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Dawood, Zaheerah. (2024). Factors contributing to uncontrolled high blood pressure in Ekurhuleni, Johannesburg: the community health workers' perspectives [Master's dissertation, University of the Witwatersrand, Johannesburg]. WireDSpace.

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Factors contributing to uncontrolled high blood pressure in Ekurhuleni, Johannesburg: the community health workers' perspectives.

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September 2023

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A dissertation submitted to the faculty of Health Sciences, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Masters in Physiotherapy

Johannesburg, 2023

Declaration

I, Zaheerah Dawood, declare that this dissertation is my own work. It is being submitted for the Degree of Masters of Science in Physiotherapy at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at any other university.

04 day of September 2023 in Johannesburg

Signature 

Dedication

To my loving mother

For always encouraging me, motivating me, supporting me and praying for me. I hope that I can always make you proud and that I am always the reason for your smile. This one is for you!

In loving memory of my father

1949-2022

You never got to see me complete this study and you will not get to see me graduate for the second time, but I am forever grateful for your support, for you not having to say anything but just knowing that you're there. For always assisting me when I needed you and for your every prayer. I know that you would have been proud of me. I miss and think of you every day.

Presentations arising from this study

- 1 September 2022 – Rural health conference, Oudtshoorn - Platform presentation.
  Topic: Factors contributing to uncontrolled high blood pressure in Ekurhuleni, Johannesburg; the community health workers perspective.

- 15th September 2022 – WITS Research Day, University of the Witwatersrand, Johannesburg - Poster presentation.
  Topic: Factors contributing to uncontrolled high blood pressure in Ekurhuleni, Johannesburg; the community health workers perspective.

Abstract

Background: Uncontrolled high blood pressure has become a concern in underserved communities of South Africa due to its consequence resulting in rising cardiovascular and cerebrovascular diseases. Community health workers at a primary care level offer door to door services for patients with chronic diseases and are often key in health education, health promotion, and disease monitoring. Understanding the voice of the community health workers regarding factors that contributes to uncontrolled high blood pressure for their patients can provide insight on strategies for future intervention programme from a systems, patient, and community perspectives.

Aim: To explore community health workers' perceptions on factors that contribute to uncontrolled high blood pressure in adults living in Ekurhuleni South sub-district, Johannesburg.

Methods: A descriptive, qualitative study design was used for this study. In-depth face-to-face interviews were conducted with 22 community health workers from four communities within the South sub-district in Ekurhuleni, Gauteng. The interviews focused on: the community health workers knowledge on measures used to control high blood pressure, the community health workers opinions on barriers and facilitators contributing to uncontrolled high blood pressure for their patients, and lastly their perceptions on strategies which can be used to improve the control of high blood pressure. Data analysis following thematic analysis was used in this study. An inductive approach was used to generate codes, themes, categories and to analyse the data.

Results: Analysis of the qualitative data revealed six themes. Community health workers possessed knowledge regarding the symptoms, causes and complications of uncontrolled high blood pressure however, they didn't fully comprehend the physiological concept of blood pressure and uncontrolled high blood pressure. It can be noted that the type of advises and education which community health workers provided their patients with are generally very contextualized and simple. Multiple barriers included financial, personal, social, system, medication and cultural and traditional issues. Facilitators included government and health

workforce assistance, improvement of clinic accessibility, inter and intra collaboration from multiple sources such as media, other health professionals as well as patient centred approaches. Strategies to improve control of high blood pressure included improved team work, awareness creation, holistic healthcare, improved access to clinic facilities, system related improvements and patient initiatives.

Conclusion: Community health workers in this study have knowledge regarding the causes, symptoms and complications of uncontrolled HBP. Multiple barriers to controlling high blood pressure included financial, social system, personal, cultural and patient barriers. The facilitators which were identified required a multidisciplinary approach. Interventions which the community health workers provide to patients are reported to be easy to follow and usually contextualized to the patient needs. Strategies required to improve the control of high blood pressure in this community are easy to implement with less assistance required from the health care system.

Key words: Community health workers, perceptions, uncontrolled high blood pressure, barriers, facilitators.

Acknowledgements

I am forever grateful to:

- The Almighty for blessing me beyond measure and for granting me this opportunity and the strength to complete this study despite having lost my dad.

- National Research Fund (NRF) for granting me funding to complete this study.

- My family members – parents, siblings, in-laws, aunt, uncle and cousins, for their support, their encouragement and their constant motivation and understanding.

- My grandmother, I still remember the day I came home and told you the news that I will be conducting my MSc study and I still explained to you the topic in detail. I will always be grateful for your presence, you warmth, your constant motivation and your love throughout my schooling and university careers.

- My sister, Tasneem Dawood, for always supporting me, assisting me and providing me with the courage and motivation to achieve all my dreams.

- My supervisor, Mr Kganetso Sekome, for his patience, dedication, his advice, his support and encouragement through this journey. Your high level of patience did not go unnoticed.

- My dearest friend, Laeeqa Sujee, for assisting me and motivating me when I had no strength to continue, for guiding me and telling me 'job well done' even when I was not deserving of it. Your assistance and encouragement did not go unnoticed and unappreciated.

- To my participants, I will forever be grateful for your assistance and for taking out the time to assist me to the best of your ability.

- Lastly and most importantly, my beloved husband, Ibrahim Patel, who supported me through every step of this tough journey. Words will never explain how thankful and grateful I am for you. Thank you for lending me a shoulder to cry on and wiping my tears, for always being by my side encouraging and motivating me. Thank you for sitting those long hours with me, perfecting my documents before submission. I will forever be grateful for your understanding and support. This study would not have been a success without your constant assistance and advise.

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List of abbreviations

BP –	Blood pressure
CCMDD -	Central Chronic Medicines Dispensing and Distribution
CHW -	Community health workers
COPC -	Community Orientated Primary Care Programme
CVD -	Cardiovascular disease
DASH -	Dietary Approaches to Stop Hypertension
HBP -	High blood pressure
HIV -	Human immunodeficiency virus
HREC -	Human Research Ethics Committee
LDL -	Low density lipoprotein
MDT -	Multi disciplinary team
NDoH -	National Department of Health
NGO -	Non-Governmental Organisation
NHANES -	National Health and Nutrition Examination Survey
NPO-	Non-Profit Organisation
PHC -	Public health care
RSA -	Republic of South Africa
SASSA -	South African Social Security Agency
TB -	Tuberculosis
WBOT -	Ward based outreach team
WHO -	World Health Organization

Chapter one - Introduction

1.1 Introduction

This opening chapter introduces the study by providing an outline of the literature discussing uncontrolled high blood pressure (HBP). It also discusses the effectiveness of including community health workers (CHW) into the health care system to aid with the health care delivery to areas in which they reside. It also discusses the problem statement, the significance of the study, the research question, research aims and objectives.

1.2 Background

High blood pressure (HBP) affects one billion people globally which results in 9.4 million deaths annually (Guwatudde et al., 2015). Most literature states that the terms hypertension and HBP are used interchangeably, however, Gabb, (2020) explains that HBP is a term used when a patient's blood pressure (BP) reading is anything over 140mmHg/90mmHg respectively and is considered more of a warning sign or symptom. Hypertension on the other hand is described as a chronic, sustained increase in blood pressure (Giles et al., 2009). Hypertension is diagnosed by testing an individual's BP on two different days and on both days, the BP reading is anything ≥140mmHg and ≥90mmHg (WHO, 2021).

According to the National Health and Nutrition Examination Survey (NHANES), high blood pressure is classified as uncontrolled when the BP reading for systolic is anything ≥140 mmHg and the diastolic reading is anything ≥90 mmHg (Sakhuja et al., 2021). Uncontrolled HBP has become a global public health concern with 22% of all adults worldwide presenting with uncontrolled HBP (Monakali et al., 2018). Uncontrolled HBP is shown to be one of the driving factors of cardiovascular disease (CVD). In the year 2000, in Republic of South Africa (RSA), hypertension was responsible for 47000 deaths and the prevalence has increased from 25% to more than 40% (Kohli-Lynch et al., 2022). Statistics have shown that 27.4% of South African men and 26.1% of South African women present with uncontrolled HBP (Jongen et al., 2019). Mills et al., (2020) states that the leading cause of CVD worldwide is uncontrolled HBP. Kim & Oh (2013) predict that by the year 2025, 1.56 billion individuals worldwide will be suffering from uncontrolled HBP.

According to statistics for Ekurhuleni south sub-district, between the years April 2020 to March 2021, 629 individuals between the ages of 18-44 years were diagnosed with hypertension. This increased to 950 individuals between April 2021 and March 2022 and then decreased to 760 individuals between April 2022 to March 2023. Possible reasons for the increase in patients being diagnosed between April 2021 and March 2022 could be due to the fact that CHWs were performing more home visits due to covid19. This way CHWs were able to identify more individuals with hypertension. Between April 2022 and March 2023, the number decreased as CHWs were no longer concentrating entirely on home visits.

Amongst the individuals aged 45 and older, between the years April 2020 to March 2021, 2160 individuals were diagnosed. This decreased to 1956 individuals between April 2021 and March 2021 and it further decreased to 1704 individuals between April 2022 to March 2023 (District Health Information System). This decrease could possibly be due to the fact that covid19 had started and the elderly individuals were advised not to leave their homes unless necessary. Therefore, less individuals visited the clinic and less were diagnosed.

When looking at those individuals between the ages 18-44 years that were on hypertensive medication, 629 individuals were on treatment between the years April 2020 and March 2021. This increased to 950 individuals between the years April 2021 and March 2022 and then it decreased to 760 individuals between the years April 2022 and March 2023. The increase between April 2021 and March 2022 could be due to the fact that more individuals were diagnosed and they were started on hypertensive medication.

Amongst the individuals aged 45 years and older, 2160 individuals were on medication, it decreased to 1956 between the years April 2021 and March 2022 and it decreased further to 1704 individuals between the years April 2022 and March 2023 (District Health Information System). Due to less individuals being diagnosed, less individuals had to be started on medication.

Within lower income countries such as Republic of South Africa (RSA), uncontrolled HBP increases the burden of disease as many individuals either go undiagnosed or there is poor awareness and control of HBP (Jongen et al., 2019). Research regarding the awareness and

control of HBP within RSA states that, HBP awareness and control are low, with awareness ranging between 19-56% and control ranging between 4-33% (Cifkova et al., 2016). Whereas, in higher income countries like Germany awareness rates range at 82%, control at 51% and treatment at 72% (Cifkova et al., 2016). According to Chow (2013), the low awareness and control rates especially in lower income countries could be due to lack of knowledge and access to health care services.

Majority of individuals in rural and peri-urban communities of RSA access basic health services through the primary health care (PHC) system (Monakali et al., 2018). This is where regular BP screening is performed, medication is prescribed and health education is given. The principle of PHC emphasizes the need to provide health services where people live, work, and play (Walley et al., 2008). The South African Department of Health is currently undergoing a three stream re-structuring approach of the PHC systems. The stream which speaks to this study is the "ward based PHC outreach teams".

Research from other countries have shown that there are positive health outcomes with the provision of community and home based services which are usually conducted by CHWs. Having CHWs as part of the team has been shown to improve health outcomes (Pillay, 2011). The re-structuring looks to train more than 50 000 CHWs regarding infectious diseases, hypertension, mother and child health, human immunodeficiency virus (HIV), tuberculosis (TB) and other non-communicable diseases (NCD). Thus, the government have understood the urgency in improving the community-based care specifically for NCDs (Gaziano et al., 2014).

By discussing the PHC restructuring in RSA and the benefits of including the CHWs into the health care system as reported by other countries, it highlights the need for trained CHW to assist with the health care of the communities where they reside. Community health workers have a better understanding of the context where they reside. They tend to also have a better understanding of the cultural beliefs of the communities and they understand most languages spoken in the communities. Community health workers already have relationships established amongst the community. These factors place them in the ideal position to assist with health care in their own communities (Tsolekile et al., 2014).

Community health workers are defined as individuals that are knowledgeable enough to carry out certain aspects related to health care delivery. They however, do not receive any formal training but rather shorter informal courses. They are usually individuals who live within the same community where they serve and they are supported by the health system (Abdel-All et al., 2017).

Community health workers in middle- and low-income countries have been shown to be effective in meeting the populations health needs and improve health care delivery. Gaziano et al., (2014) states that training CHWs regarding uncontrolled HBP might be the key to improving community knowledge and adhering to anti-hypertensive medication. Community health workers who are trained about HBP can be more effective in educating and promoting awareness regarding uncontrolled HBP. Once trained, community health workers will also be more effective in organising campaigns about uncontrolled HBP which will also aid in improving the community's knowledge on uncontrolled HBP and other conditions.

In Mexico, a study was conducted in 2018 which researched the effectiveness of CHWs in disease control and adherence to medication specifically with uncontrolled HBP and diabetes (Newman et al., 2018). The results illustrate that with the assistance of CHWs there was an improvement in the control of the diseases as well as better adherence to medication (Newman et al., 2018).

Thomas et al., (2021) states that in RSA, since the evolvement of the national policy of CHWs in 2020-2021, government has employed more CHWs to assist in PHC. Approximately 70 000 CHWs are now employed nationally to assist with improvement of health services (Thomas et al., 2021). National Department of Health (NDoH) released a policy regarding CHWs which envisaged that they will require 7800 teams of CHWs of which each team will comprise of 6-10 CHWs. No information has been stated regarding the distribution of CHWs between urban and rural communities. However, the policy also stated that within urban/per-urban communities each CHW will be visiting 250 households. Whereas, in rural communities, each CHW will be visiting 169 while in deep rural communities each CHW will be visiting 96 households (Schneider et al., 2018). These statistics show that more CHWs should be employed within the urban compared to the rural and deep rural areas.

Research further goes on to state that in RSA it was reported that with the assistance of CHWs, there was an increase in hypertensive patient screening and the referral which was reported to the clinics were 80%. Therefore, by having a structured CHW programme, more vulnerable communities will have access to basic care through home visits, health promotion and prevention programmes and referrals to clinics. Having a structured CHW programme will contribute towards a universal health coverage. Therefore showing the importance of employing more CHWs to assist even though RSA government might be on a limited budget (Thomas et al., 2021).

There are many modifiable risk factors that increase the likelihood of a HBP diagnosis such as obesity, alcohol consumption and living a sedentary lifestyle (Jongen et al., 2019). However, despite research showing that there are methods of managing uncontrolled HBP, the prevalence of uncontrolled HBP continues to increase (Jongen et al., 2019).

Possible reasons for uncontrolled HBP as explained by Abegaz et al., (2018) could include poverty, poor access to health care, urbanisation as well as social stress. The reasons mentioned by Abegaz et al., (2018) was different to a study conducted in Mpumalanga, South Africa, within the study revealed that the main reasons for uncontrolled HBP was due to factors such as lack of exercise, obesity and dyslipidaemia (Masilela et al., 2020). Yet another study was conducted in Western Cape, South Africa where it was noted that the possible reasons for uncontrolled HBP could be due to lower levels of education whereby individuals are unable to understand educational material as well as insufficient staffing (Folb et al., 2016). Therefore, within the South African context reasons for uncontrolled HBP differ compared to some parts of Africa.

In Jongen et al., (2019) study, hypertensive individuals expressed that eating healthily was too costly. They were under the misconception that becoming hypertensive is hereditary, even if they led a healthier lifestyle, they would still become hypertensive. They also mentioned the failure of the health care system and due to this they did not attend follow ups and did not adhere to antihypertensive regiments. There is abundance of literature which looks at patients' perceptions regarding uncontrolled HBP, however, to date, only one study briefly investigated the knowledge, beliefs and attitudes of the CHWs in which the study was

conducted in the year 2004, almost 19 years ago. The CHWs from the study were employed by an NGO and not the government like in our study. Our study also added to the above study by adding the barriers and facilitators and our study was conducted in Gauteng while the above study was conducted and limited to the Western Cape. Acquiring the perceptions of CHWs is of vital importance as they are the link between the community members and the health care system. Community health workers have a better understanding of the social and contextual contributors to high blood pressure in their communities. Exploring the perceptions of CHWs also raises awareness of possible gaps identified in controlling high blood pressure.

In 2004, a study was conducted in Khayelitsha, Cape Town, where the knowledge, beliefs and attitudes of CHWs regarding uncontrolled HBP were investigated (Sengwana & Puoane, 2004). Results from the study states that CHWs themselves were uneducated regarding the prevention and management of uncontrolled HBP. Our study looked to further investigate the knowledge and perceptions of the CHWs within Ekurhuleni. Due to the difference in geographical locations, there would be expected differences in cultural beliefs, differences in levels of education, diet and access and quality of health care in Khayelitsha compared to that of Ekurhuleni.

Jongen et al., (2019) conducted a study in a rural area in Limpopo South Africa, where they explored the hypertensive individuals' perspectives on reasons for increasing blood pressure values. The study found that only once diagnosed, are individuals educated on how to manage the condition, however they have limited knowledge on how to prevent uncontrolled HBP.

Within the Ekurhuleni South sub-district in Gauteng, Johannesburg, five to six home visits are conducted monthly by the physiotherapist for patients who now present with stroke as a result of uncontrolled HBP. Thus, by conducting this study, it will add to the body of knowledge and help fill gaps in literature by adding the perceptions of CHWs regarding the perceived causes for uncontrolled HBP leading to stroke within the community. This information will be used to try and address the perceived causes thus decreasing the number of strokes. Information gained from this study will also be used to design community health promoting interventions.

1.3 Problem statement

Uncontrolled HBP can be controlled by lifestyle approaches such as dietary changes, increasing physical activity, decreasing alcohol intake, eliminating smoking and adhering to the correct antihypertensive medication regimen (Jongen et al., 2019). However, despite research showing that there are effective methods to controlling HBP, the number of individuals presenting with uncontrolled HBP which results in strokes and other CVD are still on a rise within RSA.

One of the major challenges faced by patients in a South African primary health care setting is shortages of human resources (Sekome, 2018; Maphumulo & Bhengu, 2019). Trained CHWs are able to bridge this gap through the provision of house-to-house health promotion and screening of health conditions. This would require CHWs going door to door within the communities to screen and promote health care. This way CHWs are able to identify individuals with uncontrolled HBP and refer them to the clinic in order for a full assessment and treatment to take place. There is a need to understand CHWs perceptions on ways to better improve the control of HBP in this setting. Community health workers have been shown to be effective health educators and promoters as they are usually individuals from the community who are trusted thus, allowing for improved control of health conditions and adherence to medication (Newman et al., 2018).

Some of the roles which CHWS play include assisting with the management of hypertensive individuals by ensuring that the individuals have access to their prescribed medication. They ensure that these individuals either come to the respective clinics to collect their medication or else they will deliver it to their houses on a monthly basis. They do weekly follow ups to test the blood pressure and to ensure that the individuals are taking the medication as prescribed. Furthermore, CHWs educate these individuals regarding their condition, how to manage it, importance of taking their medication, warning signs and implementation of lifestyle changes.

Hypertensive patients have been interviewed regarding their opinion on why hypertension continues to be rife within the community. However, only one known study has been conducted which investigated the beliefs, attitudes and knowledge of CHWs regarding uncontrolled HBP (Sengwana & Puoane, 2004). The study which was conducted in Cape Town in 2004, focused on the understanding of CHWs regarding the epidemiology of uncontrolled HBP. No other study in RSA could be found which focused on the opinions of CHWs regarding the possible factors contributing to the uncontrolled HBP amongst patients living in Ekurhuleni South sub-district. These factors may be the missing gap in health interventions.

1.4 Significance of the study

This study adds to the limited knowledge regarding the perceptions of on factors contributing to uncontrolled HBP. It also identifies gaps within the CHW training programme which can be addressed to help strengthen the programme. This study adds to the understanding of CHW opinions with regards to the control of HBP. By gaining an understanding of the CHW's opinions, the study will assist in designing community interventions that are informed by the CHWs and thus will help to address the increased rates of cardiovascular related complications due to uncontrolled HBP. This will enable the researchers to inform the head of the CHWs within Ekurhuleni south sub-district in terms of the issues arising and a collaborative community intervention can be directed if necessary. The information gained from this study can be implemented amongst CHWs in similar social settings.

1.5 Research question

How do community health workers from Ekurhuleni perceive factors that contribute to uncontrolled high blood pressure in adults living in the Ekurhuleni South sub-district?

1.6 Research aim

To explore community health workers' perceptions on factors that contribute to uncontrolled high blood pressure in adults living in Ekurhuleni South sub-district.

1.7 Research objectives

- To establish the community health workers' knowledge on measures used to control high blood pressure in adults living in Ekurhuleni South sub-district.
- To explore barriers that contribute to uncontrolled high blood pressure of adults living in Ekurhuleni South sub-district.
- To explore facilitators to improving the control of high blood pressure of adults living in Ekurhuleni South sub-district.
- To establish the community health workers' perceptions on strategies to improve the control of high blood pressure of adults living in Ekurhuleni South sub-district.

Chapter two - Literature review

2.1 Introduction

The aim of this chapter is to provide an overview of the literature which pertains to the study objectives. This includes the following topics; NCDs, definition of HBP and hypertension, uncontrolled HBP, facilitators to the control of uncontrolled HBP, barriers to the control of uncontrolled HBP, evidence-based interventions for the management of uncontrolled HBP, hypertension guidelines for the control of HBP, benefit of CHWs, CHWs knowledge regarding uncontrolled HBP, strengthening the CHWs programme and lastly strategies which could be implemented to assist with the management of uncontrolled HBP.

2.2 Non-communicable diseases

Non communicable diseases are defined as chronic, progressive, non-transmittable diseases which are also termed as lifestyle diseases as they can be prevented (Salam, 2016). Cardiovascular diseases which include heart attacks and stroke, cancers, chronic respiratory diseases and diabetes are the top four NCDs in RSA (Ajaero et al., 2021). Non-communicable diseases continue to increase both globally as well as within RSA. Globally 41 million individuals die from NCDs each year (Habib & Saha, 2010; Bigna & Noubiap, 2019). Sub Saharan African mortality statistics reveal that in the year 2005, 35 million deaths were due to NCDs and by the year 2030, NCDs will be responsible for more than half of all deaths globally (Yuyun et al., 2020; Habib & Saha, 2010). Research regarding global burden of disease has shown that middle to low income countries are expected to notice the greatest increase in the burden of disease which could be due to globalization, urbanization and an increase in sedentary lifestyles (Wagner & Brath, 2012).

In Europe, more than 1 million individuals present with stroke and by the year 2025, it is estimated to rise to 1.5 million individuals (Wajngarten & Silva, 2019). Thirty studies conducted in Europe have concluded that uncontrolled HBP is the leading risk factor for stroke and that uncontrolled HBP was present in 64% of individuals who presented with stroke (Wajngarten & Silva, 2019). According to the World Health Organisation (WHO, 2021), three quarter of strokes which occur are due to uncontrolled HBP and more than a half of all CVD are as a result of uncontrolled HBP (Abegaz et al., 2018). In the year 2010, of all the deaths that resulted from CVD, uncontrolled HBP was the leading risk factor (Cifkova et al., 2016).

Research has shown that by the year 2025, the number of individuals living with hypertension will increase from 972 million to 1.56 billion (Cifkova et al., 2016).

While in Sub Saharan Africa, 2.6 million deaths are as a result of NCDs (Yuyun et al., 2020; Bigna & Noubiap, 2019). Over the past two decades, Sub Saharan Africa has witnessed a spike in NCDs resulting from an increase in cardiovascular risk factors such as uncontrolled HBP, diabetes, lack of physical activity and poor lifestyle and dietary choices (Bigna & Noubiap, 2019). Gouda et al., (2019) stated that globally Sub-Saharan Africa, is expected to notice the largest increase in deaths due to NCDs. It was also noted that over the past decade, within Sub-Saharan Africa, the adult population is exposed to at least one risk factor for NCDs such as HBP, alcohol usage and unhealthy lifestyle. The burden of NCDs in Sub-Saharan Africa is noted to be higher than that of the global average due to the differing social, economic and cultural conditions in Sub-Saharan Africa (Ajaero et al., 2021). In Sub-Saharan Africa there is an estimated population of around 650 million individuals of which 10-20 million individuals present with hypertension (Guwatudde et al., 2015).

Nojilana et al., (2016) states that within RSA, CVD is the leading NCD. South Africa is now faced with the quadruple burden of disease as infectious, NCDs, mother and child mortality, and injury and violence within both rural and urban areas (Modjadji, 2021). It was also reported that the rate of NCDs within RSA is two to three times higher than that of other developing countries and there is an increase prevalence of NCDs within the rural areas in RSA and within the poorer communities of urban settings (Mayosi et al., 2009). It has also been noted that instead of observing a societal shift from largely infectious to largely non-communicable burden of disease over time, rural South Africa has noticed a convergence of both infectious and NCD epidemics. Within rural South Africa it was noted that most patients diagnosed with hypertension did not have optimal control of their BP and it was found to be more common in women than men (Wong et al., 2021).

Within the Ekurhuleni south sub district, five to six home visits are conducted monthly by the physiotherapist and occupational therapist for patients who present with CVA which is due to uncontrolled HBP. Of the five to six patients who present with CVA, majority of them are female and most present with moderate to severe CVAs. Their ages range between 35-65 and they present with other co-morbidities such as HIV and diabetes. Most if not, all are the bread winners within their households and their main physical activity is walking to the taxi ranks

and the clinics. Due to their low income, they are unable to afford a healthier lifestyle. This data which is presented here, is not published data but rather it is data which the community physiotherapist has obtained from professional and personal observation by working in the south sub district of Ekurhuleni.

2.3 Definition of high blood pressure and hypertension

According to WHO (2021), the terms HBP and hypertension are used interchangeably. Gabb, (2020) states that HBP is actually a symptom or a warning sign of hypertension as HBP is when an individual's BP reading is over 140mmHg/90mmHg. However, hypertension is defined as a persistent, sustained elevation in BP whereby the BP reading is anything ≥140mmHg and ≥90mmHg (WHO, 2021).

2.4 Uncontrolled high blood pressure

Blood pressure is classified as uncontrolled when the BP reading exceeds 140/90 mmHg (Abegaz et al., 2018). Uncontrolled HBP has become a global concern with 22% of all adults worldwide suffering with uncontrolled HBP (Monakali et al., 2018). Uncontrolled HBP is shown to be one of the driving factors of CVD which is now affecting both women and men in RSA. Statistics have shown that 27.4% of South African men and 26.1% of South African women present with uncontrolled HBP (Jongen et al., 2019). Mills et al., (2020) states that the leading cause of CVD worldwide is uncontrolled HBP. By the year 2025, 1.56 billion individuals worldwide will be suffering from uncontrolled HBP (Kim & Oh 2013).

Within lower income countries such as RSA, uncontrolled HBP increases the burden of disease as many individuals either go undiagnosed or there is poor awareness and control of HBP (Jongen et al., 2019). High blood pressure awareness refers to an individual acknowledging that they are diagnosed with HBP while control refers to an individual being able to control their HBP by various means such as medication and lifestyle change (Jongen et al., 2019). Jongen et al., (2019) states that within RSA, HBP awareness and control are low, with awareness ranging between 19-56% and control ranging between 4-33%. Whereas, in higher income countries like Germany awareness rates range at 82%, control at 51% and treatment at 72% (Cifkova et al., 2016). The low rates of awareness and control pose a great problem in RSA as this increases the risk of more individuals presenting with CVD.

2.5 Facilitators to controlling high blood pressure

No known literature was found which discusses the facilitators of controlling HBP from the CHWs point of view, therefore facilitators will be discussed from the patients and CHWs perceptive. A study conducted in Eritrea, Africa explored the patients views on facilitators to control HBP and grouped them according to individual, community and health system. At the individual level, it was reported that one of the facilitators was that patients had the necessary knowledge on how to manage their condition which included importance of adherence to medication, dietary change, increase in physical activity, lowering of salt and tobacco and alcohol consumption (Gebrezgi et al., 2017). In a Nepal study, participants noted that they were fearful of the complications which could occur if they did not adhere to their medication regimen, others stated that they have witnessed family members who now present with complications and therefore they saw the need to be adherent (Shrestha et al., 2018).

Looking at the community level, community participation was noted as a facilitator to the management of uncontrolled HBP. Family members were seen as one of the key facilitators when it came to dietary requirements and when it came to accompanying them to follow up appointments. Social interaction with friends and other community members helped with getting more knowledge on uncontrolled HBP and its management. Friends and community members would educate and advise the community members on information which has been working for them and that information which they attain from their follow up appointments. Friends and community members would also provide explanations to the conditions which are easily understandable and patients tend to listen more to their friends than they do to health professionals (Shrestha et al., 2018).

On the health system level, patients remarked that having good communication with doctors were a key source to information. Patients stated that they felt that the government provided support in terms of medication as they received a 3 month supply (Gebrezgi et al., 2017).

2.6 Barriers to controlling high blood pressure

No known literature was found which discusses the barriers of uncontrolled HBP from the CHWs point of view, therefore barriers will be discussed from the literature found that addressed the patients' perceptive. The barriers were also grouped according to individual, community, health system and socioeconomic barriers.

In our study, stress was noted as an individual barrier. It was noted that participants felt stressed over the fact that they are responsible for caring for their families and that they have to make lifestyle modifications (Gebrezgi et al., 2017). When it came to lifestyle modifications participants noted that it was very difficult to control their diet, it was also noted that participants found it very difficult to reduce and stop their alcohol and tobacco intake (Shrestha et al., 2018). Participants in this study also noted that it was cheaper to buy "junk food" compared to that of healthier food options. Also in this study, it was noted that due to the high levels of crime, participants tend not to engage in low-cost exercises such as jogging and walking in the community. Participants expressed that due to the side effects of the anti-hypertensive medication, they tended to default on their antihypertensive medication and tended towards taking traditional medication (Gebrezgi et al., 2017). Participants in another study also stated that they did not adhere to medication regimen as they felt that it was a lifelong commitment and they were afraid of the side effects. The study also stated that there was a misconception that participants believed that if they changed their lifestyle, they could stop their medication altogether (Devkota et al., 2016).

Another individual barrier was financial constraints. Many said that they did not have sufficient money to buy fruits and vegetables (Gebrezgi et al., 2017). Rimando (2015) also stated that there was a poor adherence to clinic follow ups due to insufficient funds as participants did not have enough money to attend monthly follow up appointments. It was also noted that participants from the study created a misconception regarding physical activity, they either felt that it does more harm to their bodies or that it was just too difficult to implement. Rimando (2015) stated that patients were also fearful that they would get injured by doing the exercises.

Another misconception was that exercise is not to be done by lean people and that exercise could actually cause an increase in BP as there is a temperature increase (Shrestha et al., 2018). Yet in another study done in Nepal, participants noted that they were either too lazy, the weather was always too bad or they had bodily pains and were unable to exercise (Shrestha et al., 2018). Many participants in the same study also stated that they were in denial after their diagnosis which resulted in never returning for further medical attention while some never disclosed their diagnosis to family members as they felt that it was not a serious condition (Shrestha et al., 2018).

In an article by Gebrezgi et al., (2017), participants noted that community stigma was identified as a community level barrier to the control of HBP. Participants stated that community members put a lot of pressure on the hypertensive individuals as they consider the hypertensive individuals to be "non-productive" as community members. The community members also consider the hypertensive individuals to be disabled and they do not give them any sort of responsibility.

When analysing the RSA context, a study was conducted in Limpopo, South Africa, which reported that patients with hypertension anticipate stigmatization from others. This could be due to the fact that the community members believe that hypertension is self-induced as within the Limpopo province, the common causes of hypertension include being overweight and having an alcohol dependence (Idemudia et al., 2018). Stigma is a barrier which is present within the communities researched in this study as well. Hypertensive individuals who are seen during home visits do not always want to disclose to the physiotherapist that they are hypertensive as they are scared of the community stigma.

Gebrezgi et al., (2017) also stated that the community have an incorrect perception of hypertension as they consider hypertension to be a disease which only affects the wealthy and elderly individuals. It was also noted that there was a lack of community knowledge and awareness regarding hypertension and participants stated that they would appreciate if there were efforts made to help increase the knowledge and awareness amongst the community members. Participants in the study further stated that it would be beneficial for them to have a common community centre as this is a platform where they would be able to

share advises and opinions on how to control HBP. They also expressed that they will be able to practice lifestyle modification skills at the centre with each other (Gebrezgi et al., 2017).

Lastly the health system barriers included the following, high work load which was seen to decrease the time for detailed discussion between patient and nurse or doctor. Participants also noted it takes time to build a good rapport with new doctors especially when doctors change so frequently. Poor health promotion was seen as another health system barrier whereby they stated that posters were difficult to understand and there were too little awareness programmes done on radio and television (Gebrezgi et al., 2017). In Devkota et al., (2016) study it was also noted that participants stated that they did not receive all the relevant information regarding the medication and lifestyle modification. Participants also pointed out that there were no follow up clinic centres in their areas (Gebrezgi et al., 2017).

Looking at socioeconomic barriers, participants reported that it was a burden and it was time consuming to have separate meals prepared for them especially when they had to have a meal together with the family. Participants stated that during festivities they felt obliged to eat whatever was prepared and it was usually fatty salty food which was prepared (Shrestha et al., 2018).

2.7 Evidence based interventions for controlling high blood pressure

Research has shown that the first step to the management of uncontrolled HBP is accurate diagnosis thereafter the implementation of lifestyle modifications and pharmaceutical management needs to be initiated (Carey et al., 2021). Regarding lifestyle modification, individuals with uncontrolled HBP are required to reduce their body weight such that their body mass index (BMI) stays between 18.5-24.9 kg/m^2. This could be achieved by having a balanced eating plan together with increasing physical activity. The balanced eating plan should include a diet which is rich in fruits, vegetables and foods which are low in saturated and total fat – Dietary Approaches to Stop Hypertension (DASH) diet. Physical activity should include aerobic activities for a duration of at least 30-60 minutes a day every day of the week.

Alcohol consumption should be eliminated or reduced to no more than two drinks per day for men and no more than one drink per day for women and lighter weight individuals. Sodium intake should be reduced to less than 2.400mg per day. There should also be an increase in potassium intake of between 3500-5000mg per day (Go et al., 2014). This six key intervention plan is said to be the most effective method to preventing, managing and enhancing the effects of the antihypertensive drugs (Carey et al., 2021). Decreasing and avoiding tobacco usage and management and avoidance of stress has also been stated as interventions used to assist with the management of uncontrolled HBP (Gebrezgi et al., 2017). Patients with uncontrolled HBP should be monitored routinely and antihypertensive medication should be prescribed accordingly taking into account all other co-morbidities when prescribing the medication (Gebrezgi et al., 2017). This information regarding lifestyle modification could be provided routinely at follow up appointment by the nurses or the health promotors.

Community health worker education should include the following as was suggested by Tsolekile et al., (2014). At a household level, CHWs are expected to provide health education on lifestyle change such as changing of dietary habits, importance of physical activity, screening for uncontrolled HBP, adherence to medication and clinic follow up support. Community health workers should also play an advisory role whereby patients are able to seek advice regarding social or health issues (Tsolekile et al., 2014).

While at the level of the community, CHWs should be providing campaigns, support groups wherein they provide in depth education and monitoring of uncontrolled HBP, referrals to the necessary health professionals and they should be providing an active plan when it comes to lifestyle change. Community health workers are also responsible for providing home visits whereby they distribute chronic medication and provide rehabilitation exercises to those requiring them. Brownstein et al., (2007) emphasised the roles of the CHWs by stating that they are responsible for providing health education, encouraging lifestyle modification and adherence to medication, providing referrals, measuring and monitoring of conditions and lastly providing social support to the patients and families.

2.8 Hypertension Guidelines for the control of HBP

According to the 2016 Canadian Hypertension guidelines, it was recommended that patients with uncontrolled HBP should be taught to implement health behavioural change which includes, increasing physical activity, reducing weight, reducing alcohol consumption, implementing the DASH diet, reducing sodium, calcium and magnesium, increasing potassium intake and managing stress levels. The article also stressed the importance of adhering to medication and getting the BP monitored so that medication can be changed if necessary (Leung et al., 2016). The hypertension guidelines of the heart foundation of Australia highlighted the following recommendations. Physical activity for between 150-300 minutes per week together with muscle strengthening exercises for at least 2 days per week. Weight should be monitored and measurements should be taken of both BMI and waist circumference. Diet should include two servings of fruits and five servings of vegetables daily. Salt intake should be limited to between 4-6g per day and the total fat intake should be between 20-35% of energy intake. Smoking should be cut out entirely and alcohol should be limited to between 2-4 standard servings per occasion (Gabb et al., 2016). While in the Cardiovascular Journal of Africa published in 2014, the recommendations were similar to that of Canada in that it suggested weight loss by ensuring that the BMI is between 18.5-24.9 kg/m, implementation of the DASH diet, decreasing sodium intake, increasing physical activity to 30 minutes per day on most days, decreasing alcohol consumption and limiting it to nothing more than two drinks per day and lastly abstaining from smoking altogether (Seedat et al., 2014).

2.9 Benefit of Community Health Workers

Community health workers are defined as individuals from the community that are supported by the health system but do not form part of any organization (Abdel-All et al., 2017). They do not receive any formal training but rather acquire shorter courses. However, they are knowledgeable enough to carry out certain aspects related to health care delivery (Abdel-All et al., 2017). Due to their relationship with the community and their contextual understanding, language and culture, they are deemed the best to assist with health related problems (Tsolekile et al., 2014).

Research has shown that within middle- and low-income countries, CHWs are deemed effective in meeting the populations health needs and improving health care delivery (Gaziano et al., 2014). By facilitating CHWs to undergo training regarding uncontrolled HBP has been shown to be the key to improving community knowledge and adherence to anti-hypertensive medication (Gaziano et al., 2014). Zulu & Perry, (2021) stated that CHWs do actually play a vital role in NCD prevention, management, and control. In addition to this, CHWs also assist with fostering local accountability and community action when it comes to NCDs (Zulu & Perry, 2021). This writing supports and builds on what CHWs are currently practicing withing the Ekurhuleni south sub-district.

In 2018, study was conducted in Mexico whereby the effectiveness of CHWs were investigated when it came to disease control as well as the adherence to medication and the focus was specifically with uncontrolled HBP and diabetes. The study illustrated that with the assistance of CHWs there was an improvement in the control of the diseases as well as better adherence to medication (Newman et al., 2018). A “community-based accompaniment” approach was used during this study whereby CHWs acted as a bridge between the clinic and the community members. Community health workers were expected to reinforce basic health education, promote medication adherence, provide psychosocial support as well as active case retention. The CHWs were selectively chosen based on their leadership capabilities as well as their level of education. They received group training for four days weekly in one month and they were taught regarding the pathophysiology of diseases, disease diagnosis and treatment as well as the practical and logistic aspects of home visits. These CHWs also attended monthly refresher courses which focused on how to conduct an interview, how to deal with challenging patients and disease complications. Community health workers met regularly with the clinic physicians for patient case discussion and management (Newman et al., 2018).

Another study was conducted in Sedibeng, Emfuleni sub-district, Vereeniging, whereby they explored the effects on CHWs on the control of hypertension, the study concluded that by the CHWs conducting home visits and taking patients medication home, there was a better control and adherence to medication compared to when patients came to the clinic once a month (Ndou et al., 2013).

2.10 Community health workers knowledge regarding uncontrolled HBP

Despite literature showing that CHWs are effective in prevention and management of NCDs as they are able to provide support, health education and counselling, other studies indicated that CHWs actually have a limited knowledge with regards to NCDs and their associated risk factor (Tsolekile et al., 2018). A study was conducted in Khayelitsha, Cape Town, whereby they assessed the level of knowledge which CHWs possessed. The study revealed that there was a lack of training standardization and that very few CHWs received refresher training courses which was deemed necessary for the retaining of knowledge. It was thus concluded from this study that without refresher training, skills and knowledge can easily be lost as CHWs have so many other duties which they are required to perform and if there is no refresher training those skills and knowledge can be lost. The same study went on to investigate the level of knowledge of CHWs regarding hypertension and diabetes and it was concluded that the CHWs scored very low. This could have a negative impact on the patients as it can lead to other medical complications (Tsolekile et al., 2018).

2.11 Strengthening the community health programme

Literature revealed that with regular supervision, support and training CHWs are able to improve their knowledge scores on hypertension (Tsolekile et al., 2018). CHWs were shown to be more motivated when they received support regarding their own well-being and safety. Community health workers also noted that they preferred diversity in their supervision method instead of frequency as they benefited more from diversity than from regular supervision from their supervisor. Another factor which was highlighted was that CHWs who themselves suffered from any NCD were more motivated to acquire knowledge regarding that disease compared to those who did not suffer from any NCD (Tsolekile et al., 2018). Another method of strengthening the community worker programme was through peer-to-peer learning as discussed by Tsolekile et al., (2018) as knowledge transference did not occur through a hierarchical order and was therefore more informal which was more appealing to the CHWs.

2.12 Strategies which could be implemented to assist with management of uncontrolled high blood pressure.

There was a study conducted in China which explored three different health education strategies to assist with the management of hypertension (Lu et al., 2015). Group one was a self-learning group whereby participants received health education booklets to self-educate. Group two received 30 minutes long monthly lectures regarding hypertension while group three focused on interactive educational workshops which were conducted monthly. The study revealed that there was a significant improvement in all three groups regarding hypertension-related information, adherence to medication, decreasing salt intake as well as physical activity. However, in group two and three, there was a significant reduction in BP, better understanding of the condition, reduction in BMI as well as serum low density lipoprotein (LDL) levels (Lu et al., 2015). This thus shows the importance of having interactive educational campaigns done frequently.

Another study was conducted in Brazil whereby two groups were compared (Ribeiro et al., 2011). Group one participated in monthly educational workshops while group two participated in educational workshops. Group two also received periodic personalized home visits with family involvement which lasted between 30 minutes to an hour. Both groups showed an improvement in dietary change, however, there was a significant improvement noted in group two when it came to the reduction of salt and sugar intakes not only for the patients but for the family members as well. Individuals in group two showed a reduction in BMI, weight, glucose, systolic BP and waist circumference while there was only a reduction in waist circumference noted in group one. With the inclusion of home visits in group two, there is a sense of holistic management as it included a psycho-social, biological aspect as well as an inclusion of family members (Ribeiro et al., 2011). This shows the importance of family inclusion and interactive educational campaigns as can be seen in the study conducted by (Lu et al., 2015).

Another strategy which was noted was that of telehealth which was shown to be beneficial with the control of HBP (Hoffer-Hawlik et al., 2021). A scoping review was conducted on the effects of telehealth on hypertension management in middle to low-income countries. It was

reported that with telehealth, there was an improvement in either systolic or diastolic BP and in eight of the nine studies reviewed, there was a significant decrease in BP. Three out of the five studies reviewed showed a significant improvement with changes in behavioural modifications (Hoffer-Hawlik et al., 2021). Participants also noted that they had created some strategies themselves which would allow them to be consistent with their medication such as setting an alarm on their phones, carrying their medication wherever they went, creating a daily medication routine and keeping medication at their bedside seems to make them adherent (Shrestha et al., 2018).

Non-communicable diseases continue to increase within RSA. Research has shown that CVD is the leading NCD. Within Ekurhuleni south sub-district, five to six home visits are done monthly for patients presenting with CVD with the underlaying cause being uncontrolled HBP. WHO (2021) stated that the terms uncontrolled HBP and hypertension are used interchangeably. Facilitators to the control of HBP includes individual, community and health facilitators whereas barriers included individual, community, health and socioeconomic barriers. Interventions to the control of HBP included implementation of the DASH diet, health education on lifestyle changes and implementation of home visits and support groups from the CHWs. Community health workers were deemed to be beneficial to better control and adherence of hypertension medication however, the importance of strengthening CHW programme was also shown to be of importance in order for CHWs to provide patients with the best possible care. Telehealth, home visits and CHW self-education were also shown to be effective to the management of uncontrolled HBP.

Chapter three - Methodology

3.1 Introduction

This chapter will discuss the method which was employed for data collection in this study. It will discuss the study design, study site, study population, study sample, study procedure (pilot and main study) as well as data analysis and how trustworthiness of data was ensured for this study. The ethical considerations will also be discussed.

3.2 Study design

This study was a descriptive, qualitative study. This type of study design enabled the researcher to holistically describe the CHWs attitudes and perspectives of factors which contribute to uncontrolled HBP for the communities which they serve (Nassaji, 2015).

The researcher conducted face-to-face, in-depth interviews which were based on a semi-structured interview guide. An open conversational environment was created during the interactive interview setting. This was beneficial as it enabled the CHWs to provide information of a higher quality and express their experiences in their own words, thus making it easier to extrapolate the data (Cypress, 2018). This study design was deemed effective as all the study objectives were achieved.

3.3 Study site

This study was conducted within the Ekurhuleni District, East of Johannesburg, Gauteng, South Africa. Figure 3.1 is a map of the Ekurhuleni district. Ekurhuleni is subdivided into the North, South and East sub-districts which can be seen on Figure 3.1. According to Department of Cooperative Governance and Traditional Affairs (2020), Ekurhuleni is highly urbanised and ranges with individuals living between informal settlements to residential suburbs. It is also noted that 31% of individuals living within Ekurhuleni live in poverty and the unemployment rate sits at 31.8% which is shown to be far above the Gauteng average (Department of Cooperative Governance and Traditional Affairs, 2020). Ekurhuleni is known for its high levels of crime due to illegal mining. When analysing the demographics of Ekurhuleni, majority of the population is made up of black Africans at 82%, white population 14%, coloured

population 3% and Indian population 2% (Department of Cooperative Governance and Traditional Affairs, 2020). Statistics have shown that 69% of males and 75% of females above the age of 60 die from NCDs (Department of Cooperative Governance and Traditional Affairs, 2020).

The Ekurhuleni South sub-district was chosen as the study site. The study was conducted in four communities within the Ekurhuleni south sub-district namely; Rondebult, Ramaphosa, Wannenburg and Reiger Park as depicted in figure 3.2. These communities were chosen due to the observed high number of strokes and CVD related conditions because of HBP. These numbers were observed during home visits and out-patient consultations at the respective clinics where the researcher is employed as a physiotherapist. There is currently no available published data on the prevalence of strokes and CVDs for these communities.

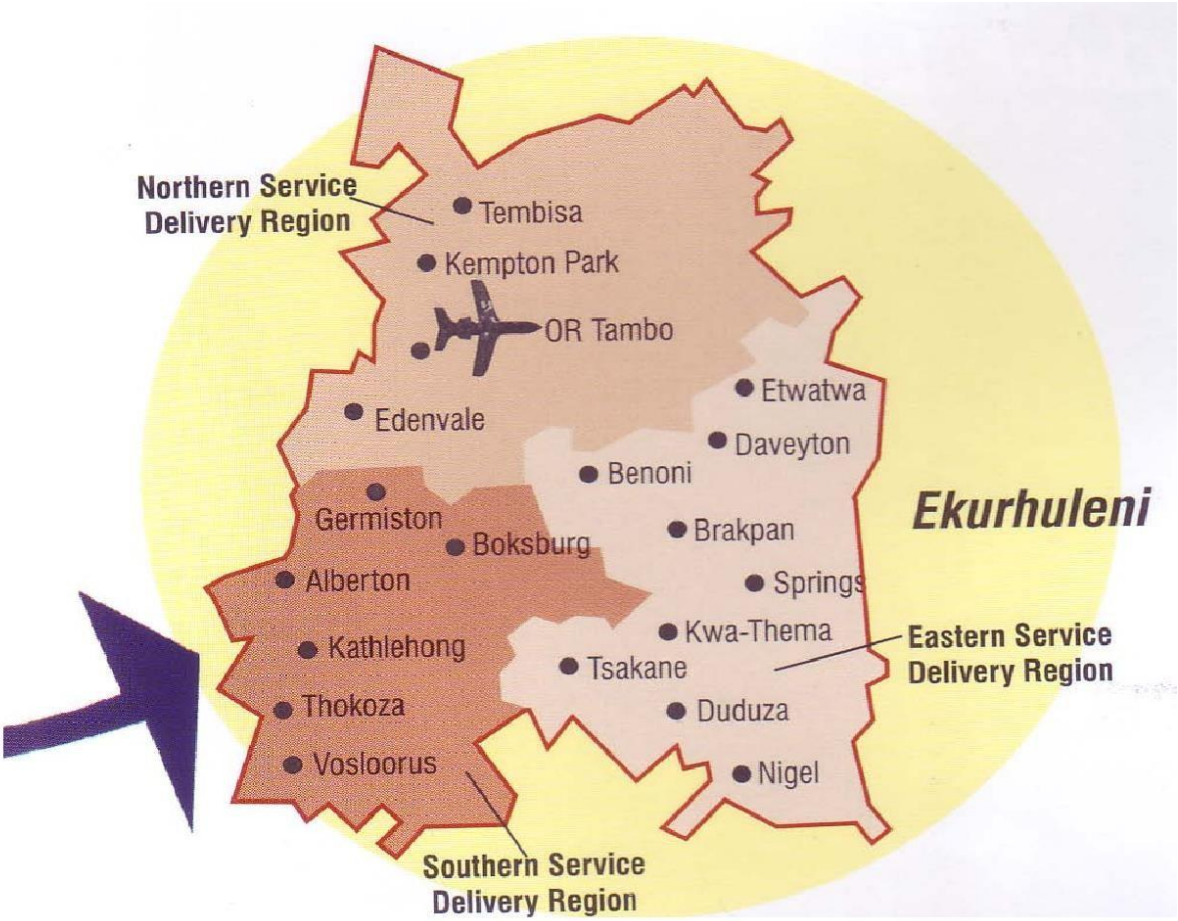


Figure 3.1, Map showing the North, South and East sub-district in Ekurhuleni

(*Enlarged Regional Map of Ekurhuleni.*, 2012)



Figure 3.2, Map showing the four study sites (*City of Ekurhuleni Metropolitan Municipality*, 2017)

3.4 Study population

At the time of data collection there were 38 CHWs employed by the Department of Health between the four study sites. Seven at Reiger Park, twelve at Ronderbult, eleven at Ramaphosa and eight at Wannenburg.

Inclusion criteria

Participants had to have been involved in the management of patients with uncontrolled HBP. They had to have been working as CHWs within the Ekurhuleni south sub-district for six months or longer as they would have more experience and would be able to provide a more in-depth insight into the communities and their patients. Lastly, they had to have undergone CHW basic training. The basic training is divided into Phase I and Phase II training. Table 3.1 lists the topics covered during Phase I and Phase II training. This training is conducted by the co-ordinator of all the CHWs within the district who is a professional nurse by profession.

Table 3.1, Phase I and Phase II CHW training content (document shared by the head of the CHWs)

Phase I	Phase II
Basics of health	Health and illness
Healthy lifestyle	Promoting health and prevention
Environmental health	Community mobilization
Basics of first aid	Working with groups
About me	Diabetes
Building my skills	High blood pressure
Community assessment	Stroke
Basics of HIV	Heart problems
HIV treatment	HIV and TB
Basics of TB	Malaria
TB treatment	Health of the women
Integrated TB adherence	Health of the men
Health of the women	Older persons
Pregnancy and antenatal care	Women and aging
Postnatal and infant care	Youth friendly services
Prevention of mother-to-child HIV transmission	Domestic violence
Basics of child health	Child abuse
Child nutrition	Social grants
	Social services for children
	Palliative care
	Oral health

Exclusion criteria

Retired CHWs were excluded from participating in the study.

3.5 Study sample

A purposive sampling as well as a snow-balling sampling technique were used to select participants. At the end of each interview, participants were asked to either nominate other CHWs whom they felt might have the knowledge to assist with the research topic or they were told to please tell their fellow CHWs about the study. This sampling technique allowed the researcher to identify and select participants whom they knew held the relevant knowledge or had the relevant experience regarding the topic of interest, so that the participants were capable of providing the related data (Palinkas et al., 2015). Interviews continued at each clinic until data saturation was reached.

3.6 Data collection tool

A semi-structured interview guide together with a demographic questionnaire (Appendix A) was used for data collection which was formulated by the researcher and reviewed by the study supervisor. A semi-structured interview guide was chosen to ensure that questions remain open ended and so to ensure that quality data is collected. The questions formulated in the interview guide were guided by literature as well as the study objectives. The interviews were all conducted in English by the researcher and were audio recorded using a voice audio recorder device. Additional notes were taken during the interviews. Each interview lasted between 20 minutes to an hour.

3.7 Study procedure

3.7.1 Pilot study

A pilot study was conducted after obtaining ethical clearance to assess the feasibility of the study procedure (Thabane et al., 2010). It measured the time taken to conduct the interviews, whether the questions asked elicited the effective responses and whether the questions were understood by the interviewees. Any technical issues with audio-recording were also assessed.

The pilot study was conducted with three allied health professionals (audiologist, speech therapist and occupational therapist) as well as two CHWs from the respective clinics who have experience with managing patients with uncontrolled HBP. These two CHWs were excluded from participating in the main study. The pilot study was conducted between December 2021 and January 2022. The interviews lasted between 15-20 minutes. Outcomes from the pilot study were used to amend the questions from the interview guide such that the questions became more open ended as previously they did not yield the detailed answered which was expected. Questions were also amended so that they were more understandable. A demographic questionnaire was also drawn up after the pilot study.

3.7.2 Main study procedure

Permission to conduct the study was obtained from the researcher committee within the Ekurhuleni district. Reference number 05/11/2021-06, (Appendix E). The researcher also obtained permission from all the head nurses at the four study sites (Appendix F). This took place in February 2022. The researcher then contacted the four team leaders telephonically from each of the study sites and explained the aim, objectives and methodology of the study. The four team leaders were also CHWs. The team leaders gave the researcher a time, date and place whereby the researcher could address each team and explain to them the study in order to acquire potential participants. On the scheduled days, the researcher addressed the CHWs and handed out the information sheet, consent forms and demographic questionnaires. The researcher then analysed the demographic questionnaires and listed all those CHWs who fit the inclusion criteria, each of them were contacted with a time and date for the interview to take place. They were all given a letter of the alphabet to represent themselves so to ensure anonymity.

Data was collected between March 2022 and April 2022. All interviews were conducted at the PHC clinics within the respective areas. Interviews were conducted in the CHWs consultation rooms to allow for privacy and to allow for the audio recording to record without any disruptions.

3.8 Data analysis

For data analysis, a thematic analysis approach was used and was guided by Braun & Clark (2006) six phases. The researcher transferred all the audio-recorded files from the audio-recorder to the computer. An external transcriber was used to assist with transcription. He was chosen based on his previous transcription experience and fluency in English. A few audio-recordings were transcribed by the researcher as a guide for the external transcriber. The remaining audio-recordings were sent to him via google drive and a meeting was set up with him whereby he was briefed on what was expected from the transcription. Thereafter the researcher applied the six phases of thematic analysis.

With regard to the demographic question, the data was extracted from each demographic question and was placed on an excel sheet. Thereafter, tables and graphs were used to represent the data so to ensure that the data was easier to read and comprehend.

Phase 1: Familiarization of data

Once the transcriptions were completed, the researcher read, re-read and listened to the audio recordings to ensure that the data was transcribed verbatim and this enabled the researcher to gain in-depth knowledge and a clearer understanding of the data set. The researcher also noted any observations from the data set. Thereafter data cleaning was conducted whereby all transcripts were checked and corrected if necessary. This was all done on Microsoft work documents (Braun & Clark, 2006).

Phase 2: Coding

Thereafter the researcher developed a codebook on Microsoft word. The researcher analysed each transcript carefully and made side notes to identify certain comments made in each transcript. Thereafter the researcher went through all transcripts and identified comments with similar features and grouped together to form codes. This continued until all the comments were now codes. (Braun & Clark, 2006). Inductive coding was used to generate codes.

Phase 3: Discovering themes

The researcher wrote all the codes on different sticky paper and grouped together to form themes. Multiple themes were then created to fit all codes and the sticky papers were placed under the themes which fitted them best. All data was transferred to a Microsoft word document (Braun & Clark, 2006).

Phase 4: Reviewing themes

Here the researcher identified whether the codes under each theme from the entire data set had a good fit. Those codes that did not fit were removed and placed under a better fitting theme (Braun & Clark, 2006).

Phase 5: Defining and naming themes

The researcher renamed and redefined the themes so that they adequately described the codes which fell under them (Braun & Clark, 2006).

Phase 6: Producing the report

The last phase included the researcher drawing conclusions from the themes and codes generated (Braun & Clark, 2006).

3.9 Trustworthiness

Trustworthiness ensured that whatever findings are documented in the research study were valid and that the results thereof could be accepted and utilized. To ensure trustworthiness of data, the following strategies were applied; credibility, dependability, transferability, conformability and reflexivity as described by (Huberman & Miles, 2000 in Mabuza et al., 2014).

3.9.1 Credibility

Cope (2014) stated that credibility of a study ensures that the findings documented from the study is a true reflection of the participants opinions. In order to ensure credibility, an interview guide based on the study's aims and objectives had been established and used and notes were taken during the interview. Also, a clear audio recording of the interview was taken and a verbatim transcription of the interviews were conducted by an experienced independent transcriber. The study made use of an inter-coder agreement approach whereby the supervisor checked the codes and themes and provided feedback.

Process of triangulation was also employed during the study. This is when data from different sources are collaborated to ensure that reliance is not only put on one form of data for results (Huberman & Miles, 2000 in Mabuza et al., 2014). For this study, participants from four respective communities within the south sub district were interviewed regarding the same topic and the research supervisor was also involved in reviewing the data analysis process.

3.9.2 Dependability

Dependability looks at applying consistency to the study so that the study can be replicated and similar results can be obtained (Huberman & Miles, 2000 in Mabuza et al., 2014). In this study, the researcher ensured to follow the interview guide at all four study sites and the researcher ensured that the methodology was thoroughly explained to allow for the research to be replicated. A rich description of the participants selection criteria was provided as well as a description of the study site.

3.9.3 Transferability

Transferability refers to how well the findings from the study can be applied to other similar settings (Huberman & Miles, 2000 in Mabuza et al., 2014). In this study, the researcher made use of a purposive and snow balling sampling method. This ensured that only participants with adequate, specific knowledge were chosen for the study. A rich description of the inclusion and exclusion criteria was provided in the study. The study results were also provided with direct participants quotations and the study site and the study procedure were thoroughly communicated. Transferability is usually limited in qualitative research.

3.9.4 Confirmability

Refers to the neutrality of the findings of the data and ensures that the findings are not based on the preference of the researcher (Huberman & Miles, 2000 in Mabuza et al., 2014). To ensure confirmability, the researchers hired an external transcriber and direct extracts or quotations of the CHWs were used in the findings of the study.

3.9.5 Reflexivity

The researcher conducts outreach home visits and works closely with the CHWs on a monthly basis. In order to prevent personal bias, a level of professionalism was maintained as the interview guide was used at all times during data collection, the interviewer mentally prepared herself and kept a clear focus throughout all the interviews. The interviewer ensured not to mention any information or reference to any previous home visits that were conducted with the CHWs. The interviewer also tried to not make any jokes during the interviews.

3.10 Ethical considerations

Arifin (2017), states the importance of acquiring ethical consideration especially when conducting qualitative research and making use of an interview method. Thus, ethical clearance was obtained from the University of the Witwatersrand, Human Resource Ethics Committee (HREC) Clearance certificate number: M210861 (Appendix G). Ethical approval

was also obtained from the Ekurhuleni District Research officer, reference number 05/11/2021-06, (Appendix E) to conduct the study at the public health clinics. Lastly permission was sought from the respective clinics in order to make use of their facilities. The following ethical considerations was taken into consideration when conducting the study:

3.10.1 Voluntary Participation

Arifin (2017) states that all participants need to know what is expected of them and should be competent enough to participate. Hence, prior to conducting the study, the aims, objectives and methodology of the study were explained to all potential participants. An information sheet (Appendix B) was then handed out to each potential participant to sign and an appropriate time frame in which to read through it was given. Thereafter, they had the freedom of choice to participate in the study or to decline. The participants who agree to participate in the study were asked to sign an informed consent form (Appendix C) as well as an audio recording consent form (Appendix D). Participants were also informed that they are free to withdraw from the study whenever they wish to. All signed forms were collected on the same day as the interview. The signed consent forms were kept safely in a locked drawer and the audio recordings were transferred to the researcher's laptop and stored with a protected password. Only the researcher, supervisor and transcriber had access to it. All documents and audio recordings will be destroyed within 3 years of study publication.

3.10.2 Confidentiality

To ensure confidentiality, participant's identities were kept confidential throughout this research study. Each participant was identified by a letter of the alphabet rather than their respective names.

Chapter four – Findings

4.1 Introduction

This chapter will present the findings from the face-to-face in-depth interviews conducted in this study. The demographic profile of the study participants will be presented, followed by the themes which emerged from the interviews which were conducted with the CHWs.

4.2 Demographic profile

The demographic profiles of the CHWs are presented in table 4.1. A questionnaire was used to obtain the demographics of the CHWs interviewed.

In total, 22 out of 38 CHWs were interviewed; 20 (91%) were female and 2 (9%) were male. Their age ranged between 25-60 years, with the mean age being 40 years and the standard deviation, SD=8.59. Most participants were aged between 30-44 years, as depicted in figure 4.1. All 22 CHWs noted that their preferred language of communication was English. The preferred language of communication was important to ascertain as the interviewer was only fluent in English and Afrikaans. Therefore, if the participants noted that they preferred another language, then an external translator would have been brought in to conduct the interview in the preferred language. Majority of the CHWs (59%) stated that they were working as CHWs for 6 years or longer while only 5% of CHWs were working as CHWs for between 1-3 years which is depicted in figure 4.2.

With regard to the education or skills development which the CHWs received, 17 (68%) of CHWs had completed matric however, completing matric was not a prerequisite to pursue CHW training. Eight CHWs (30%) had completed short courses which included health promotor, home based care, peer education, primary health care, disability management, office computing and pre-nursing course.

All 22 (100%) of the CHWs completed Phase I training with the Department of Health while only 13 (59%) of them completed Phase II training. Bearing in mind that Phase II training included basic training on HBP. Four (18%) of the CHWs also had additional training which allowed them to register as enrolled nurses and they were the CHW team leaders for their communities. As team leaders, their job description includes managing their respective

teams, attending monthly meetings with other team leaders from the South sub-district, attending to patients within the community as well as managing all patient cases which are deemed unsuitable/complexed for the CHWs to manage. Figure 4.4 represents this data. The level of education of the CHWs were important to ascertain so to identify where the gap in education lies.

Table 4.1) Demographics of the CHWs (n=22).

ALPHABET	NUMBER OF YEARS AS A CHW	TRAINING RECEIVED	AGE	GENDER
A	10-12	Phase I	45-49	F
B	4-6	Matric Phase I, II	40-44	F
C	7-9	Matric Phase I, II Health Promotor	'30-34	F
D	7-9	Phase I	40-44	F
E	10-12	Home based care Phase I, II	50+	F
F	7-9	Matric Phase I, II	35-39	F
G	13+	Matric Phase I, II Enrolled nursing Primary health care	40-44	M
H	4-6	Matric Phase I, II Enrolled nursing	50+	F
I	7-9	Phase I	0 - 29	F
J	7-9	Phase I	0 - 29	F
K	7-9	Matric Phase I Per-nursing	40-44	F
L	7-9	Matric Phase I, II	35-39	F
M	7-9	Matric Phase I	45-49	F
N	7-9	Matric Phase I, II	30-34	F
O	4-6	Phase I	45-49	F
P	4-6	Matric Phase I, II Disability management	35-39	M
Q	7-9	Matric Phase I Health Promotor	45-49	F
R	4-6	Matric Phase I, II Enrolled nursing	30-34	F
T	7-9	Matric Phase I, II	30-34	F
U	7-9	Matric Phase I, II	30-34	F
V	4-6	Matric Phase I	35-39	F
W	7-9	Matric Phase I, II Enrolled Nursing Office administration	40-44	F

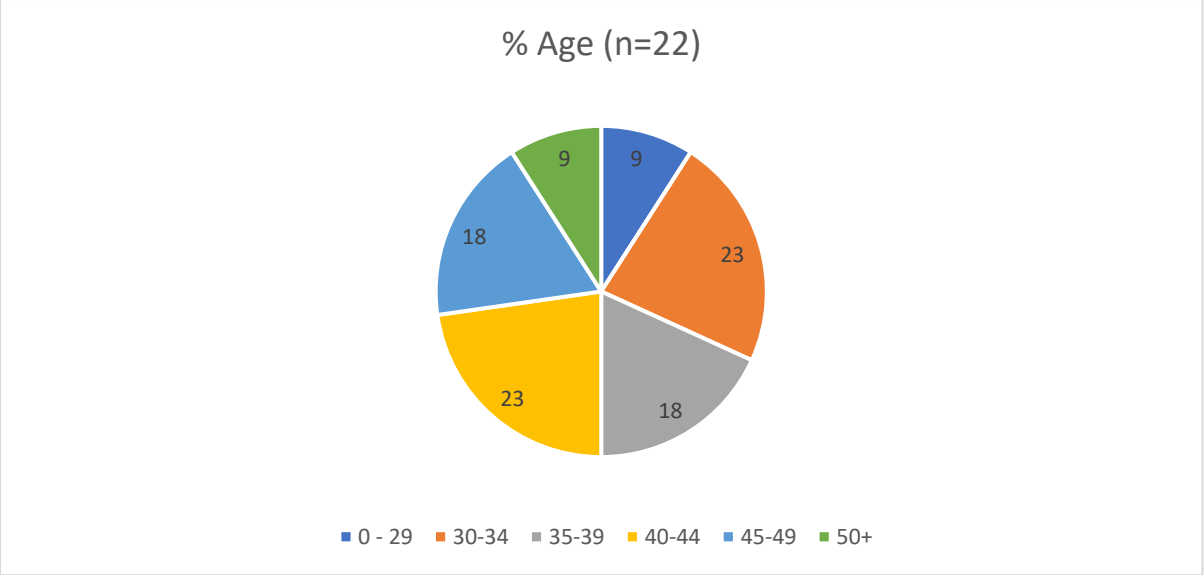


Figure 4.1) Age ranges of the CHWs in percentage

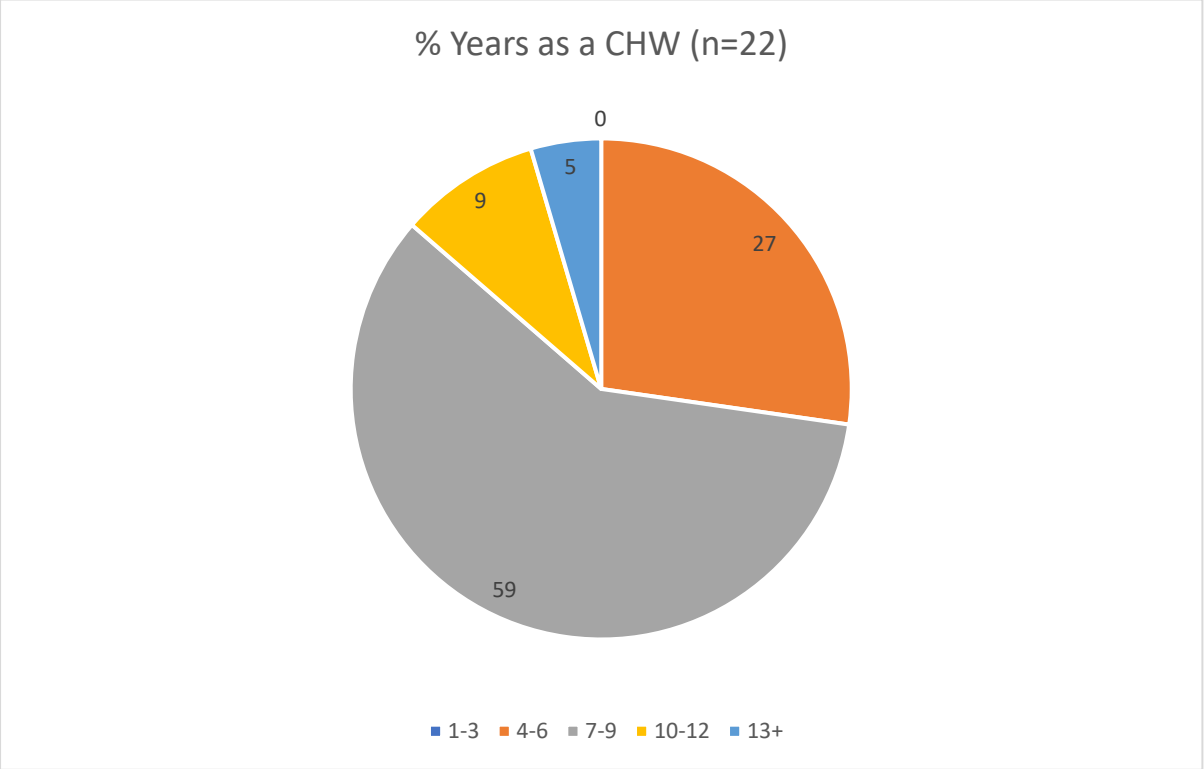


Figure 4.2) Number of years CHWs are working for in percentage

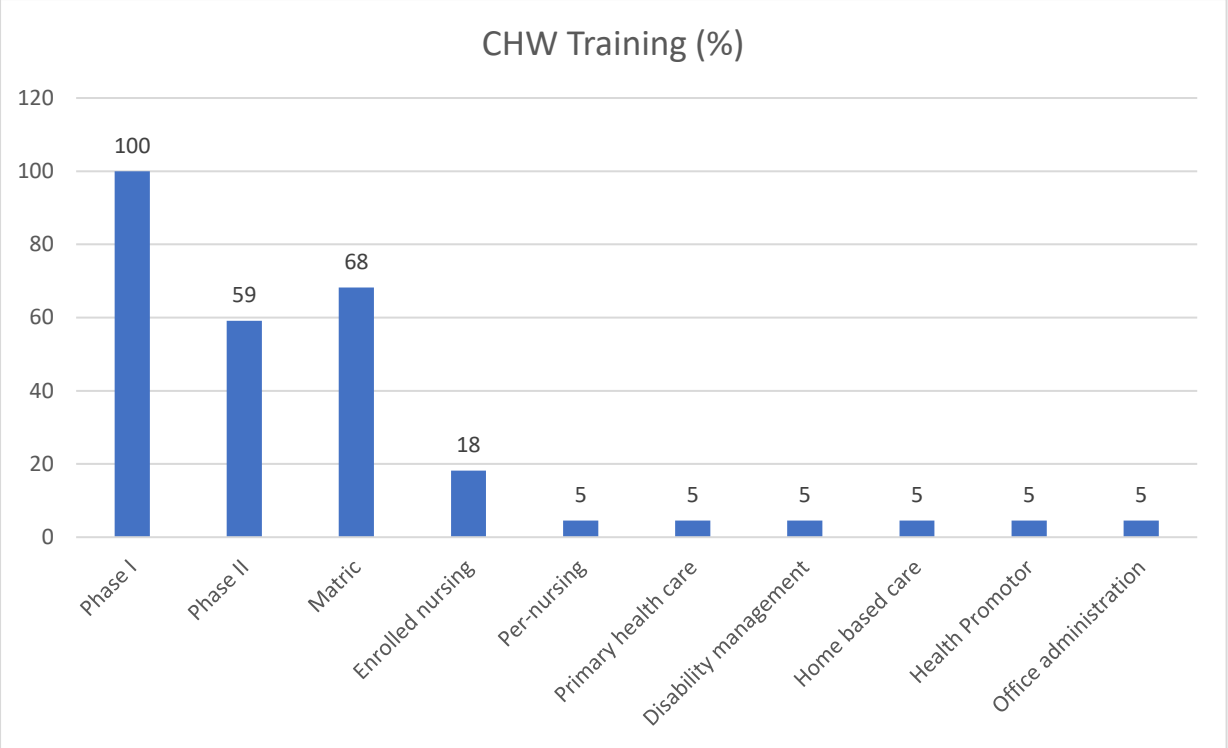


Figure 4.3) Trainings of the CHWs in percentage

4.3 Themes

The interview guide comprised of open-ended questions which were based on the four study objectives. The interviews were all coded and were then categorized into common themes. Six themes emerged from the qualitative data. See (Appendix I) for complete code book.

The six themes are as follows:

1) Medical overview of hypertension
2) Advices given for the management of uncontrolled high blood pressure
3) Education given for the management of uncontrolled high blood pressure
4) Perceived socioeconomic and personal barriers contributing to uncontrolled HBP
5) Perceived facilitators from multi-disciplinaries
6) Perceived staff, personal and system strategies

The themes will be presented based on the study objectives. Each theme will be presented with its corresponding categorises and codes as well as some direct quotations to ensure that a rich description of the data is presented.

Objective one: To establish the CHW's knowledge on measures used to control HBP.

Three themes emerged from this objective which spoke about how the CHWs viewed hypertension, the advices they gave to their patients regarding the management of uncontrolled HBP, and the health education they offered to their patients regarding the management of uncontrolled HBP.

Theme 1: Medical overview of hypertension

Four categories emerged from this theme namely: definition of BP, definition of uncontrolled HBP, causes of uncontrolled HBP as well as complications of uncontrolled HBP.

Category 1: Definition of blood pressure:

The findings revealed that not all CHWs had the necessary background knowledge regarding BP. Some CHWs were able to provide a more accurate definition of BP by stating that:

"Blood pressure is a pressure of the blood against the arteries" (CHW Q)

While some of the CHWs were unable to correctly define BP as they stated that it was high sugar levels in the body and others defined HBP instead of BP as can be seen below:

"Blood pressure is when the arteries in the body cannot work the way they supposed to, so the blood cannot flow accordingly, or like sometimes maybe, the cholesterol the fat that is right next to the arteries it is slim so the blood won't flow so that causes high blood pressure, that is what I'm thinking." (CHW B)

A few were unable to define BP at all. This was denoted by either a long pause or they would just laugh when asked to define BP. However, all were able to accurately provide the normal ranges for BP. When asked to define BP, a few listed the causes of HBP which included stress, poor dietary habits and lack of exercise. As quoted below:

"Okay. To be the definition is to say that the blood pressure is basically, it's around stress, food and lack of exercise. Example, lack of exercise, if you don't exercise a lot, if you don't move a lot, maybe even you don't keep your body active, it also leads to you creating your blood pressure to raise, especially with stress. Stress is a main cause of all diseases, especially in high blood pressure [.....] Even though you can have a good diet, you can exercise but if you don't control stress, it can also raise your blood pressure as well. [.....]."(CHW C)

Category 2: Definition of uncontrolled high blood pressure

When the CHWs were asked to define uncontrolled HBP, majority of the CHWs defined it as exceeding the normal BP range and all were able to provide the correct ranges of HBP. While a select few defined it by providing a biological definition of uncontrolled HBP. Most of the CHWs defined uncontrolled HBP by listing its causes and providing interventions for uncontrolled HBP. A CHW stated:

"Okay, if the patient can tell me that the blood pressure is uncontrolled, I'm going to give him the advice, if he eats the food he must eat at least the low salt. The salt mustn't be high and the oil they must not put the oil too much in the food. And then I can advise him to eat the diet food like vegetables also. And they must avoid the drinks." (CHW W)

Thus, very few were able to provide a more accurate definition of uncontrolled HBP. A CHW mentioned:

"[…] if they test you today they cannot diagnose you today, they tell you that you should come back and they will diagnose you, I am telling the patient that if they diagnose you, you are taking treatment then the high blood should be back to normal like from 120/60 or like if you are taking your pills correctly. But if it's always 150/100 or 180/120 it means it's uncontrollable high blood pressure." (CHW K)

Another CHW stated:

"When you have uncontrolled high blood pressure it's when the blood pressure, it cannot be controlled by the medication you using due to some of the circumstances like lack of exercise, smoking drinking and obesity [...]." (CHW Q)

Category 3: Causes of uncontrolled high blood pressure

When the CHWs were asked regarding the causes of uncontrolled HBP, very few were able to list them effectively as quoted below:

"ehh (laughing) I think it would cause, I don't have much information." (CHW B)

The other CHW stated;

"maybe when someone [……] and ... ah I forgot the other one." (CHW N)

Others provided causes which were irrelevant causes of uncontrolled HBP such as damage to the brain and increased sugar levels. However, majority of the CHWs were able to provide a more comprehensive list of causes which included lack of adherence, system related causes, medication, psychological, lifestyle and patient related causes. Table 4.2 provides a list of the causes with their corresponding direct quotations.

Table 4.2) Perceived causes of uncontrolled HBP and quotations from CHWs

CATEGORY	PERCEIVED CAUSES	QUOTATIONS
Personal reasons for lack of adherence to medication and clinic follow ups	Non-adherence to medication regimen and clinic follow up appointments	*"when the patient is not taking the medication as prescribed, not following the diet and not coming to the clinic for their follow ups." (CHW W)*
	Recreational substance abuse	*"because many clients or half of them who are taking alcohol mostly on weekends are challenging because during the weekends they don't comply to the treatment so they relapse. We suppose to educate them how to take alcohol or to decrease to take alcohol." (CHW A)*
	Increased patient working hours and patient unavailability	*"I think eh mostly time it's the time, some of the patients are working." (CHW P)*
System related causes for uncontrolled HBP	Poor staffing attitude leads to poor clinic follow up appointments	*"I think the time of taking medication and time for coming to the clinic, some of them they let me say they ignore or they don't want to come to the clinic because of the staff that is why […]." (CHW P)*
	Staff not providing enough time for health education	*"yes, for me I feel like nowadays when you come in and go to the sisters there's this rush, they don't sit one on one and give the health talks that could change a little bit." (CHW F)*
Medication related causes for uncontrolled HBP	Sole dependency on pharmaceutical treatment	*"I think a lot of the clients also they have this dependence on pharmaceutical treatment on tablets, if they don't take the tablets, they don't feel right, the more tablets they take, the better it is for them. But they don't understand, you know." (CHW G)*
	Ineffectiveness of medication	*"it's either maybe the medication doesn't work in your blood." (CHW T)*

Lifestyle related causes	Recreational substance abuse, poor dietary habits and lack of exercise.	*"The other thing is that the people are smoking and drinking, that causes high blood pressure, […..] you can drink but control yourself so that your blood pressure can be fine." (CHW J)* *"the causes is unhealthy diet, a lot of salt in food, uhmmm for me the causes will be lack of I don't want to say exercising but I believe that.." (CHW F)*
Patient related cause	Time-frame for seeking assistance	*"I don't think they're making it difficult. Because sometimes they just come from home when the BP is very high. And then when it's very high. They're giving them like a treatment that can lower that BP. The sisters here and the clinic. They do help to control the patient's BP they just come from home when the BP is very high and they do their best just to make sure that BP it's very controlled." (CHW U)*
Psychological related issues	Stress	*"it's caused by lots of stress, from stress it goes to depression, from depression it goes to high blood as far as I know, even when you take the alcohol it makes your high blood to be high. When you have, you don't solve your issues, you are in an abusive relationship and you don't want get out or you don't have something to eat and you have a child, you end up having stress because you don't want to get out of that relationship. I think that is the thing that makes the high blood to go up." (CHW I)*

	Overthinking	*"Like maybe sometimes if like the gogos stay there with 3 kids, the 3 kids maybe two of three, the two is the orphans the one is the normal. The one with the parents are still alive, the two is not alive, this two kids they talking too much, stress the gogo, so gogo is thinking too much, like the mind of gogo is not concentrating to the treatment, the high blood is high" (CHW O)*
Miscellaneous causes	Cultural norms	*"So people like salty food. And people like oil food. So that is also a big problem in our community. They feel like they can't eat without it. It's like a norm here in Reiger Park. They like to eat salt and they like oily food basically. So that's also problems. So it's also a bit difficult to take them out of their habits." (CHW C)*
	Hereditary predisposition and age	*"sometimes it's heredity and then there's diet […] also the age" (CHW M)*

Category 4: Complications of uncontrolled high blood pressure

A few CHWs listed some complications which were related to diabetes but unrelated to uncontrolled HBP such as poor wound healing, amputation, blindness and poor body functioning. Very few were unable to list any complications at all. However, most CHWs were able to accurately list some of the complications related to uncontrolled HBP which included stroke, death, cardiac complications and systemic complications. As quoted below:

"it can lead you to stroke, and also lead you to renal failure and kidney failure and heart failure." (CHW M)

Theme 2: Advices given to the community members by the CHWs for the management of uncontrolled HBP

Four categories emerged from this theme which spoke about improving dietary habits, mental health practices, adherence to medication regimen, and lifestyle modification.

Category 1: Improve dietary habits

Community health workers stated that they educated and encouraged patients to improve their dietary habits by reducing the amount of spice, salt, oil, carbohydrates, caffeine and sugar intake. Community health workers also noted that they encouraged the patients to increase their water intake. They also advised them on introducing and increasing the amount of fruits, vegetables and protein to their diets. Furthermore, the CHWs noted that they also educated patients on the importance of correct food preparation and encouraged them to remove the skin of the meat products and to boil their vegetables instead of frying them. As quoted below:

"we teach them that they must not eat alot of fat, even if it's meat, they must take out the skin if it's chicken or beef they must take out the fats and that they must boil it, and they must not put a lot of salt. If the person is putting salt and others spices, if you are putting all those things at the same time the salt becomes too much, at least they must reduce one of them. If he/ she is using Aromat, they must continue with the Aromat only, they must not mix because when the salt is too much it causes high

blood pressure, so we teach them about all those things and that they must exercise also and eat vegetables and not a lot of starch." (CHW J)

Category 2: Improve mental health practices

Management of stress and adequate sleep were two advices which most CHWs mentioned. They stated that patients should try and take their vitamins and they should ensure that they get adequate sleep. Community health workers also advised patients that they should manage their stress by talking to others regarding what stresses them out, they should try and avoid stressful situations, read a book, take a walk and spend time talking to God. One of the CHWs stated the following regarding management of stress:

"oh and avoid stress because old people are always crying to us they say that we don't listen, so we teach them that if you want to talk you can come at the clinic and talk to us so that you don't have a lot of stress." (CHW J)

Category 3: Improve adherence to medication regimen

Majority of the CHWs educated their patients regarding adherence to medication regimen. Most of the participants mentioned that one of the interventions which they educated patients on, was adhering to their medication regimen as prescribed by the nurse or doctor. At one specific study site, the CHWs all explained the 24-hour medication concept as can be seen below:

"[….] I tell them that another important thing is to take their medication the same time every day. Yes. And they must choose the time that is suitable for them. For instance, if they choose eight o'clock, it must be eight o'clock every day. If it's bi-daily those it must be eight in the morning and at night." (CHW H)

Category 4: Lifestyle modifications which the CHWs educate the community members on

Within the study sites, substance abuse seemed to be of high prevalence as almost all CHWs mentioned substance abuse. Substance abuse was stated by some as reasons for patients to default on their medication regimen. All CHWs ensured that they educated patients on the importance of decreasing alcohol and smoking.

"yoh, and the influence of alcohol is a lot here. That is why they don't take the treatment seriously because when you don't take on Friday as there's a party and Saturday and you can't take a treatment for Friday on Sunday that's how they end up defaulting." (CHW I)

Another CHW stated the following regarding smoking:

"The other thing is that the people are smoking and drinking, that causes high blood pressure. We teach them that they must smoke a little bit we don't say that they must leave." (CHW K)

Community health workers also stated that within the communities, patients did not take exercise seriously and thus realized the importance of educating about the importance of exercise. Community health workers stated that they encouraged patients to exercise even if it is just for 30 minutes in a day or taking a walk around the block as quoted below:

"exercising because in our community they don't like to take exercise as like uhmm an important thing." (CHW K)

Another CHW stated:

"And then you must do regular exercises. Even if you can walk around the block, it will help and then you must smoke less or stop smoking try and stop smoking. Less alcohol and or try to stop it altogether." (CHW H)

Theme 3: Education given for the management of uncontrolled HBP

Only one category emerged from this theme which focused on the various topics of education which the CHWs provided to their patients regarding uncontrolled HBP.

Category 1: Education regarding methods on controlling HBP

Community health workers provided their patients with the necessary education needed to control HBP. The education which was provided by CHWs were all simplistic and contextualized. The education included general information regarding the management of uncontrolled HBP, medication related education, good dietary practices, hygiene, education regarding importance of making use of clinic facilities and importance of not relying on traditional medication alone. Table 4.3 contains a list of the education provided as well as some direct quotations of the CHWs.

Table 4.3) Education given by CHWs about the management of uncontrolled HBP.

CATEGORY	Educational topic	CHWs quotation
Medication	Complications of defaulting on medication.	*"it's health education, about blood pressure and when you have high blood pressure what is the risk of when you don't take the treatment, the risks is that you are going to get a heart attack and stroke." (CHW N)*
	Importance of taking medication	*"you must take the treatment as normal not default you must take the treatment in the morning and then if you are not drinking the treatment as normal the high blood pressure is not controlling you must control the high blood pressure and do take the treatment." (CHW O)*
Good dietary practices	Effects of unhealthy foods	*"oh I think to educate them about the danger of eating unhealthy food can also help." (CHW P)*
Hygiene	Importance of hygiene	*"we tell them about the diet, we give them health education first and we even advise them to have their garden and plant things like spinach and cabbage. They must have the vegetables, they must eat proper, and that they must not drink alcohol. Even the hygiene, they must not drink alcohol, they must eat healthy and also if she's on treatment she must come to the clinic every time, at the right date and they must also take the correct dose." (CHW M)*
Clinic services	Importance of adhering to health education which nurses provide	*"okay, the first thing medication is the first thing take medication as prescribed follow the health education that the nurses give you." (CHW W)*

	Making use of clinic facilities	*"uhmm I think what we must do because we are having BP machine's. I think each and every house-hold we must do vital signs and we must educate and we must promote the clinic, we must make them free to come to the clinic, each and every time when we go out we must find others in the community who got signs of diabetes and high blood pressure and we refer." (CHW P)*
	Importance of adhering to clinic follow ups	*"which is reduce salt intake, oil intake, exercise, reduce alcohol, cigarettes and join the support groups, make sure that you come for the follow ups." (CHW W)*
	Frequency of education on the control of high blood pressure	*"we need to do health education, almost every day when the patients comes in so that they know about blood pressure." (CHW N)*
Traditional medication	Traditional healers	*"hmm because there is this belief, they like going to traditional healers and we tell them that they must not go to traditional healers. When we are giving them the health talk we tell them about the side effects and the importance of medication, the diet and everything." (CHW M)*

Objective two: To explore barriers that contribute to uncontrolled high blood pressure in adults living in Ekurhuleni South sub-district.

One theme emerged from this objective which focused on the socioeconomic and personal barriers which CHWs identified that they perceived contributed to uncontrolled HBP.

Theme 3: Perceived socioeconomic and personal barriers contributing to uncontrolled HBP

Eight categories emerged from this theme which were; financial issues, personal issues, system issues, social issues, cultural and traditional issues, patient ignorance, patient expectations from health services and medication issues.

Category 1: Financial issues

Community health workers stated that within their respective communities, there was a high number of individuals that were unemployed. The high unemployment rate resulted in patients being unable to buy the correct foods and due to this many defaulted on their medication as they were unable to eat prior to taking their medication. Many stated that it was cheaper to buy junk food than it was to buy fruits and vegetables so most patients ended up eating the incorrect foods. They also stated that buying of fruits and vegetables caused a lot of stress in many households within the communities as some households relied on grant money entirely while other households were only sustained by a sole bread winner. They reasoned that low income; high unemployment rates and scarcity of foods were contributing factors to uncontrolled HBP. As one of the CHWs quoted:

"What can I say? The environment is very poor. Like I said lots of people are unemployed, another thing is that they can't afford really to buy the vegetables and stuff." (CHW H)

Another factor which was highlighted by the CHWs was that they educated patients on initiating their own vegetable gardens at their homes. However, most CHWs stated that the patients complained that they are unable to start their own gardens as they did not have adequate space and they had insufficient funds to start a garden of their own. A CHW reported:

"Yeah, and we also educate them on, how to do their own garden as well. Most of them ask us, where they are going to get money to buy the seeds? It's good to do it, to eat out of your garden, but unfortunately some of them doesn't have. Some of our patients uhm…does not really have, you know to buy they depend on SASSA (South African Social Security Agency), yes yeah." (CHW D)

Category 2: Personal and stigma related issues

Many personal issues were highlighted by the CHWs however, some were more common than others. One of the most common personal issue which was mentioned by many CHWs was denial of condition. Community health workers stated that most of the patients were in denial of their condition. Patients refused to accept their diagnosis and lead a healthier lifestyle despite being advised to. Stigma around hypertension was yet another personal issue which was highlighted by CHWs and stigma was not only limited to uncontrolled HBP but other co-morbidities such as HIV and TB. What CHWs concluded was that due to patients being in denial of their condition and due to the stigma being present, patients chose to only seek medical attention when symptoms arose instead of adhering to their follow up appointments. Below are some direct quotations from the CHWs regarding denial and stigma respectively:

"because like I am still young like uhmmm, before we only know that high blood pressure is for elderly people, not a young girl of 20 years, how could I have high blood because I am still young, even that can cause, I am not taking my treatment because I am in denial, that I don't have that." (CHW K)

Another CHW stated:

"they don't like to … to meet with people who are taking HIV medication because of their mindset. So now it makes people to hide and they don't want to go to the clinic they rather go to the clinics that are far away from their places. So that they cannot be seen as they are unemployed that can be difficult sometimes because they don't have the transport money you see." (CHW Q)

Another personal issue which was noted by the CHWs was that patients were also very fearful to disclose their diagnosis. This was especially with family members at home which led to patients defaulting on their medication. A CHW stated:

"Uhmmm, one of the things that makes it difficult for us to control. Its uhm like its peer pressure but it is, like for instance if I am taking my pills maybe I didn't disclose them to the house so it won't be easy uhmmm, for me to take my medication because they will be asking me questions why are you doing this, why are you drinking this, why you acting like this because I have to have some precautions for my health." (CHW Q)

Category 3: Lack of community involvement and social issues

Category three speaks about all the social issues which CHWs noted. One social issue which majority of CHWs reported on was the lack of community involvement, community awareness and community support. Community health workers stated that the communities lack involvement when it comes to educating themselves regarding uncontrolled HBP and how it affects those suffering from uncontrolled HBP. They also stated that most community members are ignorant and they do not care to help those with uncontrolled HBP. A few CHWs reported that in general there is just lack of awareness within communities regarding uncontrolled HBP unlike that of HIV and TB. As can be noted in the quotation below;

"They tell each other, take those pills and put them away because I don't believe that you do have it take them to get better. You see because it's a lack of information {…….}. Because the community is only aware about TB and HIV not about hypertension and it's so dangerous." (CHW K)

Others also noted that community members no longer provide support to each other, they only live for themselves and their family members. As can be seen below;

"They are ignorant, they don't care. No one is helping each other here, it's only your family and you." (CHW J)

One of the CHWs stated that the clinics provide vegetable gardens for the patients and when patients go home with those vegetables, the community members laugh at them and this causes the patients to isolate themselves and not go to clinic to seek any assistance.

"No the clinic is trying by all means that like there are people who are doing the vegetable gardens here they doing garden for vegetables here at the back they give them some of the vegies but it's just that when you back to the community with the vegies from the clinic the people they tend to laugh at each other so the dignity sometimes, some they tend to isolate themselves they don't want to be stigmatized and you see, so they tend to lock themselves, isolate themselves inside the house instead of going for help." "(CHW Q)

Having said this, CHWs noticed that friends within the community do not influence hypertensive patients positively. They stated that friends have negative perceptions regarding the clinic and they negatively influence the patients resulting in the patient not attending follow up appointments. They also noted that friends within the community tend to share their medication with each other. They negatively influence each other when it comes to alcohol, they tend to always provide incorrect advices and they tell each other to take "concoctions" such as laxatives which will assist with the control of HBP. As one of the CHWs quoted:

"Sometimes other people they don't give them good advice they are bad influences. So the friend will go to the patients house and say hey come on, let's go to what what, the patient will say I still have to take my medication, the friend will say, no don't worry that one you will take them when you come back let's go what what. And then if we go somewhere like sports bars something you just go there and drink. The patient will also start drinking. So those people are bad influencers on the patients." (CHW U)

Community health workers also identified that families do not provide the hypertensive patients with the support which they deserve. The patients received no assistance regarding taking their medication, no assistance with correct eating, family members do not offer transportation for the disabled hypertensive patients to attend follow ups at the clinic and they provide more stress to the patient as most of them are drinking and do not work. Due to this, patients do not want to disclose their diagnosis to their family and friends. They are scared of rejection and are fearful of family members asking too many questions which leads to them defaulting on their medication and this was seen more between the youth and middle age group.

> *"uhmmm, one of the things that make it difficult for us to control is peer pressure, like for instance if I am taking my pills maybe I didn't disclose them to the house so it won't be easy for me to take my medication because they will be asking me questions why are you doing this, why are you drinking this why you acting like this because I have to have some precautions for my health." (CHW Q)*

Within all four study sites it was noted that there was a high level of domestic violence which led to patients defaulting on medication. Community health workers stated that due to alcohol abuse, the husband will come home intoxicated and will physically abuse the wife. Due to this additional stress within the household, the hypertensive wife will forget to take her medication. Another example is where the husband is the breadwinner and his income is insufficient to support the household. This leads to no food being put on the table every evening which leads to the husband abusing the hypertensive wife and thus leads to increased stress, defaulting and the hypertension becoming uncontrolled. Violence within the community such as gangsterism also leads to an increase in stress and uncontrolled HBP.

As one of the CHWs stated:

> *"if only the government can be a little bit stricter on the people who are selling alcohol and drugs then I think the levels can go down even the level of violence can go down because even in the houses there's domestic violence because there the men drink alcohol they come back and beat their wives and children." (CHW Q)*

Category 4: System issues

One of the main complaints from patients was the long queues at the clinics when patients attended their follow up appointments. Some CHWs stated that the clinics are too small to accommodate so many patients and the clinics have a very poor filing system which adds to the increase waiting times. To add to the problem, most clinics are understaffed which leads to the nurses having a high work load. This results in the nurses becoming stressed out and having a negative attitude towards the patients. Thus, leading to the nurses becoming unpleasant and not very tactful towards the patients. Their sessions with the patients are usually very rushed therefore resulting in the nurses not providing the patients with adequate time for health education. Community health workers also stated that the nurses did not always understand the socioeconomic circumstances of the patients and they treated them without realizing that they do not have food to eat at home. Medication shortage was also another system issue identified. One of the CHWs remarked the following regarding the staff attitudes at the clinic:

> *"Mostly people do default due to the service at the clinic. They feel like they don't want to come back due to sister A or B's attitude, due to long waiting time. No, they don't feel welcome when they come to the clinic. So they feeling like I'm coming to the clinic, but when I sit there my blood pressure is going up and when I go in my blood, my blood pressure is high. Okay, so the surroundings are making them angry. So the clinic also they do play a part of patient definitely not attending the clinic and also not feeling free to come to clinic." (CHW C)*

High illiteracy rates were also reported by the CHWs. Community health workers stated that patients are unable to read pamphlets as they are illiterate therefore, having a campaign whereby addressing patients in their preferred language might be the best option. This way they are certain that the patients are able to understand the information provided as they will be able to speak in the patients' home language and whatever they do not understand will be addressed during the campaign.

"Like as I told you there is a problem of high, illiteracy in our people and lack of information. So as I told you about campaign, like a campaign to inform people about hypertension because this is not helping people are just sitting they don't even read the pamphlets, we are giving them but as soon as you turn they just throw it away, I think like a campaign could help. So we can speak their language and answer their questions." (CHW K)

Community health workers complained that within some communities, there are no ambulance services available which makes it very difficult if they have an emergency during the night and the clinic is closed. If a community member has an increase in their blood pressure and they suffer a CVA during the night, there will be no ambulance services to assist with transporting the community member to the clinic. As one of the CHWs quoted:

"the department of health I think if they can extend from some resources like the clinics can be extended like to be 24hours whereby if we have got an emergency at night we can be able to come and go and attend the clinic but if it is only a 12hours service during the night it is going to be difficult. Because it is from the place we are staying and we don't have ambulance to come and collect people who are sick." (CHW Q)

Community health workers also complained that most of the areas which they service are very big and they are very few CHWs employed. Hence, they are unable to effectively cover all areas within their communities. They also noted that there is no effective communication or team work between them as CHWs and the nurses at the clinic. They stated that the nurses see them as a separate entity which results in poor monitoring of their work. Community health workers also stated that there is a very poor referral network to other multidisciplinary team (MDT) members.

"I think in terms of, you know, our support, as well, you know, support visits, so that we can evaluate where we are, you know, and actually see the impact and monitor us. I think, you know, WBOT is seen as a separate entity from the clinic and it really should not be like that you understand, you know, helping staff understand that. Okay, listen, we need to integrate the WBOT program as part of, of a part of a tool in our toolbox. You see." (CHW G)

Within the community, there is a lack of non-governmental organization (NGO) centers whereby they can have feeding schemes and exercise and support groups. Community health workers also remarked that when they reach out to government organizations asking for food parcels, they get no response and then the community members are awaiting their food parcels and they do not receive anything which is a huge disappointment.

Category 5: Cultural and traditional issues

In some of the study sites, CHWs noted that patients still made use of traditional healers as well as allopathic medication. It was found that they either took both traditional as well as allopathic medication simultaneously or they omit the allopathic medication and solely rely on taking the traditional medication. It was also noted that patients were educated on the harms of relying solely on traditional medication and the importance of taking their allopathic medication. However, one of the CHWs stated that because it's their tradition and their belief therefore, they will continue with the traditional medication. As one of the CHWs quoted:

> *"I actually forgot to add this, this is another thing that is affecting our patients neh, this belief that they have and they go to their traditional healers and they give them this medication that they drink now they mixing or they don't even drink their medication from the clinic they drink whatever they get from the traditional healers that's what affect the patient as well that's what I wanted to add." (CHW R)*

Category 6: Patient non compliance

Community health workers noted that patients did not take their condition, general health and wellbeing seriously. Even though they were given sufficient health education by the CHWs, they did not follow the advises given to them such as changing their diets or exercising. Patients were reported to be stubborn as even with exercise they did not take it as a serious subject within any of the communities despite the benefits being given. When it came to medication, they did not adhere and most CHWs stated that patients were just ignorant as they are being educated, they just refused to follow the advises given.

"People from here they don't exercise. I remember once we told this old man, you have to exercise. He says yes I will exercise. But every time we go back there, he says I'm tired you know but when we check he is busy with a bottle of alcohol. They don't take exercising seriously." (CHW U)

Another CHW stated:

"others they don't drink their medication, they don't listen when you say you must take this pill every day at this time they don't, others they don't listen. I think its ignorance." (CHW M)

CHWs stated that patients did not listen when it came to decreasing smoking and drinking. They refused to stop despite being aware of its negative implications. One of the CHWs were quoted as saying:

"so we can't stop them but we do tell them anyway how bad it is and we request them that they must not drink too much but they still do it because here, people of Ramaphosa like beer too much." (CHW J)

CHWs reported that patients felt that the nurses at the clinic were disrespectful and that they should be able to solve all the patients problems. As quoted by the CHW:

"I think the first thing is that also the patient's expectation, especially in a primary health care setting is that we and the nurses are supposed to solve all the client's problems. [….]" (CHW G)

<u>Category 7: Patient expectations from health services</u>

It was noted that the patients together with their family members had unrealistic expectations of the health care professionals as well as the health system. Patients expected the CHWs and the nurses at the clinics to be able to solve all their problems. They were expected to spoon feed the patients when it came to health education and by taking medication home only for the patient to default. The patients and family members expect

that when they come to the clinic, they need to be seen immediately by the CHWs, nurses and physiotherapist. Community health workers also stated that support groups were deemed a waste of time by the patients as the patients expected to get something other than education out from the groups such as food vouchers. Below is a comment from one of the CHWs:

> *"Patients make it difficult because when they come here they expect to be seen right now. Because even though I am the carer that comes to your house it doesn't mean when you see me I will just come and help you; there are people in the line before you, you have to follow and wait, no one is special there's no special treatment given for anyone. [.....]" (CHW F)*

Category 8: Medication challenges

When it came to medication challenges, CHWs noted that due to the medication package boxes being changed without the patients being made aware of it, patients default on medication as they do not know that it is the same medication just a different box. Community health workers also reported that certain medication has more severe side effects than others which led to patients defaulting due to the severe side effects of the medication.

> *"I think because the medication is the same, but the boxes are changed. Because most of the patients, for example like this box, this metformin they know normally it was in a white box but now it comes in a green box. And then they see written Metformin, but they will not drink because they want that white box." (CHW D)*

However, while some CHWs stated that there were many barriers which they identified others were of the opinion that there are no barriers. A few CHWs stated that there were no barriers which they could identify which they felt contributed to uncontrolled HBP, instead they stated that it was actually the patients themselves who were the problem. One CHW stated:

> *"no, it's the same thing that I said, it's not the clinic, it's not the sisters, it's the patients themselves." (CHW E)*

Objective three: To explore facilitators to improving the control of high blood pressure in adults living in Ekurhuleni South sub-district

One theme emerged from this objective. This spoke about the perceived facilitators from multidisciplinary teams to assist with the management of uncontrolled HBP.

Theme 5: Perceived facilitators from multi-disciplinaries

This theme contained five categories namely: charitable approaches, health workforce and infrastructure, clinic accessibility, patient centred approach and inter- and intra-collaboration.

Category 1: Social and community development

Some of the CHWs recommended that the government should provide communities and clinics with seeds, ploughing equipment as well as an allocated space within the communities or at the clinic so to enable them to start up their own gardening projects. They stated that this will also motivate patients to start gardening as a means of exercise as well. They suggested that government should provide communities with food vouchers to top up on their pension subsidy as the pension subsidy alone is not sufficient to feed a family. Food parcels were also mentioned and it was stated that food parcels are being given to TB patients on a daily basis. Provision should be made for hypertensive patients even if it is that they only receive these parcels every three months. This way patients are able to drink their medication and they will have decreased stress levels. One of the CHWs explained:

> *"Okay the government can provide some places where they (patients with uncontrolled HBP) can be able to go and do their exercise like gym or can be places whereby they can be able to plant their vegetables in the gardens maybe the government can provide them with the seeds and the equipment to plough, then I think it's going to be easier for them to get something to do even the exercise they will do them while ploughing it's one of the exercises at the end of the day you plant then you get nutritious food from those plants." (CHW Q)*

Category 2: Increased community health workforce and improved infrastructure

Community health workers suggested that the government should look to employ more nurses as there is a shortage of nurses in all study sites. By employing more nurses, the work load of the current nurses will decrease. This means that they will be less stressed and less rushed to get through all their patients thus they will spend more time with each patient which will aid in the management of uncontrolled HBP. They stated that the attitudes of the nurses will improve. They also stated that with more nurses employed there will be a shorter waiting time for the patients at the clinic which will encourage patients to attend their follow up appointments and there will be less patient complaints. Another suggestion given was that government should employ more CHWs as they are also short-staffed and the areas which they service are so big, the current CHWs are unable to reach all the areas effectively. Community health workers also recommended that the government should implement more centres within the community for the purpose of exercise groups, support groups and feeding schemes. As one of the CHWs quoted regarding employment of more nurses:

"they must hire more nurses because there is a big load of work for the nurses who already working hard then maybe their attitude will get better and they won't get tired if they can maybe hire more nurses to assist." (CHW R)

Category 3: Inter and intra collaboration

A suggestion was given that the government should get social media more involved when it comes to medical conditions whereby, they explain the correlation between hypertension and stroke. This enables patients to get a better understanding of different conditions and since most patients make use of social media, the message will get across. The researcher believes that getting media more involved might work very well to assist with creating awareness. Almost all homes in the community which are visited during home visits and all patients seen at the clinic have smart phones. Therefore, this might be a worthy exercise to pilot. Team work and MDT work was also encouraged. CHWs stated that if all health professionals communicated well together, everyone will be on the same page and this way the goals will be achieved. As one of the CHWs stated:

"like communicating, like those departments, people working from reception, clinical nurse, health promoters and physiotherapist and those in primary care. We can work together yeah I think we can know what we can do in the community because some of us are going to other directions, some of us are going to other direction but we are doing one thing. If we can communicate like clear communication, we know that we can achieve the goal." (CHW P)

Category 4: Patient centred approach

Community health workers commented on the importance of health professionals assessing the socioeconomic circumstances of the patient prior to management. CHWs gave a suggestion that the department should send nurses or social workers to accompany them into the community. This way they can assess the conditions in which the community lives in and they can become aware of what infrastructure and resources are lacking within the community. This will enable the health professionals to manage the patient and their condition more effectively as they have experienced the circumstances of the community first hand. Community health workers also noted the importance of patients opening up to them. They stated that if patients open up to them regarding their home circumstances, they will be able to assist them more effectively and offer them better assistance which could assist with their control of HBP. A CHW was quoted regarding assessing of the socio-economic circumstances:

"and I think the department must find a way to solve this problem. I can say maybe they can send people with us to see the communities how they live in their rooms, others they stay in one room, they are sharing, let's say they are sharing one plate, so you must try to see how we are living in the community, that's where is the key for us." (CHW I)

Category 5: Clinic accessibility

Community health workers reported that the clinic is in close proximity to the communities and patients are able to walk to the clinic which is beneficial.

"No is not far, too close they can walk!" (CHW V)

Objective four: To establish the community health workers' perceptions on strategies to improve the control of high blood pressure in adults living in Ekurhuleni District.

One theme emerged from this objective which focused on the perceived strategies that can be used to help with the management of uncontrolled HBP.

Theme 6: Perceived staff, personal and system strategies

Six categories emerged from the last theme which included staff wellness, team work and leadership, awareness creation, holistic health care, accessibility, system related improvements as well as patient initiatives.

Category 1: Staff wellness, team work and leadership

Community health workers commented on the importance of focusing on improving team work and communication channels amongst CHWs and clinic staff members which indirectly affects patient care. Community health workers stated that they are seen as a separate entity and they do not receive the support which they deserve from clinic staff members. They expressed that clinic staff members did not actually understand their role as CHWs and they underestimate their value and achievements which they could meet if they had their full support. They also remarked that what nurses can do in an hour they are able to do within 20 minutes and are able to create a positive behavioural change. Hence, they are able to assist with decreasing the work load for the nursing staff. Thus, the importance of strengthening the ward-based outreach teams (WBOT) programme so to enable the CHWs to become more effective in treating all conditions.

Another important matter which the CHWs brought up was the importance of improving staff mental health within the clinics. It was stated that CHWs work within very stressful environments and they are dealing with sick people on a daily basis which is in itself a stressful situation. If their mental health is addressed it can lead to decrease job satisfaction which ultimately affects the patient and their care. Thus, it is important to focus on the wellbeing of the staff which will indirectly positively affect patient care.

"Yeah, like, I just think the environment, how stressful the environment for the staff as well. I think that's one one of the biggest elements we are missing as well, you know, the health of the staff. Yes. Mental health of the staff as well. Because remember, in itself, a clinic or a hospital is a stressful environment. {…} Job satisfaction decreases, because it's a very stressful environment. Because like I said, in the in itself, you're dealing with sick people, they are not positive, you understand. So the whole environment is negative and it affects patient care. So yeah." (CHW G)

One of the CHWs commented on improving channels of communication by saying:

> *"myself all I can do more I think I can create those support groups yeah if I can create those support group and working as a team in the clinic. We can change the community even if we can't change the community we can charge their behaviour like communicating, like those departments, people working from reception, clinical nurse, health promoters and physiotherapist and those in primary care. We can work together yeah I think we can know what we can do in the community because some of us are going to other directions, some of us are going to other direction but we are doing one thing. If we can communicate like clear communication, we know that we can achieve the goal." (CHW P)*

Category 2: Awareness creation

Community health workers recommended that greater awareness within the communities should be done, their recommendations are depicted in figure 4.4:



Figure 4.4) Community health workers recommendations for awareness creation.

Almost all CHWs stated the importance of having community campaigns for uncontrolled HBP as most individuals are unaware of hypertension due to the high awareness focus of TB and HIV. They stated that they will be able to screen the patients and prevent the HBP from becoming uncontrolled. At these campaigns they will also be able to educate the patients on lifestyle changes to be made and most importantly they will be able to refer the patients if the BP is uncontrolled. This will also enable them to provide the communities with primary, secondary and tertiary health education. Currently campaigns are being run however the focus is more on TB and HIV. By involving the CHWs in this study, greater awareness has been made on uncontrolled HBP and it seems that CHWs are now acknowledging that uncontrolled HBP is just as deadly as TB and HIV. One of the CHWs stated:

"So then you can then have community campaigns, preventative community campaigns, let's say for example, you get a client, you diagnosed them with mild hypertension, if it's their first visit, you not going to put them on treatment initially. You going to look at their diet and their lifestyle. So if you can have campaigns addressing those type of things, you might have a client that never goes onto treatment, you might have a client that you see maybe once every three months, you see." (CHW G)

Community health workers commented on the implementation of support groups and exercise groups within the communities. They stated that within the groups they will focus on education, discussing what is bothering them and they will look for solutions to their problems. They will discuss the importance of starting their own gardens and they will just provide a general support for each other. Community health workers also stated that the family members should be educated the condition of blood pressure, the importance of exercise, taking medication on time, correct dietary habits and they should also just be educated on the importance of supporting the patient with their condition. To date, some areas have exercise groups running at the local church which are groups that are usually run by the community members themselves with no real supervision. Community health workers have now suggested the importance of implementing support groups whereby they will be active facilitators of the groups. Community health workers noted that awareness creation could be done during community meetings whereby the CHWs can address the communities and educate them regarding hypertension, importance of taking medication and making use of the clinic facilities. As quoted by one of the CHWs:

"During this community meetings we can explain to them the importance of taking their medication and using the facility." (CHW R)

Category 3: Holistic health care

Collaborating with traditional healers and the community churches was also mentioned. Community health workers stated that the traditional healers should be educated on encouraging patients to go to their medical facilities. This way patients will not only rely on the medication from the traditional healers.

> *"Even the traditional leaders and the traditional healers need to be educated also encourage to send people to the health institutes so that people cannot only go to them they must come to the health institution." (CHW Q)*

By collaborating with the churches, CHWs can encourage the priests at the churches to also encourage the patients to attend their follow ups and to come to the medical facilities to seek medical assistance. Some church members believe that once the priest prays for you and you drink the holy water you will be cured and you do not have to take your medication any longer.

> *"eish even the churches they make our work difficult. Some of the churches they make you believe if you get prayed on you will get healed, if you drink their water you will get healed but that's not true. You have to take treatment for you to get healed or to control the illness that you have so we must educate the churches to send patients to us" (CHW Q)*

Another very important strategy which was noted was that CHWs should refer patients to other health workers as early as a problem is identified. They stated that they should refer to the nurses or the doctor if they find that the BP is uncontrolled, they should refer to the occupational therapist for coping mechanisms and they should refer to the social worker if there are social issues at home. One of the CHWs commented that once they refer their patients, they should also ensure that they follow up on the patient to ensure that they are doing well and have been effectively cared for. One of the CHWs stated:

"if we find that the blood pressure of the patient is higher than before, we refer them to the clinic and we must do a follow-up on how they were handled the clinic. Does the patient have something to eat before taking the treatment, if they don't we must refer to the social worker, then we must follow-up and see how social worker managed the situation." (CHW I)

Another CHW stated:

"Yeah, like I mentioned before, so we advocate, you know, for a change in lifestyle to become more active. And also, if they've got a lot of social problems, we'll refer them to the social worker and to the psychologist as well. Even the occupational therapist as well to, you know, learn different type of coping mechanisms, or to manage their stress more effectively." (CHW G)

Lastly, one of the CHWs remarked that increasing the frequency of home visits might assist with patients listening and adhering to the health education given. Some quotations regarding early referrals and increasing the frequency of home visits are given below:

"I think referring the patient and checking and making the follow up will be a brilliant idea." (CHW P)

[….] So likewise, I think when we do home visits and when we do multiple visits over multiple time, usually, then the patient will then listen to the education that we give them, you understand." (CHW G)

Category 4: Access

Community health workers suggested that the clinics should increase their operating hours so that they are open over the weekends in order to assist those individuals who work during the week and are only available over the weekend. Other CHWs also stated that they do not mind assisting the clinic with the hypertensive patients on a weekend. This way they will also be able to follow up and check on their patients to ensure that they have drank their medication the correct way and they are not drinking too much. One of the CHWs stated that the clinic should offer a 24-hour service because in the case where one of the community members fall ill during the night, they are unable to access care from the clinics as the clinics close by 16h00. They also stated that there are no ambulance services in the communities to assist, therefore, having a 24-hour clinic service available will be beneficial for the community. One of the CHW reported:

"I think maybe if our clinic can work on weekend, because we will also be in, maybe we could try to help them during the weekend." (CHW J)

Category 5: System related improvement

One of the CHWs reported that the government should provide more stock of medication to each clinic so that patients can always come to get their medication which will prevent them from defaulting due to limited stock.

"I can say provide more stock so that we can always have stock to give them so they don't default. And not only I think maybe they can provide more for people, especially like the ones who are not working like food parcels." (CHW C)

Another important suggestion which was given was that of initiating a blood pressure clinic at all the respective clinics the same way other hospitals and clinics have. This way they will be able to screen, monitor and refer patients regularly which could assist with the control of HBP. They also stated that regular screening should be done for patients with uncontrolled HBP.

"If we can have a facility where the patients can go and just talk and say why the blood pressure is high, why this and why that and how they can control it. Also say like at Tambo where they have a diabetic clinic they can also have a high blood clinic with patients that have uncontrolled blood pressure." (CHW D)

Regarding screening one of the CHWs stated:

"hmmmm, they can listen and eat healthy. Those who are already on treatment they can go and drink their medication and also go for screening, blood pressure screening." (CHW M)

Another suggestion was that Central Chronic Medicines Dispensing and Distribution **(**CCMDD) should be initiated in all respective clinics so that patients with controlled HBP can make use of CCMDD while only those with uncontrolled HBP should follow up at the clinic. This will reduce the work load of the nurses and this will assist the nurses as they will be able to spend more one-on-one time with the uncontrolled HBP patients.

"And another thing I think this thing of CCMDD where patients get medication at the stores now, Clicks, ShopRite I think it is making a huge difference because patients do not come to the clinic only the ones with uncontrolled must come. So the sisters do not have so much patients and they have more time on their hands to educate the others with uncontrolled." (CHW R)

They also mentioned that the government should look into providing patients with BP machines. This will empower them as they will be able to monitor their BP at home and if their BP is uncontrolled, they can either take their medication or go to the clinic immediately. As one of the CHWs stated:

"I think it will be easier if patients with high blood pressure had their own BP machines thing. That way it's easier for CHW when they get there they can always check their BPs or even them at home they can check and it's easy for them to just see if it's not normal they can easily go to the clinic or take medication they and drink water do something to help themselves" (CHW R)

Another suggestion which was given was for the government to build more clinics, as the work load for the nurses are too high which leads to the patients waiting in very long queues at the clinic before they can be seen. Due to the long queuing most patients do not attend follow up appointments as they feel they have to wait too long to see the nurse and by the time they see the nurse, the nurse is tired and has a bad attitude with them. Thus, by providing more clinics with more staff, it will decrease the waiting time for the patients and will promote adherence to follow ups.

"yeah the long waiting lines, there is nothing you can do. Because this clinic is the only is in the center. There are people that are servicing this clinic is the people from the squatter camp and this side of Primrose. even that squatter camp there, they said ruster squatter camp, there people there then come here is the only one maybe the government should provide another clinic so that is to avoid the long queues." (CHW V)

CHWs also stated that the government should provide more support for the CHWs to upskill them in order for them to effectively treat their patients and there should be more CHW evaluation sessions so that they are able to assess how effective they are with their patients. Figure 4.6 depicts all the system related improvements which were mentioned by the CHWs

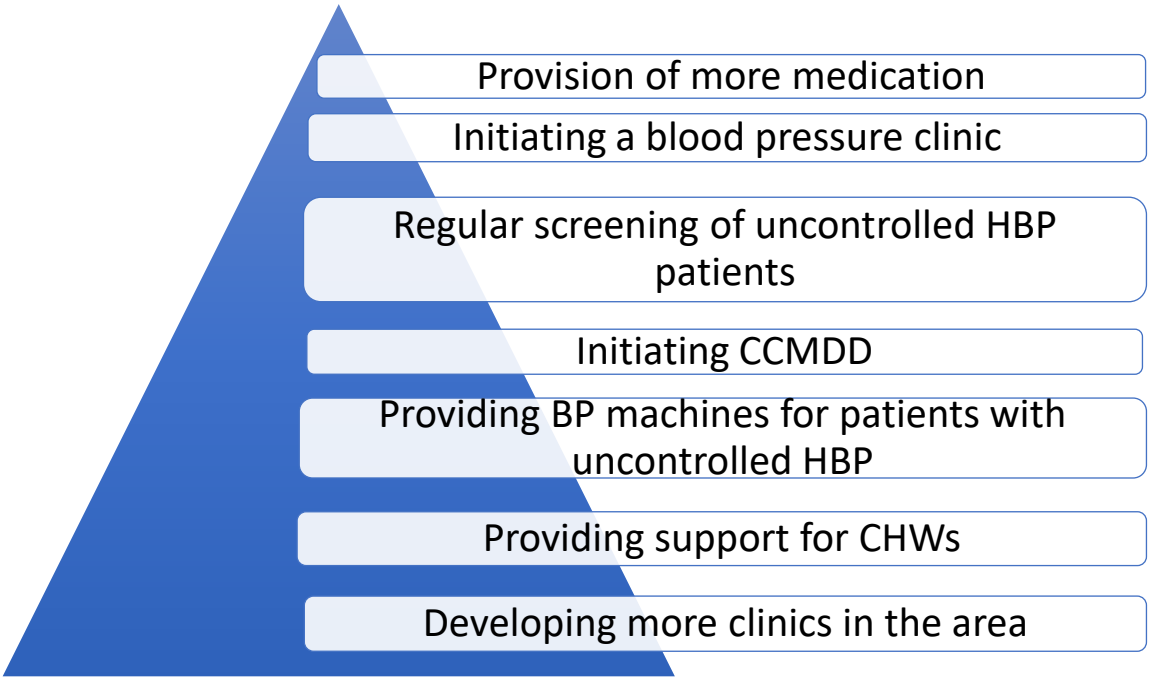


Figure 4.5) System related improvement mentioned by CHWs.

Category 6: Patient initiatives

Most of the CHWs stated that they encouraged their patients to start their own vegetable garden so that they can feed their families, it can aid with exercise and they can sell their vegetables and make some money. It was also noted that CHWs encouraged their patients to find their own self-management techniques which could assist manage their uncontrolled HBP such as reading a book, taking regular walks, praying to God. This too could assist with decreasing stress levels and thus assisting with managing uncontrolled HBP but most importantly they should educate themselves regarding their condition. As CHWs remarked regarding the garden:

"I can also organise the garden for them and find those people to give the seeds to plant there and keep them busy, and those vegetables they will be there in the garden will help them at home as well if they don't have money to buy the vegetables so that they can eat." (CHW J)

Chapter five - Discussion

5.1 Introduction

The aim of this study was to explore CHWs' perceptions based on factors that contributed to uncontrolled HBP in adults living in the Ekurhuleni South sub-district. The four main objectives were:

i) To establish the community health workers' knowledge on measures used to control high blood pressure in adults living in Ekurhuleni South sub-district,

ii) To explore barriers that contribute to uncontrolled high blood pressure of adults living in Ekurhuleni South sub-district,

iii) To explore facilitators to improving the control of high blood pressure of adults living in Ekurhuleni South sub-district and;

iv) To establish the community health workers' perceptions on strategies to improve the control of high blood pressure of adults living in Ekurhuleni District.

This chapter will discuss and interpret the findings of this study based on its objectives. Furthermore, comparisons will be drawn with other studies so as to identify gaps and similarities in knowledge to improve service delivery.

This chapter will be presented and discussed according to the four study objectives.

5.2 Objective one: To establish the community health workers' knowledge on measures used to control high blood pressure in adults living in Ekurhuleni South sub-district.

This study revealed that CHWs possessed fair knowledge regarding the normal values, symptoms and causes of uncontrolled HBP. The CHWs were knowledgeable regarding the complications of uncontrolled HBP as they were able to list relevant and similar complications. These findings are contradictory to the findings of Tsolekile et al., (2018) as in their study CHWs were shown to possess poor knowledge regarding the risk factors and complications of uncontrolled HBP. A study conducted in Khayelitsha, Cape Town, also contradicted the findings in this study as CHWs were said to have insufficient knowledge regarding the causes of uncontrolled HBP (Sengwana & Puoane, 2004). Most CHWs in this study did not fully comprehend the physiological concept of BP and uncontrolled HBP as they defined BP and

uncontrolled HBP by either listing the causes or the interventions needed for the management of uncontrolled HBP. Sengwana & Puoane (2004) stated that CHWs in their study defined HBP according to their own beliefs which was an incorrect medical definition. To date, there are not many studies which explore CHWs true understanding regarding the concept of uncontrolled HBP.

Possible reasoning for CHWs in this study not fully comprehending the concept of HBP could be due to two factors.

Firstly, HBP and stroke training are topics which are covered under Phase II training of which only 13 out of the 22 CHWs interviewed completed Phase II training. Thus, most were not made aware of and trained regarding uncontrolled HBP and how to define the condition. Secondly, the topic of HBP covered during the short course training is very basic and is discussed very briefly. This lack of detail could result in the CHWs not fully understanding the concept of HBP. This in turn, results in patients' poor understanding of their condition and thus poor disease control strategies are administered and adhered to.

Furthermore, CHWs in this study provided their patients with a comprehensive list of advises and education to help manage their HBP. It could be noted that the type of advises and education which CHWs provided their patients with, were generally very contextualized and simple. Sengwana & Puoane (2004) stated that the CHWs in their study did not possess satisfactory knowledge regarding the management of HBP which contradicts the findings in this study.

Possible reasons as to why CHWs provide such contextualized education and advises could be due to the fact that they themselves live within the same community, facing the same or similar restraints and problems. Therefore, CHWs are able to provide the patients with education and advises which they know will work best in these restraint environments.

A further reason could be that CHWs were aware of the different cultures and their specific traditions better than other healthcare professionals. Therefore, they were able to provide the best advises which included various cultures and traditions. The topics of education which

CHWs provided patients with, seemed to be topics which they knew patients overlooked. The education included issues which were pertinent within their respective communities, such as making use of traditional healers and poor hygiene practices.

It was found that majority of CHWs in this study had additional skills training such as health promotor and pre-nursing training as compared to the studies by Tsolekile at al., (2018) and Sengwana & Puoane (2004) hence in this study CHWs could be deemed more knowledgeable. These two studies did not provide a description of what the basic hypertension training course of their CHWs included. Another possibility for the better knowledge of the study participants in this study could be that over the years the basic hypertension training course has improved and now covers a variety of topics.

5.3 Objective two: To explore barriers that contribute to uncontrolled high blood pressure in adults living in Ekurhuleni South sub-district.

Community health workers were able to identify multiple barriers within this study. They stated that most patients complained that due to financial difficulties they were unable to purchase the appropriate types of foods. They also stated that buying 'junk' food was cheaper than buying fruits and vegetables. Wexler et al., (2009) stated that financial stress was a huge concern for their participants as they were also unable to afford fruits and vegetables. Sengwana & Puoane (2004) identified financial difficulties as a barrier to the control of HBP as patients either took their medication too late in the day or they defaulted altogether as they did not have food to eat. These findings are in accordance with the findings in this study. It can be noted that within this study, patients were under financial difficulty as there was a very high unemployment identified during the study. There was usually one sole breadwinner in each family and patients usually depended on grant money for all expenses. This similarity was noted in Sengwana & Puoane (2004) study as 43% of the community were unemployed and those who were employed had unskilled jobs which produced a small wage and was thus inadequate to meet all the household expenses.

In a study conducted in Nepal, participants were found to have defaulted on medication as they did not have sufficient funds to attend clinic follow ups (Shrestha et al., 2018). This is not found in the context of this study because clinics are well situated within the communities and CHWs also provide home visits where they take the medication to the patients homes (Shrestha et al., 2018). The distance to clinics and availability of CHWs reduces the financial burden of patients.

Participants in this study noted the presence of stigma around hypertension and all other co-morbidities. Participants were also under the misconception that hypertension is a disease for the elderly and the youth cannot be affected by it. The exact thoughts were shared by Gebrezgi et al., (2017) who reported that patients in Eritrea were stigmatized when diagnosed with hypertension and that the condition was only for the elderly. In another study conducted in Tanzania which investigated the barriers and facilitators to clinic attendance and medication adherence. It was noted that there was a stigma around using lifelong medication as it was linked to HIV treatment (Kisigo et al., 2022). Reasons for the presence of stigma in this study was due to poor community awareness and knowledge as well as community misconceptions around uncontrolled HBP.

Fear of diagnosis was another barrier which was identified in this study. Participants in this study expressed that patients tended to default on their medication due to fear of disclosing their diagnosis to their family members. Wexler et al., (2009) echoed similar views in that both African American men and women were fearful of their diagnosis. Men stated that they feared this ‘terrible disease’ and women were afraid of being labelled as ‘’ill” and hence the fear of them not being able to look after their families due to this.

Yet another barrier which was discussed in this study was that of denial of diagnosis. Participants stated that patients were in denial regarding their diagnosis of uncontrolled HBP. This resulted in patients not altering their lifestyles choices despite being advised to. Participants also stated that due to the stigma of the diagnosis as well as patient denial, patients tended to only seek medical attention when symptoms arose and then did not attend their follow up appointments. This finding speaks to the findings of Devkota et al., (2016) which stated that patients did not attend follow up appointments due to their denial of diagnosis.

From this study, it can be noted that community and family members have a poor perception, awareness and knowledge regarding uncontrolled HBP. This could be seen as one of the possible reasons as to why patients feel stigmatized, fearful and are in denial of their diagnosis.

A noteworthy finding in this study was the lack of involvement, support and awareness from the community members. Participants in Gebrezgi et al., (2017) study expressed similar findings in that they too found that the community awareness was poor and they felt that HBP awareness should be addressed. Participants noted that patients expressed that community members had a negative influence over them. They noted that community members encouraged them to consume alcohol and provided them with incorrect advises such as to take ''concoctions'' such as laxatives from the traditional healers which will assist with the management of HBP. Limited literature is available which speaks regarding the negative influence which community members have over patients with uncontrolled HBP. However, in a study conducted in Northern Ghana which investigated communities' perceptions and treatment options for hypertension, it was noted that community members do in fact support patients when it came to dietary and behavioural changes. Although, community members reported becoming frustrated with patients when they do not comply with the dietary and behavioural changes (Nyaaba et al., 2018). This is contrary to the findings in this study.

Community and family members were reported to have a negative perception of the clinic, and this negatively influences the patients which leads to patients not attending their follow up appointments. When patients come home with vegetables from the clinic, community members mock at them which leads to them not wanting to go back to the clinic. Community members were seen to share medication with the patients thus also influencing them not to attend follow up appointments. No other known literature to date speaks regarding the negative influence which community members have over patients with uncontrolled HBP.

A possible reason for community and family members showing such poor involvement and support as well as having a negative perception regarding uncontrolled HBP could be due to their lack of understanding regarding the condition and its implications.

Another important finding from this study was that patients did not receive the family support which they deserved. Family members did not support the patients in respect to adherence to medication, transportation to attend follow up clinic appointment, and preparation of food. Furthermore, they felt that family members added to their stress levels due to their perpetual drinking habits and lack off employment.

This study's findings are contrary to the findings from Gebrezgi et al., (2017) whereby it is noted that the family members are 'key stakeholders' in the management of hypertension. Again, contrary to the findings in this study, patients saw the support of the family as an enabler to the management of hypertension (Kisigo et al., 2022). The difference in views between the studies could be due to the fact that within this study site communities, family members did not always stay at home with the patient, some had to leave home and live in another province due to employment opportunities. Some patients in this study resided with only their grandchildren who did not provide much support. However, other studies mentioned in this paragraph saw families living with the hypertensive patient and were able to provide the necessary support needed.

One of the leading barriers which was identified in all four study sites was the high level of domestic violence, which results in patients defaulting on their medication. Participants noted that within these communities, alcohol abuse led to physical abuse which in turn resulted in patients defaulting on medication. Participants also noted that violence within the communities such as gangsterism was rife and this too led to an increase in stress levels. To date there is no known literature which speaks to the link between high levels of domestic violence and defaulting on medication. Abba et al., (2022) however, stated that patients who are faced with gender-based violence are at a higher risk of acquiring hypertension.

Stress was identified as one of the barriers to the management of uncontrolled HBP in this study. The findings by Wexler et al., (2009) supported the findings in this study it was noted that stress was also identified as a barrier. Khatib et al., (2014) stated that stress affected patients' ability to effectively manage their HBP and their stress included financial stress, being a single parent and community stress, which were all findings in this study as well.

With regards to system barriers, CHWs stated that patients complained of the services which they received at the clinic. They stated that they had to wait in long queues before being attended to. Furthermore, clinics were reported to have had a poor filing system which increased the waiting time. Participants in the Nepal study also stated that the increased waiting time was a huge barrier for them (Shrestha et al., 2018).

Participants noted that patients expressed that clinics were understaffed. Hence, nurses did not have sufficient time to educate each patient which resulted in consultation times being rushed. These findings were supported by a study conducted Shrestha et al., (2018), whereby they stated that the doctors could not provide them with hypertensive education as they had limited consultation times (Shrestha et al., 2018). Contrary to this, it was noted in another study by Rimando (2015) that patients stated that they received all the required HBP information when they attended their follow up clinic appointments (Rimando, 2015).

One of the biggest complaints from patients was that nurses were disrespectful and would shout at them. Participants in the Nepal study found that clinic staff members were unwelcoming towards them (Shrestha et al., 2018).

Possible reasons for the similarities seen between this study and the Nepal study could be due to the fact that within both studies, there is a shortage of staff at the clinics and it could also be due to the communication gap. Not all doctors and nurses in the clinic speak the same language as the patients which could result in the doctors and nurses not educating the patients regarding uncontrolled HBP (Shrestha et al., 2018).

Community health workers also expressed that patients felt that there was no NGO centre whereby they could meet for a support or exercise group. Gebrezgi et al., (2017) reiterated the same view as patients felt that this was a place whereby, they could receive information from their community members regarding lifestyle modifications and ideas which could assist them with their management.

Community health workers identified the high illiteracy rates within the community, whereby patients stated that they were unable to understand what was written in pamphlets which were handed on. Gebrezgi et al., (2017) noted that patients felt that the radio and television coverage was inadequate as too little was covered over the air. Participants in Gebrezgi et al., (2017) study also noted that posters were too difficult to understand and they felt that the posters were prepared without keeping the target audience in mind. Bearing in mind the above study, educating patients over the air might work well in our study as most individuals listen to the radio and watch television regularly.

Community health workers expressed that the communities which they serve were very large and they were unable to cover the entire community therefore some patients were left undiagnosed, untreated and follow-ups could not be conducted. Khatib et al., (2014) also stated that there was a shortage of staff which resulted in inadequate follow ups, thus leading to poor BP control.

Furthermore, in this study it was noted that patients still relied on traditional and allopathic medication. They either took both allopathic and traditional medication or relied solely on tradition medication. This finding is in accordance with a study conducted in Nepal, whereby patients used traditional medication to supplement their allopathic medication and patients asked if they could stop with their allopathic medication (Shrestha et al., 2018).

Possible reasons as to why patients might still be taking traditional medication could be due to negative influences from the community and friends who might have stated that they had sought help from the traditional healers and the medication had worked. Another reason as to why patients still go to traditional healers could be due to increased waiting time at the clinics, poor staff attitudes and shortage of medication at the clinics. CHWs also stated that patients felt that going to traditional healers and taking the medication was in fact their belief hence they would continue using them.

Regarding adherence to medication, Shrestha et al., (2018) stated that patients were non adherent as they were afraid of the lifelong commitment of taking medication and the cost associated with chronic medication. Shrestha et al., (2018) also stated that patients defaulted

as they were not in a habit of taking chronic medication. In this study however, CHWs perceived that patients defaulted as they were afraid of the adverse effects of the medication. A serious challenge which was highlighted by CHWs was that patients complained that medication boxes always changed thus, they were unsure as to whether the medication they were taking was the correct one hence they defaulted.

Patient unawareness was another of the barriers identified during this study. Community health workers stated that despite patients having the necessary basic knowledge on managing their condition, they still did not take their conditions seriously. Community health workers expressed that patients stated that they could not modify their diets due to insufficient funds and thus defaulted on their medication. Others were of the opinion that if hypertension is hereditary, even if they were to change their lifestyle and start exercising, it was inevitable that they would also be diagnosed with hypertension. The same view was shared amongst African Americans as stated by Wexler et al., (2009). This similarity could be due to the fact that the communities in both the studies had a basic level of awareness regarding health matters.

Some CHWs stated that when it came to exercise, patients did not see the benefit of it. Wexler et al., (2009) reported that patients used the excuse that it was unsafe in their communities, hence they could not exercise outdoors. While others stated that they were scared of exercise induced injury (Rimando, 2015). This is contrary to the findings in this study as in this study patients were just deemed to be unmindful regarding either the benefits or shortfalls of exercise.

The issue of patient obliviousness could be due to lack of sufficient knowledge regarding the condition. Patients could also be expecting too much from the government, the nurses and CHWs, and when patients do not receive what they expect from the health system, they become disinclined to help themselves. From the study it could be noted that CHWs perceive that the main barrier to the management of uncontrolled HBP is actually the patients themselves.

5.4 Objective three: To explore facilitators to improving the control of high blood pressure in adults living in Ekurhuleni South sub-district

When looking at the facilitators to the control of HBP, CHWs stressed the importance of the government providing seeds, ploughing equipment and adequate space for patients within the community to start their own gardening. This was seen as a means for physical activity as well.

Another facilitator highlighted by the CHWs was the importance of providing food vouchers and food parcels for hypertensive patients. This would enable them to buy fruits and vegetables resulting in improved adherence to medication as they would have adequate food to eat before taking their medication. There has been no known literature to date which could substantiate or contradict these facilitators.

This study was carried out in income low communities; therefore, these communities would benefit from simple materials such as seeds and ploughing material. Currently food parcels are being provided for patients with TB and they are usually given for three months, however no such initiatives have been initiated for other co-morbidities. Therefore, CHWs stated that food parcels could also be provided for patients with uncontrolled HBP.

Another facilitator mentioned was the employment of more nurses. This would result in a manageable workload for nurses such that they would then have adequate time for consultation of patients as well as being more motivated to assist patients. Waiting time at the clinics would also be decreased which would in turn encourage patients to attend their follow up appointments thus improving adherence to medication and a better control of BP. Contrary to the findings in this study, Gebrezgi et al., (2017) stated that the patients main source of education came from the staff at the clinic and they felt that even with the increase in workload, the staff were still doing the best they could to educate them. Employment of more CHWs was also stated as one of the facilitators as the communities were very large for a small group of CHWs to cover. Therefore, employment of more CHWs would translate into better consultations with patients and hence a better probability of early detection of HBP. This in turn would precipitate into better management, awareness and control of the condition.

Another facilitator which was identified in this study was the need for government implementation of more centres within the community whereby exercise groups could be run in a safe environment. Support groups could be carried out whereby patients provide each other with information, coping mechanisms and general support. Feeding schemes could also be implemented. In the study conducted by Heinert et al., (2020), it was noted that patients recommended that there be a facility whereby they could have their BP checked as well as where they could exercise at a facility which could be easily accessible within the community. A similarity was identified between this study and the study conducted by Heinert et al., (2020), as both these studies were conducted in areas which were considered unsafe. Therefore, one of the suggestions was for government to implement more centres so that exercise and support groups could be held in these centres.

Community health workers in this study stated the importance of teamwork and encouraged multidisciplinary team (MDT) work. It was stated that if all health professionals involved could effectively communicate with each other regarding their patients, uncontrolled HBP could be managed effectively. To date, there has been no known research which speaks to team work, however in a study conducted in a rural community in Thailand, collaborative partnerships between the community health volunteers and the family members were seen as a facilitator to adhering to anti-hypertensive medication (Thongtaeng & Seesawang, 2022).

Literature states the importance of education regarding uncontrolled HBP, the dos and don’ts, the consequences and complications associated with uncontrolled HBP and management techniques for the control of uncontrolled HBP (Rimando, 2015). However, in this study, CHWs stated the importance of more social media involvement so as to assist with promotion of education of uncontrolled HBP and its correlation to strokes. Using social media as a platform to educate patients could be used for all conditions and is not limited to uncontrolled HBP.

Another importance finding in this study which was also not substantiated or contradicted by any known literature states that in order for more effective management of uncontrolled HBP, health professionals such as nurses and social workers should be asked to accompany CHWs into the community. Home visits should be conducted with their accompaniment so that they would be able to access the patients' socioeconomic backgrounds and adjust their treatments accordingly.

5.5 Objective four: To establish the community health workers' perceptions on strategies to improve the control of high blood pressure in adults living in Ekurhuleni District.

As was previously noted, CHWs possessed a basic level of knowledge regarding uncontrolled HBP and the health system itself does not always recognize the CHWs and their value. In this study the CHWs mentioned the importance of strengthening the CHW programme so that they could also be recognized by the nursing staff and hence are able to provide more effective services to their respective communities. Participants stated that they would appreciate more training, supervision and evaluation of their services. Tsolekile et al., (2014) reiterated the same views in that training, supporting and having refresher training were seen as crucial factors in improving CHWs performance. It was also noted that with regular supervision, CHWs had a better body of knowledge available.

Sengwana & Puoane (2004) stated that in order for CHWs to be recognised and valued, the clinic nurses need to start including them into the PHC programme. Similarities were noted between Tsolekile et al., (2014) study and this study as Tsolekile et al., (2014) study was conducted in Khayelitsha, Cape Town which has the highest burden of chronic NCDs while in this study, on a monthly basis, five to six home visits are conducted for patients who had suffered a stroke due to uncontrolled HBP. Hence the need for CHWs to be well trained and well supported in order for them to assist with effective home-based care, thus decreasing the work load of the clinic nurses.

Community health workers noted the importance of team work and acknowledgement from the clinic nurses. It was noted that the amount of work which clinic nurses are able to accomplish within one hour, CHWs are able to accomplish the same within 20 minutes. By improving team work and communication it positively affects patient care. This concept

speaks to the team based care approached which is discussed by Carey et al., (2018). The team-based care approach is based on the principle of ensuring that the patient is the centre of the model, surrounded by the MDT (nurses, pharmacists, social workers, CHWs, allied professionals). The MDT team worked together to complement the primary physician by providing the support and sharing the responsibility of the hypertensive patient. This thus allows more time for the physician to assist patients with more complex conditions. Odedosu et al., (2012) stated that by making use of a team-based care approach, it resulted in the greatest improvement in the management of uncontrolled HBP.

Within the Wannenburg community, the MDT team which include the doctor, speech therapist, physiotherapist and social worker, have been involved in accompanying the CHWs on home visits. At Reiger Park, Rondebult and Ramaphosa, home visits are conducted by the CHWs, occupational therapists, physiotherapists and speech therapist. The home visits done in Wanneburg community has been deemed more effective by the CHWs as a holistic approach to treatment occurs as there are multiple members present compared to that in the Reiger Park, Rondebult and Ramaphosa.

Community health workers stated that some sort of initiative should be implemented to assist with improving their mental health as many a times they are faced with stressful situations within the community. This thus leads to poor mental health and decreased job satisfaction which negatively affects patients care. Tsolekile et al., (2014) noted that with regular supervision and support, CHWs well-being was promoted which led to CHWs showing improved motivation to work and improved patient care.

In this study, one of the strategies which could assist with the management of uncontrolled HBP as stated by the CHWs, was having regular community campaigns whereby patients could be screened before their hypertension becomes uncontrolled.

In the systemic review done by Brownstein et al., (2007) it was noted that by CHWs initiating social support groups for patients with uncontrolled HBP, and by providing patients and their family members with health education, it would assist with the management of uncontrolled HBP. In this study, the same finding was identified by the CHWs, as they stated that within the groups, they would address health education and would assist each other with HBP problem solving.

Regarding the education of family members, Gebrezgi et al., (2017) stated that family members are seen as the 'key stakeholders' in the patients management of hypertension. Hence, family members should have adequate knowledge regarding patients conditions as family members assist with follow up appointments, preparing food and reminding them to take their medication (Boulware et al., 2013). Community health workers noted the importance of educating the family members as they knew the benefits thereof. Community health workers also stated that within their communities they could also raise awareness by attending community meetings.

An important suggestion which was brought to light was the education and collaboration with traditional healers, community churches and CHWs by ensuring that patients with uncontrolled HBP are referred to the clinic as soon as they are identified. Community churches were seen to play an important role in the influencing of patients regarding their health and treatment of health conditions. To date, there is no known literature which explores the importance or the effects of collaborating with traditional healers and community churches and improving the referral and its link to the improvement of uncontrolled HBP.

It was found that the patients stated that they would prefer if after they had consulted with a doctor, nurse or CHW, a follow up should be conducted to ascertain whether they had started with their medication and if they were managing. Parallel to this study, Wexler et al., (2009) stated that patients felt like they were 'Guinea pigs' as they were never followed up on after being referred. Peng et al., (2022) stated that at least five follow up sessions by the doctor should be scheduled, as patients who received five or more follow ups had an improved lifestyle, increase in exercise, improved BP monitoring and medication adherence. Although home visits are currently being conducted, CHWs expressed that perhaps by increasing the frequency of home visits it could assist with the management of uncontrolled HBP. Some of the CHWs stated that home visits should be done every second day while others commented that it should be done once or twice a week. This finding is parallel to the findings of Ribeiro et al., (2011) which states that with personalised home visits, there is shown to be an improvement in dietary change, reduction in salt and sugar intakes not only for the

patients but for the family members as well, reduction in BMI, weight, glucose, systolic BP and waist circumference. It was also noted that home visits provide a sense of holistic management as it included a psych-social, biological aspects as well as an inclusion of family members. A study conducted by Ma et al., (2021) which reiterates that with home visits, patients present with a reduction in systolic BP, diastolic BP as well as waist circumference. Thus, an increase in the frequency of home visits would most definitely assist with the management of uncontrolled BP. An explanation as to why home visits are so effective could be as CHWs have the time to assist patients with their own personalized challenges and CHWs can provide solutions to their problems which are contextualized (Ma et al., 2021).

Community health workers commented on another strategy which could be used to assist with the management of uncontrolled HBP and that was to increase the clinics operating hours. They suggested that the clinic should be opened over weekends, and it should be a 24-hour clinic as well. Participants put this suggestion forth as there were no ambulance services in the communities therefore having the clinic open 24 hours would be beneficial for the community members. This would assist community members access medical services for emergency cases after-hours.

In this study, CHWs stated that the government should provide more stock of medication so as to ensure that there is always stock available and patients did not default due to limited stocks. However, contrary to the findings in this study, Gebrezgi et al., (2017) stated that there was always enough stock and patients were able to adhere to a 3 month medication follow up interval.

Community health workers mentioned the importance of having a BP clinic at all clinics whereby patients could be screened, monitored and referred regularly. This is parallel to the study conducted by Rimando (2015) whereby it was noted that patients had an improved self-knowledge, management and they better understood the consequences of none adherence due to attending their BP clinic.

Participants also mentioned initiating CCMDD for patients whose BP was well controlled so that clinic staff had more time to consult with those patients whose BP was uncontrolled. A suggestion made by some of the CHWs was for government to provide patients who suffered with uncontrolled HBP with a BP monitoring machine. This would enable them to take better care of themselves by regularly checking their BP in the comfort of their own homes. Research has shown that making use of self-monitoring techniques such as having access to a home BP machine could lead to improved BP control (Carey et al., 2018).

One of the strategies mentioned was that government could invest in building more clinics and hence employ more nurses so as to decrease the nurses workload and improve quality of care for the hypertensive patients. Gebrezgi et al., (2017) also stated that more follow up hypertensive centres should be implemented which speaks to the findings in this study. To date, no known evidence shows the link between employing more nurses and the improvement of quality of care of hypertensive patients.

Community health workers mentioned the importance of patients taking the initiative upon themselves to improve their knowledge regarding their condition and health in general. This finding is in accordance with Wexler et al., (2009) as they stated the importance of self-education surrounding the condition and health in general.

The chapter to follow is the concluding chapter which summarizes the findings of this study, together with recommendations for the therapists and further researchers as well as the limitations of the study.

Chapter six – Limitations, recommendations and conclusion

6.1 Limitations

This study was limited to CHWs from Ekurhuleni south sub-district, the findings can only be generalized to populations with similar contexts.

Even though the CHWs stated that their preferred language was English, more detailed answers could have been obtained if the interviews were conducted in the CHWs home language.

Nevertheless, there has been some vital gaps in knowledge which were identified during this study and findings from this study can be used to implement change. Community health workers require a more structured, comprehensive training and require regular refresher courses to update them on their knowledge.

6.2 Recommendations

The following recommendations have emerged from the study:

<u>Strengthening community health worker programmes:</u>

- There is a need for the CHW programme to be strengthened by improving and standardizing their training. Regular refresher courses should be implemented on new information which they could implement in their communities. Department of Health should recognize the value of the CHWs and assist with strengthening and standardizing their training. The regular refresher courses should include training on definitions of conditions and latest contextualized management techniques. However, more time should be spent on educating the CHWs on all conditions so that training is not brief but rather comprehensive. This way CHWs have a better more comprehensive understanding of the various conditions. A day or two should be allocated to each medical condition and training should also include inviting other rehabilitation professionals so to expand on their knowledge. An example, a physiotherapist could be invited to the training whereby the physiotherapist could show the CHWs simple exercises for a CVA patient. The physiotherapist could assist by showing the CHW how to measure and issue a walking stick or crutch to a CVA

patient. The refresher course should also include a monitoring tool such as making the CHWs take a quick assessment to see how much the CHWs actually learnt during the course and where are the gaps so to guide further courses. The head in charge of the CHWs should regularly get in touch with other heads of CHWs from other provinces so that they can benchmark and educate themselves as to what works best in other provinces. The head of CHWs should then provide feedback to the CHWs and those techniques that worked best should be attempted within Ekurhuleni.

- Community health workers should also be supported by other health professionals such as the clinic nurses and doctors. There should be a nurse who is assigned to the CHWs so that CHWs can pose questions to them, they can assist with debriefing sessions and the nurse can provide CHWs with whatever support they might require.

- There should be regular meetings scheduled between the CHWs, nurses and doctors so to discuss patient cases, treatment, prognosis. Community health workers should be given an opportunity to discuss their feedback from home visits. There should be a designated nurse at each clinic who is assigned to assist with home visits if the need arises. This will ensure there is a better means of communication between all professionals.

<u>Community health workers initiatives:</u>

- Community health workers now have to ensure that regular awareness campaigns are run within the respective communities so to correct the misconceptions of HBP and change the belief of the communities in order to alleviate the stigma around HBP. They will also have to take into consideration the language preferences and literacy levels to ensure that the community actually understands what is being said. Community health workers should consider the use of social media for awareness as well. They could get in touch with the local radio stations and ask for permission to host a programme monthly. Over the air they can draw awareness to uncontrolled HBP and educate the general public on the condition, signs and symptoms and management of the condition as well. They can invite the rehabilitation professional

team to educate the general public on management techniques as well. The nurses at the clinic could inform the patients at the clinic regarding this monthly programme and pamphlets can be made and left at local supermarkets and community meeting areas. Community health workers could also get a data base of community members who present with uncontrolled HBP from the clinic sisters and their records. They could send out bulk smses monthly to these patients whereby they include management tips and warning signs. Community health workers are given cell phones with loaded airtime monthly by the government. Community health workers could also invite the media to their local campaigns, this way they can draw more awareness to uncontrolled HBP.

- They have to initiate exercise and support groups within their communities for patients and family members with uncontrolled HBP. These support groups will be run in order to educate patients and family members regarding uncontrolled HBP and it will be a platform where the patients and family members can ask questions and look for solutions to their problems relating to uncontrolled HBP. The rehabilitation professionals should also assist CHWs to initiate such groups. The rehabilitation professionals can assist by educating the CHWs on how groups should be run, adult education and what types of exercises should be done. They can also assist by indicating to the CHWs which patients will benefit from group classes and they can assist by finding patients for the group classes.

- Most barriers which were identified were social, patient, socioeconomic and personal barriers which require strong community participation and long-term commitments. Community health workers should assist the communities by forming various different forums such as a crime and violence forum and an alcohol forum. This way CHWs and the community could assist with reducing the crime, violence and alcohol intake within the communities. In order to implement such forums, the health system and the police forum need to meet the CHWs initiatives half way. Meetings need to be scheduled to discuss the problems within the community, representatives from the health system, police forum and CHWs need to be assigned and assistance needs to be offered where necessary. Community health workers together with the

rehabilitation professional team could organise a meeting with the various Non-Profit Organisations (NPO) within the community. In the meeting they could explain to the NPOs the purpose of the groups and what they would like to achieve long term from the groups. They could also explain to the NPOs what type of assistance they would like from the NPOs so that the NPOs are well orientated. This way the NPOs could also get involved in the groups so that the groups remain holistic.

- Multidisciplinary work should be encouraged through initiatives should as implementing the community orientated primary care programme (COPC). These programmes are already being implemented in other provinces such as the Western Cape and is being explored at other universities such as University of Pretoria. At both the University of Pretoria and the Western Cape, CHWs work together with and are supported by the government, universities, environmental and other health care professionals. They also have an effective communication network via an application on their cell phones which work very well (*Implementing COPC*, 2015).

- Community health workers could also initiate interactive educational campaigns for the individuals with uncontrolled HBP. This could be done quarterly or biannually with the assistance from the nurses at the clinic and the rehabilitation team. As was noted previously in our study, these interactive educational campaigns are deemed to be effective in the reduction of BP, BMI and LDL levels. There also seemed to be an improvement in the understanding of the condition.

<u>Future studies:</u>

- Research following this study can look into expanding the study to other districts in the Gauteng Province so to identify gaps and positives within the other district.

- Future studies should also look into the relationship between high levels of domestic violence and patients defaulting on medication.

6.3 Contributions

This study adds to the body of knowledge regarding uncontrolled HBP from the CHWs perspectives. There are currently no other known studies other than the study conducted in Khayelitsha which explore the CHWs perceptive, therefore this study will act as a reference for further studies involving the same topic. This study also highlights the importance of strengthening CHW programme to assist with the management of uncontrolled HBP.

6.4 Conclusion

It can be concluded from this study that CHWs possessed adequate knowledge regarding the causes, symptoms and complications of uncontrolled HBP. However, they did not fully understand the concept of uncontrolled HBP. Hence, there is a need to help strengthen and standardize the CHW programme to improve on their training, supervision and support. Regarding interventions and advises provided to patients by the CHWs, they were easy to follow and they were contextualized. Multiple barriers were identified and included financial, social system, personal, cultural and patient barriers. The facilitators which were identified required a multidisciplinary approach. Lastly, the strategies which were mentioned did not require much assistance from the health system and could be implemented easily by the CHWs.

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Appendices

Appendix A– Demographic questionnaire and interview guide



National Research Foundation

WITS UNIVERSITY



Demographic questionnaire

Opening statement: Good day, thank you for agreeing to participate in my research study. I am going to ask you some questions regarding uncontrolled high blood pressure in your community. Please answer each question as thoroughly as you can. Thank you.

1. For how long have you been working as a CHW?

6 month-1 year	
1 - 2 years	
2 -3 years	
3 -4 years	
4 – 5 years	
More than 5 years	

2. What training did you receive to become a CHW?

Matric	
Diploma	
Short courses	
Phase I CHW training	
Phase II CHW training	

3. What is your age?

20-25	
25-30	
30-35	
35-40	

40-45	
50 or older	

Male	
Female	

Preferred language

_____

Appendix A– Demographic questionnaire and interview guide





Interview guide

Objective one: To establish the community health workers' knowledge on measures used to control high blood pressure.

As you know, blood pressure can either be controlled or uncontrolled; having said that

Q1) Please tell me what you understand by blood pressure.

Probe: If your patient had to ask you to explain to them what blood pressure means, what would you say?

What is the normal reading for blood pressure?

Q2) Please tell me what you understand about uncontrolled blood pressure.

Probe: If you had to explain to your patient what uncontrolled blood pressure is, what would you say?

What are the causes of uncontrolled blood pressure?

What are the symptoms/how would they feel if their blood pressure is high?

What can uncontrolled blood pressure lead to/what are the complications related to uncontrolled blood pressure?

Q3) What are the different ways to control/manage blood pressure?

Probe: What other methods or ways would you use to help your patient control/manage their blood pressure?

Q4) What education do you give to your patients regarding the management and control of uncontrolled blood pressure?

Probe: How much of the education that we give to the patient, do you think they use?

Objective two: To identify and explore barriers that contribute to uncontrolled high blood pressure in adults living in Ekurhuleni South sub-district.

Q1) Why do you think patients cannot control their blood pressure in the community?

SYSTEM BARRIER

Probe: How does the clinic make it more difficult for patients to control their blood pressure?

How could the department of health/government make it more difficult to control blood pressure?

How could HCWs make it more difficult to control blood pressure?

How do I as the community physiotherapist make it more difficult to control blood pressure?

PATIENT BARRIER

Why do the patients and their family members/friends make it more difficult to control blood pressure?

ENVIRONMENTAL BARRIER

Why does the area/community/environment make it difficult for patients to control their blood pressure?

Objective three: To identify and explore facilitators to improving the control of high blood pressure in adults living in Ekurhuleni South sub-district

Q1) What do you think could be done to help with the control of blood pressure in the community?

SYSTEM BARRIER

Probe: What do you think the clinic can do to help with the control of blood pressure?

What do you think the department of health/government can do to help with the control of blood pressure?

What do you think you as HCWs can do to help with the control of blood pressure?

What do you think me as the community physiotherapist can do to help with the control of blood pressure?

PATIENT BARRIER

What can the patients and their family members/friends do to help control blood pressure?

ENVIRONMENTAL BARRIER

What changes can be made in the area/community/environment that will make it easier for patients to control their blood pressure?

Objective four: To establish the community health workers' perceptions on strategies to improve the control of high blood pressure in adults living in Ekurhuleni District.

Q) If you could personally help with the control of blood pressure in your community, what would you do?

In general as a CHW, what can you tell me about the patients that have uncontrolled blood pressure? Do you worry about them? Have you seen any of them improve with their control? Do you feel we can win this battle?

Is there anything else you would like to tell me regarding uncontrolled high blood pressure in your community that could assist me with my study?

Would you like to ask me any questions?

Thank you so much for time and effort, I appreciate it. Could you kindly please let me know if there is any of your colleagues whom you think could provide further information regarding this topic?

Appendix B – Information sheet

Participant Information Sheet

Factors contributing to uncontrolled high blood pressure in a low resource setting in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives.

Dear community health worker

Thank you for considering being a part of this research study. Please read the information to follow carefully and feel free to ask any questions if you are confused or need clarify about any information mentioned.

I, Zaheerah Dawood, am currently pursuing my master's degree in physiotherapy, at the University of the Witwatersrand. In order to attain my masters' degree, I am required to complete a research module. My research title is "factors contributing to uncontrolled high blood pressure in a low resource setting of Johannesburg: the community health workers' perspectives."

I invite you to participate in my research study. The aim of the study is to explore the community health workers' perceptions on factors that affect uncontrolled high blood pressure in adults living in Ekurhuleni District, Johannesburg.

This study will be conducted using two groups of community health workers from two different areas within the Ekhuruleni South sub-district. You will be required to sit for a one-on-one interview which will take place at your respective clinic in a quiet, well ventilated room or it will be done telephonically. This will depend on covid19 lockdown protocols. You will be asked to provide your opinion regarding hypertension and stroke in your community and what strategies we can implement to improve conditions. The interview will take between 45

- 60 minutes to complete. The interview will be audio recorded and extracts from the interview may be used in the dissertation.

Your participation in this study is entirely voluntary and your confidentiality and anonymity will be ensured. Your identity will be disguised with an alphabet, so you be named as "community health worker A". You can withdraw from the study whenever you wish and your refusal to participate in the study will not be penalised. Your participation will be highly appreciated as it will assist in gaining a clearer understanding and better recommendations can be made.

By agreeing to participate in this study, no remuneration will be given and no community health worker has to pay to participate in the study either. Tea and a biscuit will be served during the interview.

Your signed consent forms as well as the audio recordings will be kept safely and only the researcher and the supervisor will have access to it. This will be kept for two years after the study publication and thereafter it will be destroyed.

The study will be advantageous, as it will afford us a comprehensive understanding of the leading contributing factors to hypertension and stroke. This information will assist in how we educate the community regarding hypertension and stroke as well as help provide solutions or strategies to the problems which surface. By participating in this study, it will not result in any negative effects or harm to you but rather it will only be of benefit.

One completion of the study, the results from the study will be made public and will be available on the world-wide-web and will be used for teaching purposes. If however, you would like to have access to the results, it can be made available as per request.

If you have any questions regarding the study, feel free to contact me the researcher – Zaheerah Dawood, or my supervisor – Mr. Kganetso Sekome

If you have any problems regarding the study or the way in which it is being conducted you can contact the Human Research Ethics Committee (HREC) of the University of the Witwatersrand, Johannesburg. This committee looks to protect the dignity and rights of the participants of the study.

Researcher

Zaheerah Dawood

082 087 9453

zahdwd@gmail.com

Supervisor

Kganetso Sekome

011 717 3705

kganetso.sekome@wits.ac.za

Chairperson of HREC

Professor Clement Penny

011 717 2301

Clement.Penny@wits.ac.za

HREC secretariat

Zanele Ndlovu

011 717 2700/1234

Zanele.Ndlovu@wits.ac.za

Thank you for taking out the time to read through the information document.

I have read and understood all the details pertaining to the study and I am willing to participate in the study.

_____

Name

_____ _____

Signature Date

Appendix C – Participant Consent Form





Participant Consent Form

Factors contributing to uncontrolled high blood pressure in a low resource setting in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives.

- I have read the information sheet given and I understand the details of the study and what is expected of me.
- I understand that I am free to refuse to participate in the study and once I agree to participate, I can withdraw my participation at any time without being penalized.
- I understand that I will have to sit through a one-on-one, 45-60 minutes, interview and that my opinion will be asked regarding hypertension and stroke in my community.
- I consent to the interview being audio-recorded for research purposes.
- I understand that a transcript of the audio-recording will be done and kept for research purposes.
- I understand that extracts from the interview can be quoted in the study dissertation.
- I understand that my opinion will be kept confidential and that my identity will remain anonymous.
- I acknowledge that I will not benefit financially from being a participant of the study and that I do not have to pay to be a part of the study either.
- I was given the opportunity to ask questions and my questions were answered adequately.
- I understand that I can contact the researcher as well as the supervisor involved if I require further information or clarity regarding the study.

Researcher

Zaheerah Dawood

082 087 9453

zahdwd@gmail.com

Supervisor

Kganetso Sekome

011 717 3705

kganetso.sekome@wits.ac.za

Chairperson of HREC	**HREC secretary**
Professor Clement Penny	Zanele Ndlovu
011 717 2301	011 717 2700/1234
Clement.Penny@wits.ac.za	Zanele.Ndlovu@wits.ac.za

I hereby agree to participate in the above study.

_____	_____
Name of participant	Signature of participant
_____	_____
Place	Date
_____	_____
Name of witness	Signature of witness
_____	_____
Place	Date
_____	_____
Name of researcher	Signature of researcher
_____	_____
Place	Date

Appendix D – Audio recording consent form





Audio recording consent form

Factors contributing to uncontrolled high blood pressure in a low resource setting in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives.

Dear participant,

As explained previously, the above study requires that an audio recording be conducted for research purposes. Your identify and name will be disguised and will not be associated with the audio recording or transcript. Only the researcher, the supervisor and the transcriber will have access to the recordings and transcripts.

The audio recording will be transcribed by an independent individual who will be contracted during the research period. The audio recordings will be transferred to the researcher's computer and will be stored in a password protected folder. By signing this form, you will be agreeing to the following:

- The researcher will be audio recording the interview for research purposes.
- The audio recording will be transcribed by an independent individual employed by the researcher.
- The audio recording will be kept for 2 years and thereafter it will be deleted.
- The researcher will present the findings and publish the results from the study however, my identify and name will remain anonymous.
- Direct extracts from the interview may be used in the research dissertation.
- Audio recording during the interview is voluntary and I may request that the recording be stopped at anytime or to erase any portion of the interview.
- If I intend in accessing the interviews in future, I will have to obtain approval from the Human Research Ethics Committee of the University of the Witwatersrand.

I hereby agree to have the interview audio recorded.

_____	_____
Name of participant	Signature of participant
_____	_____
Place	Date
_____	_____
Name of witness	Signature of witness
_____	_____
Place	Date
_____	_____
Name of researcher	Signature of researcher
_____	_____
Place	Date

Appendix E – Permission letter from Ekurhuleni Health District

City of Ekurhuleni

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

EKURHULENI HEALTH DISTRICT
RESEARCH PERMISSION

Research Project Title: Factors contributing to uncontrolled high blood pressure in Ekurhuleni, Johannesburg: the community health workers' perspectives.

NHRD No: GP_202110_028

Research Project Number: 05/11/2021-06

Name of Researcher(s): Mrs Zaheerah Dawood

Division/Institution/Company: University of The Witwatersrand

Date of review by the EHDRC: 05 November 2021

DECISION TAKEN BY THE EKURHULENI HEALTH DISTRICT RESEARCH COMMITTEE (EHDRC)

- This document certifies that the above research project has been reviewed by the EHDRC and permission is granted for the researcher(s) to commence with the intended research project.
- Facilities approved for the research: Reiger Park Clinic, Rondebult Clinic and Wannenburg Clinic
- Participants' rights and confidentiality must be maintained throughout the study period and when disseminating the findings.
- No resources (financial, material and human resources) from the health facilities will be used for the study. Neither the district nor the health facilities will incur any additional cost for the study.
- The study will comply with Publicly Financed Research and Development Act 2008 (Act 51 of 2008) and its related regulations.

Title: Factors contributing to uncontrolled high blood pressure in Ekurhuleni, Johannesburg: the community health workers' perspectives.

- The EHDRC must be informed in writing before publication or presentation of research findings and a copy of the report/publications/presentation must be submitted to the EHDRC

- The district must be acknowledged in all the reports/publications generated from the research.

- The researcher will be expected to provide the EHDRC with

  - Six monthly progress updates including any adverse events
  - The final study report in electronic format
  - Present the final research findings at the annual Ekurhuleni research conference if possible.

- The EDHRC reserves the right to withdraw the approval, if any of the conditions mentioned above have being breached

- The research committee wishes the researcher(s) the best of success.

Thembani Masing

DEPUTY CHAIRPERSON: CITY OF EKURHULENI

Dated: 08/11/2021.

Dr. R. Hellenman

CHAIRPERSON: GAUTENG DEPARTMENT OF HEALTH (EKURHULENI HEALTH DISTRICT)

Dated: 08/11/2021

Appendix F – Permission letters from head nurses (Reiger Park Clinic)

Reiger Park

National Research Foundation

WITS UNIVERSITY

Permission letters to the study sites

To: Head sister/chief executive officer

REQUEST FOR PERMISSION TO CONDUCT AN INTERVIEW WITH THE COMMUNITY HEALTH WORKERS AT VARIOUS CLINICS WITHIN THE EKURHULENI SOUTH SUB-DISTRICT, JOHANNESBURG.

Dear: Sir/Madam

I am currently pursuing my master's degree in physiotherapy, at the University of the Witwatersrand. In order to attain my masters' degree, I am required to complete a research module. My research title is "factors contributing to uncontrolled high blood pressure in a low resource setting in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives."

I write this letter requesting permission to use a room at your facility to interview community health workers as part of my study. I have received ethical approval from the Human Resources Ethical Committee and I have attached the approval.

What is the aim of the study?

To explore community health workers' perceptions on factors that affect uncontrolled high blood pressure in adults living in Ekurhuleni District, Johannesburg.

Study population

The study will include community health workers from clinics within Ekurhuleni South subdistrict.

What does the study involve?

The participants will be required to sit for a 45 – 60 minutes one-on-one, in-depth interview with myself. They will be asked questions as well as their opinion regarding uncontrolled high blood pressure and stroke within the respective communities. The interview will be audio recorded and transcribed for research purposes.

When and where will the study be conducted?

A quiet, private room at the respective clinics will be used to conduct the interview. The times and dates will be confirmed closely to the time.

Confidentiality

Participants will be asked to sign inform consent forms as well as audio recording consent forms prior to the interview taking place. Participants identify will be veiled as they will be represented by alphabets rather than names. All consent forms will be locked in a drawer that only the researcher and the supervisor will have access to. Hence, confidentiality is guaranteed.

Cost

Participants will not be required to pay in order to participate in this research study and no remuneration will be given either.

If you have any questions regarding the study, please direct to the Chairperson of the Human Resource Ethics Committee (HREC) at the University of the Witwatersrand.

Your response will highly appreciated.

Thanking you

Researcher

Zaheerah Dawood

zahdwd@gmail.com

082 087 9453

Supervisor

Mr. Kganetso Sekome

011 717 1888

kganetso.sekome@wits.ac.za

APPROVED/NOT APPROVED

COMMENTS:

Signature of head sister/CEO

03/03/22.

Date

Appendix F – Permission letters from head nurses (Rondebult Clinic)

Rondebult.

National Research Foundation

WITS UNIVERSITY

Permission letters to the study sites

To: Head sister/chief executive officer

REQUEST FOR PERMISSION TO CONDUCT AN INTERVIEW WITH THE COMMUNITY HEALTH WORKERS AT VARIOUS CLINICS WITHIN THE EKURHULENI SOUTH SUB-DISTRICT, JOHANNESBURG.

Dear: Sir/Madam

I am currently pursuing my master's degree in physiotherapy, at the University of the Witwatersrand. In order to attain my masters' degree, I am required to complete a research module. My research title is "factors contributing to uncontrolled high blood pressure in a low resource setting in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives."

I write this letter requesting permission to use a room at your facility to interview community health workers as part of my study. I have received ethical approval from the Human Resources Ethical Committee and I have attached the approval.

What is the aim of the study?

To explore community health workers' perceptions on factors that affect uncontrolled high blood pressure in adults living in Ekurhuleni District, Johannesburg.

Study population

The study will include community health workers from clinics within Ekurhuleni South subdistrict.

What does the study involve?

The participants will be required to sit for a 45 – 60 minutes one-on-one, in-depth interview with myself. They will be asked questions as well as their opinion regarding uncontrolled high blood pressure and stroke within the respective communities. The interview will be audio recorded and transcribed for research purposes.

When and where will the study be conducted?

A quiet, private room at the respective clinics will be used to conduct the interview. The times and dates will be confirmed closely to the time.

Confidentiality

Participants will be asked to sign inform consent forms as well as audio recording consent forms prior to the interview taking place. Participants identify will be veiled as they will be represented by alphabets rather than names. All consent forms will be locked in a drawer that only the researcher and the supervisor will have access to. Hence, confidentiality is guaranteed.

Cost

Participants will not be required to pay in order to participate in this research study and no remuneration will be given either.

If you have any questions regarding the study, please direct to the Chairperson of the Human Resource Ethics Committee (HREC) at the University of the Witwatersrand.

Your response will highly appreciated.

Thanking you

Researcher

Zaheerah Dawood

zahdwd@gmail.com

082 087 9453

Supervisor

Mr. Kganetso Sekome

011 717 1888

kganetso.sekome@wits.ac.za

APPROVED/NOT APPROVED

COMMENTS:

Signature of head sister/CEO

14/03/2022

Date

Appendix F – Permission letters from head nurses (Ramaphosa Clinic)

Ramaphosa.

National Research Foundation

WITS UNIVERSITY

Permission letters to the study sites

To: Head sister/chief executive officer

REQUEST FOR PERMISSION TO CONDUCT AN INTERVIEW WITH THE COMMUNITY HEALTH WORKERS AT VARIOUS CLINICS WITHIN THE EKURHULENI SOUTH SUB-DISTRICT, JOHANNESBURG.

Dear: Sir/Madam

I am currently pursuing my master's degree in physiotherapy, at the University of the Witwatersrand. In order to attain my masters' degree, I am required to complete a research module. My research title is "factors contributing to uncontrolled high blood pressure in a low resource setting in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives."

I write this letter requesting permission to use a room at your facility to interview community health workers as part of my study. I have received ethical approval from the Human Resources Ethical Committee and I have attached the approval.

What is the aim of the study?

To explore community health workers' perceptions on factors that affect uncontrolled high blood pressure in adults living in Ekurhuleni District, Johannesburg.

Study population

The study will include community health workers from clinics within Ekurhuleni South subdistrict.

What does the study involve?

The participants will be required to sit for a 45 – 60 minutes one-on-one, in-depth interview with myself. They will be asked questions as well as their opinion regarding uncontrolled high blood pressure and stroke within the respective communities. The interview will be audio recorded and transcribed for research purposes.

When and where will the study be conducted?

A quiet, private room at the respective clinics will be used to conduct the interview. The times and dates will be confirmed closely to the time.

Confidentiality

Participants will be asked to sign inform consent forms as well as audio recording consent forms prior to the interview taking place. Participants identify will be veiled as they will be represented by alphabets rather than names. All consent forms will be locked in a drawer that only the researcher and the supervisor will have access to. Hence, confidentiality is guaranteed.

Cost

Participants will not be required to pay in order to participate in this research study and no remuneration will be given either.

If you have any questions regarding the study, please direct to the Chairperson of the Human Resource Ethics Committee (HREC) at the University of the Witwatersrand.

Your response will highly appreciated.

Thanking you

Researcher

Zaheerah Dawood

zahdwd@gmail.com

082 087 9453

Supervisor

Mr. Kganetso Sekome

011 717 1888

kganetso.sekome@wits.ac.za

APPROVED/NOT APPROVED

COMMENTS:

Signature of head sister/CEO

29/3/2022.

Date

Appendix F – Permission letters from head nurses (Wannenburg Clinic)

Wonnenburg

National Research Foundation

WITS UNIVERSITY

Permission letters to the study sites

To: Head sister/chief executive officer

REQUEST FOR PERMISSION TO CONDUCT AN INTERVIEW WITH THE COMMUNITY HEALTH WORKERS AT VARIOUS CLINICS WITHIN THE EKURHULENI SOUTH SUB-DISTRICT, JOHANNESBURG.

Dear: Sir/Madam

I am currently pursuing my master's degree in physiotherapy, at the University of the Witwatersrand. In order to attain my masters' degree, I am required to complete a research module. My research title is "factors contributing to uncontrolled high blood pressure in a low resource setting in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives."

I write this letter requesting permission to use a room at your facility to interview community health workers as part of my study. I have received ethical approval from the Human Resources Ethical Committee and I have attached the approval.

What is the aim of the study?

To explore community health workers' perceptions on factors that affect uncontrolled high blood pressure in adults living in Ekurhuleni District, Johannesburg.

Study population

The study will include community health workers from clinics within Ekurhuleni South subdistrict.

What does the study involve?

The participants will be required to sit for a 45 – 60 minutes one-on-one, in-depth interview with myself. They will be asked questions as well as their opinion regarding uncontrolled high blood pressure and stroke within the respective communities. The interview will be audio recorded and transcribed for research purposes.

When and where will the study be conducted?

A quiet, private room at the respective clinics will be used to conduct the interview. The times and dates will be confirmed closely to the time.

Confidentiality

Participants will be asked to sign inform consent forms as well as audio recording consent forms prior to the interview taking place. Participants identify will be veiled as they will be represented by alphabets rather than names. All consent forms will be locked in a drawer that only the researcher and the supervisor will have access to. Hence, confidentiality is guaranteed.

Cost

Participants will not be required to pay in order to participate in this research study and no remuneration will be given either.

If you have any questions regarding the study, please direct to the Chairperson of the Human Resource Ethics Committee (HREC) at the University of the Witwatersrand.

Your response will highly appreciated.

Thanking you

Researcher

Zaheerah Dawood

zahdwd@gmail.com

082 087 9453

Supervisor

Mr. Kganetso Sekome

011 717 1888

kganetso.sekome@wits.ac.za

APPROVED/NOT APPROVED

COMMENTS:

Signature of head sister/CEO

2022/03/22

Date

Appendix G – HREC ethical clearance letter

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

R14/49 Mrs Zaheerah Dawood

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)

CLEARANCE CERTIFICATE NO. M210861

NAME: (Principal Investigator)	Mrs Zaheerah Dawood
DEPARTMENT:	Physiotherapy Ekurhuleni South sub-district
PROJECT TITLE:	Factors contributing to uncontrolled high blood pressure in Ekurhuleni South sub-district, Johannesburg: the community health workers' perspectives
DATE CONSIDERED:	27/08/2021
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Mr K. Sekome
APPROVED BY:	CB Penny Dr CB Penny, Chairperson, HREC (Medical)
DATE OF APPROVAL:	10/12/2021

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on the Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions.Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. I **agree to submit a yearly progress report.** The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in **August** and will therefore be due in the month of **August** each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature

Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Appendix H – Plagiarism Declaration form

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

FACULTY OF HEALTH SCIENCES

PLAGIARISM DECLARATION TO BE SIGNED BY ALL HIGHER DEGREE STUDENTS

SENATE PLAGIARISM POLICY: APPENDIX ONE

I Zaheerah Dawood (Student number: 669261) am a student registered

for the degree of MSc in Physiotherapy in the academic year 2021-2022.

I hereby declare the following:

- I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong.
- I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.
- I have followed the required conventions in referencing the thoughts and ideas of others.
- I understand that the University of the Witwatersrand may take disciplinary action against me if there is a belief that this is not my own unaided work or that I have failed to acknowledge the source of the ideas or words in my writing.
- I have included as an appendix a report from "Turnitin" (or other approved plagiarism detection) software indicating the level of plagiarism in my research document.

Signature: 

Date: 23/03/2023

Appendix I – Code book

THEME	CATEGORY	CODEBOOK	QUOTES (EXCERPT)
OBJECTIVE ONE: To establish KNOWLEDGE ON MEASURES USED FOR THE CONTROL OF BP			
Medical overview of hypertension	Definition of blood pressure	Poor understanding of blood pressure	"Uhmm, usually, I'll explain it to them, I, I give them an example of a you know, a water balloon. And then I make the example to say, when you put water in a water balloon, it then expands because of the pressure that the water exerts on the balloon itself. And then if the pressure becomes too much, or the water becomes too much into the balloon, and the balloon burst. So that's usually what the type of explanation I would give the clients"
		Inability to define blood pressure	
		Lack of knowledge regarding the normal value for blood pressure	
		Explanation of systolic and diastolic blood pressure	
		Biological definition of blood pressure	
		Understanding of blood pressure	
		Perceived normal blood pressure value	
			"it's when the blood is not flowing, doesn't pass through the veins like it's.. the blood is high[laughing] let me draw it down, the blood is supposed to go through this, it's when the blood is going like this and here the veins are going smaller and it doesn't pass through, so it causes the blood pressure to be high."

			“Normal reading? At the moment, I think it's 130 over 90.”
	Definition of uncontrolled blood pressure	Uncontrolled blood pressure as a silent killer	“so if it’s high maybe the heart is pumping too much, that’s why they are saying it’s a blood pressure because the blood is pumping too much (demonstrating with hand) and your veins can’t control it. So that’s why it’s a blood pressure.” “they don’t think high blood can kill you know and it's a very, it's a silent killer.” “so if you do have high blood pressure it means your blood is it flows faster than normal and it has some clots somewhere.” “okay, uncontrolled high blood pressure is when the pressure is higher then the the normal range okay, for instance, we say normal pressure is between under 120/80 and 240 over 90. So, which means if it goes higher than that, then you do it's uncontrolled.”
		Understanding of uncontrolled blood pressure	
		Water balloon analogy used to explain high blood pressure	
		Biological understanding of uncontrolled blood pressure	
		High blood pressure value	
		Inability to define uncontrolled blood pressure	
	Causes of uncontrolled blood pressure		“I think a lot of the clients also

		Lack of knowledge regarding causes of uncontrolled blood pressure	they have this dependence on pharmaceutical treatment on tablets, you understand if they don't take the tablets, they don't feel right you understand the more tablets they take, the better it is for them you understand. But they don't understand, you know." "it's either maybe the medication doesn't work in your blood." "Uhm, but that would also be related to age as well." "in the community most people who are having a problem it's old people." "the cause, uhmmm..you can inherit, if it's inherit I don't know but you can inherit, if your mother or your grandmother has it you could have it you know," "and then I will also ask about family history, are there any family members who had high blood pressure."
		Poor access to health education due to nurses rushing at the clinic	
		Patient dependency on pharmaceutical treatment	
		Ineffectiveness of medication	
		Work commitments	
		Age dependency	
		Genetic predisposition	
		Lifestyle related causes (give examples)	
		Cultural norms	
		Overthinking as a cause of uncontrolled blood pressure	
		Mental health conditions	
		Lack of safety	
		Recreational substance abuse causes poor adherence to medication	

		None adherence to clinic follow ups (clinic infrastructure and services at the clinic)	"So people like salty food. And people like oil food. So that is also a big problem in our community. They don't they feel like they cant eat without it. It's like a nature in coloureds. They like to eat salt and they like oily food basically. So thats also problems so its also a bit difficult to take them out of their habits. Because the way some of them, they will say you don't know what you're talking about." "from stress it goes to depression, from depression it goes to high blood as far as i know" "Eish, the crime you can't even say because they are they even the police are involved." "others they will tell us that yohhh I forget when I'm drunk, I forgot to take my pills " "Some of them they drink too much. They even forget to take that treatment even if you visit even if you go in in the morning you won't find them in the house. They're going to drink
		Lack of adherence to medication regiment	
		Negligence of adhering to medication regiment	
		Delay in seeking health services from nurses (time frame of assistance)	

			alcohol” “medication ..... (long pause) I think the alcohol those that taking alcohol I think alcohol and ..... (long pause), I think those taking alcohol they will not they are not taking taking treatment” “yes, for me I feel like nowadays when you come in and go to the sisters there's this rush, they don’t sit one on one and give the health talks that could change a little bit”
	Complications of uncontrolled blood pressure	Stroke Mortality Cardiovascular complications Lack of knowledge regarding complications of uncontrolled blood pressure Systemic complications of uncontrolled blood pressure	“you could just die because it's like a, it's very, very important high blood pressure.” “and heart disease, heart failure and heart attack” “and also lead you to renal failure and kidney failure“ “okay uncontrollable high blood pressure can cause diabetic because in mostly time, when you don't comply correctly in your nutrient you can have a diabetic or kidney failure”

Knowledge CHWs possess regarding interventions used for the control of uncontrolled blood pressure	Good dietary habits	Reduction in spicy food, oily food, carbohydrates, sugary drinks and caffeine Diet rich in fruits, protein and vegetables Increase the water intake Correct food preparation	"we teach them that they must not eat alot of fat, even if it's meat, they must take out the skin if it's a chicken or beef they must take out the fats and that they must boil it, and they must not put a lot of salt . If the person is eating salt and this other spice called Benny, if you are putting all those things at the same time the salt becomes too much, at least they must reduce one of them. If he/ she is using Aromat, they must continue with the Aromat only, they must not mix because when the salt is too much it causes BP, so we teach them about all those things and that they must exercise also and eat vegetables and not a lot of starch" "you should eat in seasons fruits and vegies and you should minimize what you eat but you don't have to skip your meals and you must drink water , stay away from caffeine and make sure that you take something that is good for your body." "we teach them that they must

			not eat alot of fat, even if it's meat, they must take out the skin if it's a chicken or beef they must take out the fats and that they must boil it, and they must not put a lot of salt" "ohh, it's a starch, let me say eat starch, you mix with your vegetables and then also a little bit of protein and fruits also." "and then you must not drink acid, at least you can drink 100% juice it's good but not every day but we advise them to drink a lot of fluids and eat properly, small portion of meat, the chicken we tell them to remove the.. yes, the skin before they cook and then they boil it, they must not put salt" "and to live a healthy lifestyle like to eat healthy diet , nutrients, vitamins and iron" "I tell them that the only thing they can do is to make food gardens for them to get greenly vegetables with vitamins"

	Good mental health practices	Oral supplementation	"and to live a healthy lifestyle like to eat healthy diet , nutrients, vitamins and iron ehh to sleep enough" "i can tell them that they must boil and use a pinch of salt , there must be no oil and spices thats where you would reduce blood pressure, not s lot of stress, you can have stress but manage your stress. remember that with high blood you cant be too happy or depressed."
		Management of stress (examples)	
		Adequate sleep	
	Adherence to medication regiment	Adherence to medication as prescribed	"example if you if you always explain to them, you have one day a tablet of your blood pressure because some of them they do take twice a day. But let me take once a day. So if you take once a day, for example, you take it at eight o'clock, there's a circle was your medication, we'll call it a 24 hour circle is how long that medication is in your system. So in that case is that if I start today, my medication I always explain to them start at eight I don't give their specific time because we don't we're not the same. But I
		24 hour consistency with medication regiment	

			always make the example was eight o'clock or seven o'clock because they mostly people are awake. So if you drink your medication example at seven, the next day, seven o'clock is 24 hours is where all the medication is already out of your system is seven to seven because it's a one day, then you add again. But most of our patients outside they don't drink they don't make that circle full. It's either, they overdose themself or the lack of medication. There's a gap of a lake and they don't understand it. Because if I drink my medication at seven o'clock and tomorrow, I will do my medication at five o'clock in the morning. It means so two hours off The previous day's medication in my system so now I'm adding medication on to so it means I also make my medication strong because there is already medication in my system if I'm drinking it today at seven o'clock the next day I'm drinking it at 10 o'clock because mostly they don't keep time so it

			means theres a gap you see so then it means for right two to three hours there's no medication in so now they have this habit to say the medication doesn't work but they don't do the medication right away” “i tell my patients that they must, i first ask how far she knows about the treatment and i can make sure that she does know or he does know how to take it and when to take it, if i see that she taking it wrongly, if maybe she has to take it at 8 o'clock and she takes it.. or maybe she forgets other days will make sure that she takes the treatment correct first, in a correct dose” “is to listen and take the treatment correctly , avoid stress and eat healthy.”
	Healthy lifestyle modification	Avoid alcohol Avoid smoking Exercise (Age appropriate and definition)	“Uhm, sometimes I have to tell the patient to avoid uhm to avoid alcohol” “and if the patient is drinking alcohol, i suggest that if maybe they used to drink a lot of bottles

			now they must drink two or less so that the high blood can be controlled, even on smoking." "we can even educate them if they are drinking a lot, to reduce the number maybe if she take 10 a day she must try to take 8. we cannot say leave but we can advise you" And then they should eat healthy food, as I've said before, and exercise mostly." "to do some exercises. as I told earlier even if it's less than 30 minutes you don't have to exercise the whole day. they must eat healthy"
Education which CHWs provide regarding the interventions used to help with the control of uncontrolled blood pressure	Education regarding methods on controlling blood pressure	CHWs educating patients on the complications of defaulting on their medication CHWs educating patients on the importance of taking their medication CHWs educating patients on the effects of unhealthy foods CHWs educating patients on the importance of hygiene Frequency of CHWs and nurses education on the control of high blood pressure	"oh I think to to educate them about the danger or the dangers of eating unhealthy food can also help" "Yeah, they not adherent like I said, we we we teach them to to take their medication same time every day but they are very forgetful. We even said they must put notes against the fridge or set the alarm or tell somebody who can remind them but it

		CHWs educating patients on the importance of adhering to health education which nurses provide	doesn't happen often. Okay, sometimes it doesn't happen” “we tell them about the diet, we give them health education first and we even advise them to have their garden and plant things like spinach and cabbage, they must have the vegetables, they must eat proper , and that they must not drink alcohol even the hygiene , they must not drink alcohol, they must eat healthy and also if she's on treatment she must come to the clinic every time, at the right date and they must also take the correct dose” “it's health education, about blood pressure and when you have high blood pressure what is the risk of when you don’t take the treatment , the risks is that you are going to get a heart attack and stroke.” : i can even tell them, to know the importance of taking the treatment. the importance of taking the treatment is to decrease the high level of high blood. as far as i know. yes. Also the purpose of their medication, we educate on the medication, Also, there's some medication with side effects,
		CHWs educating patients on the making use of clinic facilities	
		CHWs educating patients on the importance of adhering to clinic follow ups	
		CHWs demonstrating exercises	
		CHWs educating patients on traditional healers	
		BP monitoring	

			some of them especially like pharma press, pharma press one of its side effects is coughing. So most of the patients, they have the side effects, some is uncontrolled, some is controlled. So we refer them back to the clinic to say, okay, now, when it's really in control, they need to change their medication. So if it's, like, controllable, they have to stay with the pharma press because they can control it. So we also educate them on their medication that they are drinking, and also so that they can understand why they drinking the medication as well. And we are also educating them on their blood pressure example. Normally, you will find you will hardly find a person with blood pressure, say elderly person of 120 over 80. So the reading will always be like 140, over 80. But it's still good. Because yes, they are on medication is well, so we also educate them, we test them at the house level, check their blood pressure as well. So if it's too high, we educate them to say, Okay, now you need to do something because it's too high or when it's fine, or it's fine. No, you're going on what you are doing as well.

OBJECTIVE TWO: TO IDENTIFY AND EXPLORE BARRIERS FOR THE CONTROL OF HIGH BLOOD PRESSURE IN ADULTS LIVING IN EKURHULENI SOUTH SUB-DISTRICT			
Perceived socioeconomic and personal barriers identified by CHWs which contribute to uncontrolled blood pressure	Financial issues	High unemployment rate Financial burden (cost to travel and grants) Insufficient funds to start their own vegetable garden Inadequate space for gardening	"Oh, yeah, it's in itself, it's a very stressful environment, a very stressful place to live in, because you've got high unemployment rates, there's a high number of families that are living in poverty, so obviously your stress levels is much more you understand" "Most of them ask us, where they are going to get money to buy the seeds? It's good to do it, to eat out of your garden, but unfortunately some of them do …….some of them doesn't. Some of our patients uhm…does not really have, you know to buy they depend on SASSA, yes yeah." "I tell them that the only thing they can do is to make food gardens for them to get greenly vegetables with vitamins, which will cost them less because the rate of unemployment is too much and we don't have cash" "Eish, I think in the environment, and the environment, if you live in the environment like this, you don't have the space to make the garden you see for the veggies. So in that thing, it's very difficult

			environment. It's very important." "There's a big lack and we have in our community not drinking medication the right way eating due to not working most of the people they don't work, most of the people they get grant. Most of them they are on pension in this time of life the money they get from government is also not enough we do understand that you understand to buy the proper food"
	Personal and stigma related issues	Denial of diagnosis	"they are denial first of all, secondly, they don't accept the new life of high blood pressure." "uhmmm , one of the things that control , I mean makes it difficult for us to to control its uhm I cannot put it at like its peer pressure but it is, like for instance if I am taking my pills maybe I didn't disclose them to the house so it won't be easy I uhmmm [interrupted], [continues] for me to take my medication because they will be asking me questions why are you doing this, why are you drinking this why you acting like this because I have to have some precautions for my health"
		Patients are fearful to disclose their diagnosis	
		Patients refusal to change lifestyle	
		Patients seeking help only when symptoms arise	

			"No. No, Because, they just lazy. But the other one they just exercise maybe just take a walk to go to the tap to fetch water and come back its a part of exercise" "people should just be adhering that's the first thing and they should come to the clinic when they feel there is something wrong with the body because then it can be treated early. when we as community health workers tell you about this things just listen, don't take the information for granted. take advice from someone who knows, because you can rather buy a beer than take your medication."
	Lack of community involvement and social issues	Mocked at for charitable food provision	"mm,no one is helping each other here, it's only your family and us." "I think the community of Ronderbult are not unite specially they are not supporting each other. Uhmmm yeah I think so and there is no, the number of NGOs are less and there is no support group around the areas. There's no support group if we
		Lack of community involvement	
		Negative friend influences (examples)	
		Domestic violence	
		Community violence	
		Lack of community awareness of uncontrolled blood pressure	
		Covid19 and uncontrolled blood pressure	
		Lack of adherence to education due to peer pressure	

		None acceptance of CHW services Stigma around health conditions Migration to other provinces Lack of family support and poor attitude Poor support from community members Language barrier	can develop some support group I think they will be better." "there is that thing 'stigma' the, they label." "Yes. patient to patient they can say we not going to take our medication. We still live things like that they will give each other wrong advise. Some will give you I'm giving you the negative part. Some will share the medication as well, you understand? Feel that example they drinking the same medication. Say pharmapress, pharmapress has 2grams. Yes. 10 and 20. So now I'm drinking 20 You're drinking 10 So now you are like I'm out of mine but you say to me, I'm out of my medication. Then im giving you my one then you drink. You dont break, because its 20. they don't check those things. And yeah, it's that way they they the negative part is is where they make each other delay to go to the clinic. because the one you are giving medication, she doesn't go to the clinic to say my medication is finished. And that's why the clinic has a problem with patients medication get finished before time. Yes. Because they share each others medication."

	System issues	No ambulance services in the community	"if only if uhhm the government can be [pause] can be a little bit stricter on the people who are selling alcohol and drugs they I think the level of high blood pressure can go down even the level of violence can go down because we are living in.. the violence even in the houses there's domestic violence because even in the houses there people from those places where they drink alcohol they come back and beat their wives and children" "uhmmm, like as I told you there is a problem of high, not high blood pressure only in our community because of literacy in our people and lack of information" "ohh okay in that case uhmm some they do complain about the staff attitude the waiting period uhmm yeah that's the most of the things they say the staff attitude they don't get treated properly and you know as community health workers sometimes there's nothing we can do understand"
		Poor response from government	
		Lack of NGOs within the community	
		High illiteracy	
		No consideration to patients socioeconomic background	
		Shortage of health workers within the area	
		Poor staff attitude and communication with patients	
		Medication out of stock	
		Poor monitoring of CHW work (not direct barrier)	
		Long waiting times (clinic is too small, poor filing system, clinic is servicing too many individuals)	
		Rushed health services delivery at the clinic due to overworked nurses	
		Reduced operating hours	
		Poor staff attitude towards CHWs	
		Poor team work between CHWs and clinic staff	
		Poor referral to other MDT members	
	Cultural and traditional issues	Alternate medicine	"And it's also mostly okay, this is not in the clinic how the clinic will advise them, but it do work,
		Use of traditional healers	

			they have this herbs. They cook in the community. They plant it in the yard it does help so besides the medication those herbs they use most of the people in in our community they have those herbs" "I actually forgot to add this, this is another thing that is affecting uuhmm uuhhmm our patients neh, this uhm believes that they have and they go uhm to their traditional healers and they give them this medication that they drink now they mixing or they don't even drink their medication from the clinic they drink whatever they get from the traditional healers that's what affect the patient as well that's what I wanted to add." "they do it's their tradition, they believe in that "
	Patient non compliance (which leads to patients expectations)	Poor patient attitude regarding drinking and smoking	"yes, those two they are making it difficult because they are drinking and they don't want to quit drinking and smoking, so that can causes the problem." "others they complain to us saying that how are they going to take the treatment meanwhile they didnt even eat. sometimes they dont eat so they end up not
		Patient ignorance around benefits of exercise and general well-being	
		Poor patient attitude regarding adherence to medication	
		Patients perceived attitude regarding clinic staff	

			taking the treatment. because you can't take a treatment on an empty stomach, remember we say eat before you take your tablet” “And I just think the whole perception that's been created to say listen nurses are rude, you understand? I think the expectation is even from the department as well and from the community as well. The expectation is that nurses should not have any human emotions, you understand what I'm saying? So, if you look at it, and you break the situation down to say this is a negative environment, it will affect any human a certain type of way, you understand? That is what you see.” “People from here (laughs) they don't exercise. I remember once told this old man. You have to exercise Yes, Mommy, I exercise. And then when I go there we run. He gets tired early. Haai, come on, man. You have to exercise. No, no, mama. I'm tired you know and then I said okay, it's fine. But then that person it's like he every day tired. He's tired but when you check, he's busy with a bottle of alcohol. And the

			other side and then we're like, we don't take exercising seriously.”
	Patient expectations from health services	Family members unrealistic expectations from clinic, clinic staff, physio and support groups	“Again, like the family members as well, you know, the family members, also not, you know, I think it's also lack of information . They expect us to solve the problem. Not knowing that, Okay, listen, one of our members, they are having high blood pressure.” “patients make it difficult because when they come here they expect to be seen right now because even though I am the care that comes to your house it doesn’t mean when you see me I will just come and help you there are people in the line before you, you have to follow and wait, no one is special there's no special treatment given for anyone.“ “when I go out and I tell them that I have booked and appointment for you with the physio, when they come here they want you to stop everything and just attend to them, they put it in their mind that they are going to be seen now. the client already comes with expectations”
	No barrier identified	No environmental challenges	“No environmental challenges”

		Community members doing all they can	"They dont make it difficult." "the others they do take it right but the others they take it in a wrong way, but the sisters are trying."
		Clinic and its staff members are doing all they can	
		CHWs are doing all they can	
	Medication issues	Side effects of taking medication	"Also, there's some medication with side effects, some of them especially like pharma press, pharma press one of its side effects is coughing. So most of the patients, they have the side effects, some is uncontrolled, some is controlled." "Uhm, I think because you know, they change the medication because the medication is the same, and it's the boxes."
		Medication boxes should not be changed	
OBJECTIVE THREE: TO EXPLORE FACILITATORS TO IMPROVING THE CONTROL OF HIGH BLOOD PRESSURE IN ADULTS LIVING IN EKURHULENI SOUTH SUB-DISTRICT.			
Perceived facilitators of multi-disciplinaries	Social and community development	Provision of seeds	"if they can give the seeds so that they can all plant [her phone rang] if they can give them the seeds so that that they can all have gardens, others can be employed I don't know" "Yes, the government could provide eehh maybe eehh (clicks tongue) provide eehh maybe food parcels so they could provide for them"
		Provision of food parcels	
		Provision of food vouchers	

			“They can give them food vouchers to go and buy food and especially I think food vouchers but they put everyone in the same cup. There is people who likes to drink young people old people so like if we give them money, especially those ones who are not qualified for 60 already. Then they say all of them they will drink the money out in it but then you get those really the people who are so decent they will really want that grant that voucher example and they will use it for the right purpose. You understand is the same they are doing with the children. They're like every mother who's getting grant they're buying alcohol or the money that is everyone. You really do get those ones who even take their children's maybe to KFC or spoil them I do see some of them. They spoil them they they even the children can see them. So even the money they give for the children is so little is R450 if I'm not mistaken. How can you raise a child wIth R450 and mothers cant get jobs because there's no jobs. So maybe they can really do your food parcels as the the food voucher as they're giving them

			the grant every month. Give them that every month as well. but it just before certain like even you can see during COVID They gave people more money they do all the things and people survive what makes that time different than now you understand so people don't need more money if I have to speak behalf government im like give people more money there is really people who are really suffering with this money even elderly people is going because they need to pay lights they need to buy food with that180 They are like it's one day and even though if they get the money if they want to example, say okay, I also want to apply maybe for food voucher what are what they are not allowed to get because they get pension but it's not a lot so maybe give them maybe the pension the money give them their food voucher, what do you help them just a boost. I think government could really do that to our community."
	Health workforce and infrastructure	Implementation of centres within the community Employment of more CHWs Employment of more nurses	"and time, the waiting time. I don't blame the sisters ok because even the government should hire more nurses because you find that you have 100 patients, chronic, when I'm

			talking about chronic there is hypertension, diabetes and Tb, epileptic, all those chronic things and there is only two sisters so think about 100 and two sisters. like they can't have that time, they can't. they are pushing so that others could come in." "And maybe make a center as well because we in Reiger Park we only have one center, but it's more only for elderly people where they can give people food on a daily basis. You understand? I think they can do really as well or make there is food parcels as well. But it's only for HIV patients so they say don't think about other people in a big problem that we have, the most big problem." "and i think the government also need to be sure with the community about what they need. food, maybe employ other CHW's because we are few for the community of Ramaphosa"
	Inter and intra collaboration	Getting media involved Collaboration of other MDTs	"I think maybe if we can, you know, get if government can, you know, get media more involved as well, so that people can see the correlation between strokes diabetes, heart disease and

			those type of things. So I think that might help as well." "like communicating, like those department, people working from reception, clinical nurse, yeah and health promoters and physiotherapy and those primary care, as we are together yeah I think we can know what we can do in the community because some of us are going to other directions, some of us are going to other direction but we are doing one thing but you can do if we can communicate like clear communication we know that yeah, …[mumbling] we can achieve the goal."
	Patient centred approach	Understanding and assessing socioeconomic circumstances Patients opening up to family and health workers	"and i think the department must find a way to solve this problem ne[ok], i can say maybe they can do or send people, us, to see the communities how they live in their rooms, others they stay in one room, they are sharing, let's say they are sharing one plate, so you must try to see how we are living in the community, that's where is the key in us." "Hmmm, ah……you know what, sometimes I do worry, sometimes I stress because anything can happen, and then

			uhm….today, let say for this week because I had one that the blood pressure was high, and then uhm….. She started to open and then she explained to me, why the high blood pressure is… Constantly high, so then I have to control it you know, you have to do this, you have to do that. Don't stress you know, if he comes in just look at him and walk away, yeah. "
	Clinic accessibility	Good geographical location of the clinic	"No is not far, too close they can walk!"
OBJECTIVE FOUR: TO ESTABLISH THE COMMUNITY HEALTH WORKERS' PERCEPTIONS ON STRATEGIES TO IMPROVE THE CONTROL OF HIGH BLOOD PRESSURE IN ADULTS LIVING IN EKURHULENI DISTRICT.			
Perceived staff, personal and system strategies	Staff wellbeing, team work and leadership	Improvement of team work amongst CHWs and clinic staff (physio doing home visits)	"And I think also, you know, there needs to be a, a mindset shift from staff to say, Okay, let's, let's look at, let's look at, first of all strengthening the WBOT program, you understand and not look at it from as a separate entity. You understand I don't, I don't think we've made enough support with regards, especially from the clinic stuff with regards to that, they don't completely understand what it is, what the value is, what functions it can, can all the achievements it can have for them." "Yeah, like, I just think the environment, how stressful the environment for the staff as well. I think that's one one of the
		Encourage CHWs to act as role models	
		Improvement of staff mental health	

			biggest elements we are missing as well, you know, the health of the staff. Yes. Mental health of the staff as well. Because remember, in itself, a clinic or a hospital is a stressful environment. So if you have medication shortage, so you don't have equipment, you understand, the environment itself, the way the building looks, is not suitable. You understand when you walk into this environment, how you feel immediately, you understand, so that will affect you know, the outcomes, you understand. So then the process becomes more curative, and we add more medication and give more pills and you know that the pill burden then increases, you understand? Job satisfaction decreases, because it's a very stressful environment. Because like I said, in the in itself, you're dealing with sick people, they are not positive, you understand. So the whole environment is negative. So yeah"
	Awareness creation	Promote CHWs to organise campaigns for uncontrolled blood pressure	"They can like maybe the stakeholders or we can make if more campaigns in the community to make awareness of high blood pressure."
		Establish exercise groups for patients with uncontrolled blood	

		pressure (physio running the classes)	"Maybe they need like something like they they are group of old people where they can make some exercise there or soup kitchen like" "okay I think in getting more information if there were people working during the weekends we can get all the people who are not there and another thing I think they can open during the weekend that will help a lot and if or during this community meetings we can explain to them the importance taking their medication using the facility .. uhmm yes that" "Also, we can use support groups for them to also go through them out to check especially the ones who are drinking certain medications. Why explain because if you can ask patients, what are you drinking? They dont know. Some of them they can show you diabetes medication, then they will tell you its high blood medication, you see, so they don't know their medication"
		Include health awareness issues at community meetings	
		Establish support groups for patients uncontrolled blood pressure (themes: exercise, providing support to each other, medication, ways to manage blood pressure)	
		Improve family education regarding uncontrolled blood pressure	
	Holistic health care	Improve collaboration with community structures (churches, traditional healers)	"what we can do, we can look on the situation, how we see the

		Improve family support of the patients with uncontrolled blood pressure (education is key)	situation, we can try to refer to the social workers." "Even the traditional leaders and the traditional healers need to be educated also encourage to send people to the health institutes so that people cannot only go to them they must come to the health institution." "eish even the churches they make yourself our work difficult because some of the church believes that if you, they can prayed you get healed if you drink their water you get healed but that's not true, you have to take a treatment for you to get healed or to control the illness that you have" "what the family members can do is to support that family member who has high blood pressure by taking their medication in the right time, in a right way and they must make sure that the stress is controlled, it's their duty to make that person not to have too much stress." "if we see that uhmmm he/she needs more help, we can go there maybe uhmm once or
		Educate traditional healers to send their patients for medical assistance	
		Improve early referrals to clinic (nurses, OT, psychologist)	
		Increase the frequency of home visits (increase access to medication when need be)	

			twice a week to make sure she drinks the medication correctly. i think if we can do that maybe for two months, she will get the routine that I everyday I can do this “
	Access	Increase CHWs working days to that of weekends	“the department of health I think if they can extended from some resources like the clinics can be extended like to be 24hours whereby if we have got an emergency at night it can be able to come and go and attend the clinic but if it is only a 12hours service during the night it is going to be difficult, because it is from the place we are staying and we don’t have ambulance to come and collect people who are sick” “because we will also be in, maybe we could try to help them during the weekend.“
		Increasing operating clinic hours	
	System related improvements	Providing more stock of medication	“let say like at Tambo where they have a diabetic clinic they can also have a high blood clinic with patients that is uncontrolled” “if they can add more clinics because we got one clinic here in Ramaphosa, if they can add one clinic or the mobile clinic that can
		Initiating a BP clinic	
		Providing a blood pressure machine	
		Initiating CCMDD	
		Development of another clinic	
		Improving the waiting time at the clinic	

		Initiating compulsory blood pressure screening	serve the whole community I think that can be better."
		Improving support of CHWs through more education and knowledge	"and time work on the work on the waiting period, yes they can work on the waiting period." "hmmmm, they can listen and eat healthy. those who are already on treatment they can go and drink their medication and also go for screening, blood pressure screening. Yes" "Like you said, I can say the stock . And not only I think maybe they can provide more for people" "[silence] I think uhmm it will be easier if uhmm patients with high blood pressure had their own BP machines thing and all and that way it's easier for CHW when they get there they can always check their BPs or even them at home they can check and it's easy for them to just see if it's not normal they can easily go to the clinic or take medication they and drink water do something to help themselves" "Pre-picking for some ..... (pause)of the patients and to do this thing, that thing that they

			are doing with the HART patient, they do go to the pharmacy and take their medication then they come one if your blood pressure is controlled, they come once once a year to do the bloods I think I think can also work with the blood pressure . But remember the blood pressure is sometimes they need to have maybe their own blood pressure machine."
	Patient initiatives	Initiating a vegetable garden Improve self-management of uncontrolled blood pressure patients	"Okay, firstly, we can encourage the community to make vegetable gardens in the house for themselves. We can encourage them to what can I say? Maybe to get a piece job or something? Yeah, most" "I think what more they can do is to educate themselves. They need to educate themselves with regards to their own health, they need to take back their health for themselves and not expect the clinic to solve it for them" "I think uhmm it will be easier if uhmm patients with high blood pressure had their own BP machines thing and all and that way it's easier for CHW when they get there they can always check their BPs or even them at home they can check and it's

			easy for them to just see if it’s not normal they can easily go to the clinic or take medication they and drink water do something to help themselves” “or sometimes when you are sitting you can watch the river that plays at 8 o'clock then you will remember to take medication.”