research only.

All the best in your studies

The Director

E Gundani

SAFE&LOYAL PHARMACY

27 JAN 2023