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Chapter

Self-Management Strategies in Outpatients with Hypertension under Treatment in Rural Communities

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Abstract

Hypertension is already a problem faced by South African urban populations, but little is known about the predominance, chance factors, and self-management strategies of hypertension in rural areas. Hypertension has an increased mortality and morbidity rate, thus has been identified as the killer disease in rural communities as its prevalence is increasing year by year. Non-attendance of hypertensive patients in rural communities has been identified as one of the most pressing issues in chronic illness, including hypertension, management and results into uncontrolled illnesses. Hypertensive patients lack self-management strategies to maintain their quality of life when diagnosed. Therefore, this book chapter is aimed at exploring the knowledge of self-management and strategies used in outpatients with hypertension under treatment in rural communities. Seven major themes were identified: paradoxical description; adherence to treatment and medication instructions, medical follow-up visits at the health facility, healthy lifestyle; management of emotions; defense mechanisms and religious interventions. Patients faced obstacles such as not eating a healthy diet since they are not the ones cooking, and children are always generating problems for them, leading their blood pressure and blood glucose levels to rise. Additional efforts are needed in rural communities to promote hypertension and self-management measures through educational programs.

Keywords: self-management, hypertension, non-communicable diseases (NCDs), cardiovascular disease (CVD), rural communities

1. Introduction

For centuries, communicable diseases have been responsible for the greatest worldwide burden of premature death. Following the Second World War, medical research achievements in the development of efficient and inexpensive vaccinations and the increased availability of antibiotics decreased the toll of communicable diseases even more [1]. Non-communicable diseases (NCDs) such as cardiovascular

disease (CVD), diabetes, chronic-obstructive pulmonary disease (COPD), and cancers have emerged as an emerging pandemic with a major threat to the government. These diseases undermine health gains while imposing a heavy economic burden on governments and households worldwide in recent years [2, 3]. For example, according to the World Health Organization (WHO), NCDs are the leading cause of mortality worldwide, accounting for 71% of all deaths, with CVD accounting for the majority of deaths, with around 17.9 million people dying each year, followed by cancer, respiratory illnesses, and diabetes [4]. NCDs are the second leading cause of mortality in much of Sub-Saharan Africa (SSA), accounting for 2.6 million deaths [5]. Because of the rapidly expanding epidemic of NCDs, SSA is facing a double burden of NCD and communicable illnesses in a disadvantaged environment characterized by ill-health systems [6].

It is noted that CVD mortality rates are low in SSA as compared to high-income countries; however, the deaths due to CVD has doubled in the past three decades in SSA [7]. Certain risk factors, including hypertension and diabetes, are the key modifiable risk factors for poor CVD outcomes, such as stroke, the leading cause of death globally [7]. According to a study by Kearney et al. [8] using published literature from January 1, 1980, to December 31, 2002, the prevalence of hypertension was predicted to increase by about 60% to a total of 1.56 billion in the year 2025 [8]. The risk of hypertension in the semi-urban and rural areas of South Africa increases with age. It recorded 36% and 40% among the 56+ year population in semi-urban and rural areas, respectively [9]. Globally, including SSA, certain risk factors such as physical inactivity, family history of hypertension, unhealthy diets, waist-to-hip ratio (WHR), the harmful use of alcohol, and being diabetic are associated with hypertension [9–11]. Additionally, studies in Africa have shown that socio-economic status (SES), such as household wealth status and high BMI (overweight/obesity) is associated with hypertension [12, 13].

NCDs management includes diagnosing, screening for, and treating these illnesses and providing those in need with access to palliative care [4]. Undiagnosed hypertension in a rural district remains a concern. A large proportion of the hypertensive population remains undiagnosed, untreated, or inadequately treated in developing countries with most coming from lower socio-economic status (SES) than people with higher SES [12, 14]. If left undiagnosed and untreated in rural communities, this might increase the risk of a cardiovascular event, such as heart attack, stroke, enlarged heart, or kidney damage that may occur due to high blood pressure [11].

Most recent studies showed that community members had good (14%) or intermediate (74.3%) knowledge of hypertension, and only 11.8% of the population had poor knowledge even its risk factors [11, 15]. Lifestyle characteristics have direct correlations to hypertension risk, and modifying lifestyles in a favorable direction can significantly reduce hypertension risk [16]. However, poverty was highlighted as a key risk in this group, restricting healthy lifestyle choices and timely access to health treatment [15].

NCD management interventions are essential for achieving the global target of a 25% relative reduction in the risk of premature mortality from NCDs by 2025, and the sustainable development goal target of a one-third reduction in premature deaths from NCDs by 2030 [4]. Disease self-management, or patients' capacity to use disease information and engage in strategies that assist them in maintaining their health, helps lower death and hospitalization rates [17, 18]. Therefore, this chapter is aimed at exploring the knowledge of self-management and strategies in outpatients with hypertension under treatment in rural communities. We discuss

risk factors for hypertension and discuss self-management strategies used by patients in rural communities.

2. Methodology

The study adopted a Mixed-Methods Research (MMR) approach, known as explanatory sequential design, advocated by Edmonds and Kennedy [19]. The study used a household administered data collecting tool in which quantitative data (QUAN) were collected through the non-laboratory INTERHEART risk score tool and qualitative data (QUAL) were obtained through semi-structured interviews. The data collection tool was distributed. The population eligible for this study was people staying in those selected rural communities and 18 years and above. Only 1224 completed the data collection tool with the assistance of community health workers (CHWs) using the non-laboratory INTERHEART risk score tool. For qualitative, participants were selected and interviewed until data saturation was reached. These respondents provided the qualitative data set that sought to explore the knowledge of self-management and strategies in outpatients with hypertension under treatment in rural communities. For quantitative data, frequencies were generated using the Statistical Programme for Social Sciences (SPSS version 26.0), and eight Steps of Tesch's inductive, descriptive open coding technique were used for qualitative data [20].

3. Quantitative phase

This section presents the demographic information of participants followed by risk levels findings. A standardized INTERHEART questionnaire instrument was employed in the study and 1244 individuals from a rural community in South Africa's Limpopo region responded (**Table 1**).

Of the 1244 participants, the majority were females (75%). In the majority of participants their waist to hip ratio was less than 0.873 (54%). The median age of the participant was 48 years old. Regarding CVD risk factors status, 66% of adults in the rural area have hypertension while only 14% were diabetic, shown in **Figure 1**. Hypertension is more prevalent in rural communities than diabetes [21, 22]. However, there is substantial overlap between diabetes and hypertension, reflecting substantial overlap in their etiology and disease mechanisms [21]. Hypertension and diabetes are two of the leading risk factors for atherosclerosis and its complications, including heart attacks and strokes [23]. Making certain lifestyle changes (quit the smoke, drinking alcohol only in moderation, limiting salt intake, and eating a diet with low sugar but plenty of fruits, vegetables, fish, healthy fats, and whole grains) cannot only reduce complications from diabetes but can also greatly reduce your risk of high blood pressure [23]. The majority of the participants were non-smokers (89%) with 25% and 8% being hypertensive and diabetes, respectively.

Table 2 summarizes the quantitative data on the characteristics of rural community members in South Africa for hypertensive and non-hypertensive patients. Most participants in the study were females. Factors such as being female, hypertensive, and having comorbidity were associated with high risk developing coronary heart disease in the elderly than in younger patients [24]. The majority of the 175 (25%) hypertensive individuals in the study were at moderate risk of developing coronary heart disease.

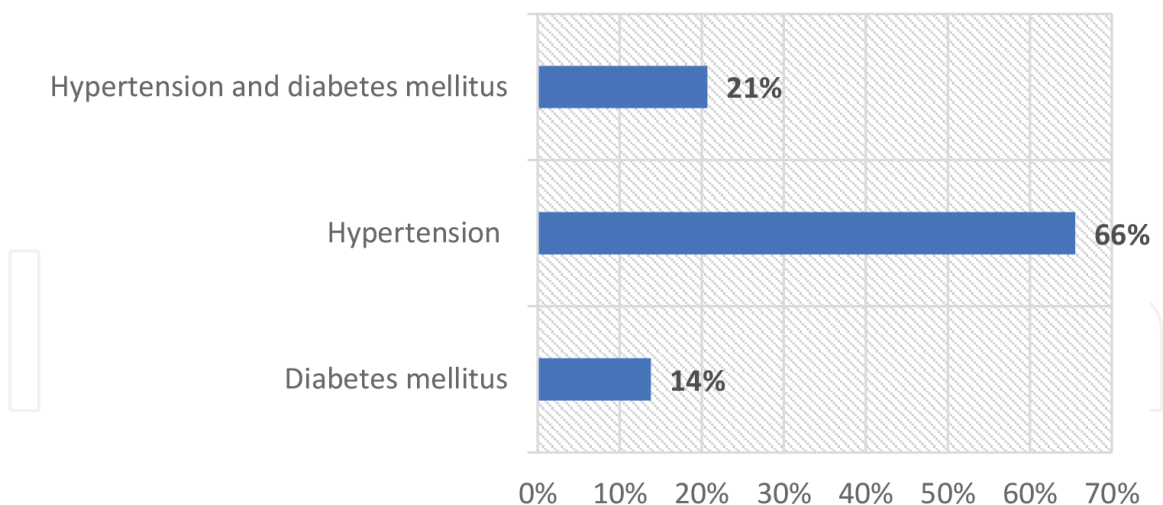


Figure 1.
Prime risk factor for cardiovascular disease.

Variables		Median	95% CI (lower; upper)
Age	Age	48	(47; 49)
Variables		Frequency	%
Gender	Male	306	25
	Female	918	75
Waist to hip ratio	Quartile 1: less than 0.873	654	54
	Quartile 2 & 3: 0.873–0.963	395	33
	Quartile 4: greater than or = 0.964	163	13
Smoking status	Current smoker	97	8
	Former smoker	38	3
	Non-smoker	1051	89
Hypertension	Yes	175	25
Diabetes	Yes	91	8

Table 1.
Characteristics of 1244 rural community members in South Africa.

4. Qualitative phase

Thematic analysis was applied to derive themes for discussion in this section. The following themes emerged: (1) paradoxical description of self-management strategies and (2) unforeseen painful life experiences.

4.1 Theme 1: paradoxical description of self-management strategies

The findings revealed that there is a different description of self-management strategies used by patients when living with risk factors such as hypertension. The strategies include engaging in physical activity, eating a healthy balanced diet, drinking a lot of water. However, the findings further indicate that most participants perform mild exercises and a limited number perform moderate exercises. Health promotion, self-care, and

Variables		Hypertensive 175 (25%)	Non-hypertensive (25%)
Age	Age	48 (20;94)	48 (18; 94)
Gender	Male	41 (24%)	126 (25%)
	Female	131 (76%)	387 (75%)
Waist to hip ratio	Quartile 1: less than 0.873	71 (41%)	301 (59%)
	Quartile 2 & 3: 0.873–0.963	68 (39%)	152 (30%)
	Quartile 4: greater than or =0.964	34 (20%)	57 (11%)
Smoking status	Current smoker	11 (7%)	41 (8%)
	Former smoker	4 (2%)	25 (5%)
	Non-smoker	154 (91%)	442 (87%)
Risk of developing CVD	High	67 (39%)	24 (5%)
	Moderate	85 (49%)	159 (31%)
	Low	21 (12%)	332 (64%)

Table 2.

Descriptive characteristics of rural community members in South Africa for hypertensive and non-hypertensive patients.

education in the community and primary care settings have been shown to encourage patients to engage in smoking cessation, increased physical activity, and a healthy diet in the prevention of cardiovascular diseases, and this plays an important role in preventing CVD risk factors [16]. The stakeholders (health-care providers, health facilities, agencies involved in diabetes care, etc.) should encourage patients to understand the importance of diet, which may help in disease management, appropriate self-care and better quality of life. It is crucial to enhance basic diabetic and hypertension management and knowledge among the general population, especially in rural areas. National-level education and health intervention programs should be instigated and augmented.

4.1.1 Knowledge related to self-management strategies

It was seen that the majority of the participants indicated that physical activity, diet, and lifestyle modification are not associated with hypertension prevention. Most patients lack sufficient knowledge about NCDs and have little knowledge about physical activity [25]. It was discovered that time constraints, lack of interest, low self-esteem, lack of awareness, safety, and financial constraints, knowledge deficit, parental influence, peer pressure, and poverty were the barriers to physical activity and NCDs risk factors [25]. Knowledge plays a vital role in future disease development and early prevention and detection. Positive knowledge, attitude, and practice are important for hypertensive patients, and weight reduction should be considered in managing blood pressure [26, 27]. Knowledge, attitudes, and practices are interrelated and dependent on each other [27]. If the level of one element is higher, the other two factors should be affected positively. Knowledge regarding diabetes and hypertension varies greatly depending on socio-economic conditions, cultural beliefs and habits [27].

4.1.2 Adherence to treatment and medication instructions

Patients with hypertension on treatment are encouraged to adhere to prescribed treatment and medication instructions as this will assist in controlling the symptoms and promote quality of life. Adherence to treatment is described by Burnier and Egan as an important aspect that controls the symptoms which might be unbearable lead to complications [28]. Health professionals who include physicians, pharmacists and nurses assist in making sure that patients improve and adhere to treatment. Additionally, though adherence to treatment and medical instructions is important, hypertensive patients are further advised to manage their lifestyle because that reduces the risk of developing CVDs and improves clinical outcomes.

4.1.3 Adherence to medical follow up visits at the health facility

It is important to emphasise adherence to medical follow-up scheduled dates because during such a visit, the health professionals teach patients about various issues, including all self-care strategies and pharmacological interventions that are equally effective.

4.1.4 Adherence to a healthy lifestyle and lifestyle modification

The hypertensive patients are encouraged to make sure that they adhere to a healthy lifestyle which includes lifestyle modifications that require more effort to do that. A healthy lifestyle includes a healthy diet, exercise, have resting times, etc. [29].

4.1.5 Management of emotions (anger, fear, stress) is outlined as a self-management strategy

The importance of managing emotions such as depression, anxiety, excessive worry, anger, fear, and stress needs to be emphasised when interacting with hypertensive patients. When they experience such, they must consult health professionals for help [30].

4.1.6 Defence mechanisms

Hypertensive patients are encouraged to use the self-defence mechanism because this assists one to cope with all life's negative situations leading to minimal symptoms of the disease [31].

4.1.7 Religious interventions

Religious beliefs and practices are viewed as a method to assist people in adjusting to their situations and the physical, mental, and social difficulties brought about by clinical disease [32].

4.2 Theme 2: unforeseen painful life experiences

According to the findings, there is an explanation for how unforeseen painful life experiences lead to inadequate management or avoidance of risk variables. For example, hypertension and diabetes-mellitus, as most of the participants indicated that they experience challenges like not adhering to a healthy diet as they are not the ones cooking. Children are always causing problems to them that cause their blood pressure and blood glucose to increase. As a result of a lack of support for family care from health services and professionals, family vulnerability is formed or exacerbated

because family potential decreases over time due to care needs, which are continually refreshed and augmented in chronic diseases [33]. In both the genesis and the potential of overcoming vulnerabilities, it appears that family support in the experience of disease and caregiving might be a crucial factor [33]. Medical illiteracy among patients (i.e., poor understanding of the disease process, medication effects, dosage regimens, and possible side effects) is a frequent cause of medication non-adherence, leading to painful experiences. The majority of uncontrolled hypertension is due to poor adherence to antihypertensive medications [34]. Understanding the types of causes that contribute to noncompliance helps address noncompliance.

5. Integration phase

Quantitative investigation	Qualitative investigation	
Quantitative findings	Sub-themes	Participants expression
67.8% and 79.9% of survey respondents with hypertension reported consuming enough fruits and vegetables daily, respectively. 66% and 61.5% of survey respondents with hypertension reported eating meat and salty food one or more times a day. 25.9% of survey respondents with hypertension perform moderate physical activity in my leisure time	Paradoxical description of self-management strategies (physical activity, eating a healthy balanced diet, drinking a lot of water, etc.) <i>1.1. Knowledge related to self-management strategies</i>	This is supported by the following The other participants added how she manages herself HP#02:- <i>To prevent CVD I don't take too much sugar, and also I use a small amount of salt, and for meat, I eat chicken only I don't eat beef as is the one that causes a problem.</i> <i>When I was still working, I used to buy vegetables and fruits but now is bad because to buy with pension money I can't afford those things, but I use traditional vegetables is very healthy. The vegetables that I use are potatoes and fish because I can afford them.</i>
38.5% of survey respondents with hypertension showed to be at a high risk of coronary heart disease	<i>1.2 Adherence to treatment & medication instructions</i>	The findings were also supported by participant HP#04:- <i>I manage myself by just taking treatment as instructed although I don't know whether I'm preventing heart attack, I think by taking treatment and adhering to a diet of avoiding salts and fats I think my body and heart will flow normally and prevent heart attacks.</i>
	<i>1.3 Adherence to medical follow up visits at the health facility</i>	Participant HP#08:- <i>I think they should follow clinic instructions by taking treatment as prescribed and take too much water to dilute high blood and also to take fruits and vegetables as they protect your body and also to avoid sleeping a lot as high blood needs an active person do house chores as high blood is not life-threatening illness is everybody's sickness we are not supposed to fear it.</i>
	<i>1.4 Adherence to a healthy lifestyle & lifestyle modification</i>	Participant HP# 04:- <i>I manage myself by making sure I eat a healthy meal, you see my wife died in 2015 and I'm left with 4 children all of them are taking care of me, you see I'm wearing Adidas clothes and shoes I'm well taken care of. In the case of diet, I'm taking too many vegetables and fruits because as I stay alone, but I have many chickens well protected in a fence I eat those chickens because they are healthy, unlike the ones from the fridge because they cause painful leg.</i>

Quantitative investigation	Qualitative investigation	
Quantitative findings	Sub-themes	Participants expression
33.3% of survey respondents with hypertension felt work or home life stress in the last year	1.5 <i>Management of emotions (anger, fear, stress) mentioned as a self-management strategy</i>	Participants HP# 010 highlighted that: - <i>Many things that can contribute to CVD is by thinking too much and also became angry on small issues you know sometimes as a human being people can make you angry or hurt you very deep that it can take time to heal and forget and you unable to let it go this can also cause CVD.</i>
2.3% of survey respondents with hypertension were former smokers	1.6 <i>Defence mechanisms</i>	Participant HP# 03 confirmed by saying: - <i>Myself is long I have been taking treatment since 2008 but, due to exercising I'm always healthy and energetic, my day starts with cleaning the whole yard which is a very huge yard thereafter I clean the house, wash dishes and cook my meal you can undermine this but is a very serious exercise.</i>
	1.7 <i>Religious interventions</i>	This is supported by participant HP#015:- <i>I make sure I eat healthy foods and avoid smoking and alcohol like when I fast I make sure that I eat once in a day not fasting all day as I may faint and feel dizzy and praying God helps to connect you with the holy spirit that will lead you and be relieved in your body and spirit.</i>

Table 3.
Integration of the quantitative and qualitative results.

Integration of the QUAN and QUAL results revealed that most of the patients are engaging in eating a healthy balanced diet (**Table 3**). QUAN results pointed out that more than 61% of outpatients were consuming enough fruits and vegetables daily but still eating meat and salty food one or more times a day and physical inactivity. Combining the eating plan and a lower salt consumption could provide the most effective and may reduce hypertension risk [35]. It is observed that patients still consume high salts and a lot of meat on daily basis, however, some reported that they avoid eating beef meat as compared to chicken meat and also, try to use a small amount of salt and sugar. Patients adhere to treatment and medication instructions and medical follow-up visits at the health facility as other self-management ways of hypertension. The proper use of antihypertensive medications is a critical component of hypertension management [36]. Knowledge of hypertension and its treatment, socio-demographics, treatment views, and patient-provider interaction may contribute to poor drug adherence [36]. Poor adherence might worsen diseases and increase the likelihood of cardiovascular events such as heart attack or a stroke. Most hypertensive patients in rural areas are adherent to medication and clinic visits, however, about 39% of patients were at a high risk of coronary heart disease.

It is observed that about 33% felt work or home life stress. A stressful situation leads to a surge of hormones and temporarily increases your blood pressure. Although stress does not directly cause hypertension, it does trigger a rush of hormones and momentarily raises your blood pressure, which may later develop into hypertension [37]. Some hypertensive patients reported managing their emotions by avoiding stress, overthinking, and becoming angry as a self-management strategy. Most patients, especially pensioners and the elderly, perform household duties every morning and clean the yard, which they believe is adequate because they have large yards. Risk behaviors such as smoking and alcohol use have direct correlations to hypertension risk, and avoiding such risk behaviors can significantly reduce hypertension risk [9–11]. Due to religious interventions, some patients eat healthy foods and avoid smoking and alcohol.

6. Conclusion

Hypertensive patients residing in rural communities seem to lack sufficient knowledge concerning hypertension self-management strategies. Additional efforts are needed in rural communities to promote hypertension and self-management measures through educational programs such as encouraging patients to engage in increased physical activity and a healthy diet.

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