

UNIVERSITY OF KWAZULU- NATAL

**EXPLORING COMPLIANCE TO LIFESTYLE
MODIFICATION AMONGST HYPERTENSIVE CLIENTS IN
A SELECTED COMMUNITY IN DURBAN**

NELISIWE EUGENIA MUTHWA

(2012)

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MODIFICATION AMONGST HYPERTENSIVE CLIENTS IN
A SELECTED COMMUNITY IN DURBAN**

**A dissertation submitted to the Department of Nursing at the
University of KwaZulu-Natal in partial fulfilment of the
requirements for the Degree of Masters in Community Nursing**

BY

NELISIWE EUGENIA MUTHWA

Student number: 971199137

SUPERVISOR: T.T. MYEZA

CO-SUPERVISOR: PROFESSOR N.G. MTSHALI

December, 2012

DECLARATION

I declare that this dissertation on exploring compliance to lifestyle modification amongst hypertensive clients in a selected community in Durban is my own work. It is being submitted for the Degree of Masters in Community Nursing at the University of KwaZulu-Natal. All sources have been acknowledged by means of referencing. It has not been submitted for any other sources.

Signature:.....

Date: 18 December 2012

Nelisiwe Eugenia Muthwa

DEDICATION

THIS DISSERTATION IS DEDICATED TO MY HUSBAND NJE, MY SISTER, SISTER
AND MY MOTHER THANDIWE FOR ALL THEIR SUPPORT, LOVE AND
CONTINUOUS ENCOURAGEMENT.

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ABSTRACT

Background

Hypertension is a global health burden affecting developed and developing countries, and South Africa is no exception (Seedat, Croasdale, Milne, Opie, Atkinson, Rayner and Veriava, 2006). In 2003, hypertension was estimated to have caused 7.1 million premature deaths and accounted for 4.5% of the disease burden worldwide (Lippincott and Wilkins, 2003). In 2001, non-communicable diseases accounted for almost 60% of the 56 million deaths annually and 47% of the global burden of disease. In countries such as Nigeria, Ghana and South Africa, the prevalence of chronic diseases is increasing, while the threat of communicable and poverty-related diseases (infant mortality, cholera and malnutrition) still exists (Belue, Okotor, Iwelunmor, Taylor, Degboe, Agyemang and Ogedegbe, 2009).

Purpose

The purpose of this study was to explore the compliance of hypertensive clients to lifestyle modification practices within a selected community in Durban, and to make recommendations for a structured programme of health promotion, through lifestyle modification.

Method

A quantitative approach was adopted to explore the compliance to lifestyle modification amongst hypertensive clients, and purposive sampling was used. Data collection was through a structured, self-administered questionnaire. A total of 205 participants completed the questionnaires. The questionnaire was divided into nine sections: Section A was on biographic data, Section B referred to compliance with lifestyle modification, and Sections C-

I dealt with health belief model constructs. A four-point Likert scale was used to assess the health belief model constructs.

Results

Results revealed that 90% of the respondents in the study had a good understanding of the benefits of complying with their doctor's treatment and the recommended lifestyle modification practices. They also possessed good knowledge and understanding about their condition, a factor which made them more compliant with lifestyle modification practices. The majority of respondents viewed health information shared through TV and radio programmes as motivators that helped them to comply with lifestyle modifications, and cited long waiting periods in the clinic and insufficient time to engage in physical activities as barriers to their lifestyle modification.

Recommendations

Health education campaigns and structured programmes of health promotion concerning lifestyle modification practices should be emphasized, especially with regard to diet and exercise. Foods containing high amounts of animal fats and fast foods should be avoided, and the importance of doing physical activities for 30 minutes at least three times a week should be emphasized.

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CHAPTER 1

INTRODUCTION AND BACKGROUND TO THE STUDY

1.1 INTRODUCTION

At the beginning of the 20th century, cardiovascular disease was responsible for less than 10% of all deaths worldwide, but by 2008 that figure had risen to 30%. About 80% of the global burden of cardiovascular death occurs in low-and middle- income countries. Historically, excess body weight and high blood pressure have been regarded as a ‘Western’ problem associated with affluence, but both are now also recognized as leading risk factors for cardiac diseases in low- and middle-income countries and have become important for public health globally (Malaza, Mossong, Barnighausen and Newell, 2012).

Chronic diseases today are the leading cause of death in the world, and the rapid rise of chronic diseases represents a major challenge to global development (Horton, 2009). This was in line with (Vaidya, Pokharel, Karki and Nagesh, 2007), that about a quarter of world’s population have been estimated to have hypertension at the turn of the millennium. Chronic diseases are long-lasting illnesses causing frailty, which are pathologically irreversible and without a definitive cure (Foladi, Salsali and Ghofranipour, 2007). They are caused by a small number of known and preventable risk factors such as tobacco use, unhealthy habits and physical inactivity (Horton, 2009). In developing countries, chronic diseases are not merely diseases of the elderly, and they affect a much higher proportion of people during their prime working years than is seen in developed countries (Foladi et al., 2007). Millions of people across the world live with chronic

illnesses for the rest of their natural lives and this imposes a considerable burden on the society (Foladi et al., 2007).

Of the estimated 57 million global deaths in 2008, 36 million (63%) were due to non-communicable diseases. Population growth and increased longevity are leading to a rapid increase in the total number of middle-aged and older adults, with a corresponding increase in the number of deaths caused by non-communicable diseases. It is projected that the annual number of deaths due to cardiovascular diseases will increase from 17 million in 2008 to 25 million in 2030. In 2008 around 80% of all non-communicable disease deaths (29 million) occurred in low and middle income countries (World Health Statistics, 2012). Hypertension affects more than 1.5 billion people worldwide and is recognized as the number one cause of preventable deaths (Derg, 2013). This was in line with World Health Organization 2006; cited by Sofi, Abbate, Gensini and Casini, 2013), that cardiovascular diseases are the first cause of mortality and morbidity in Western countries.

The largest proportion of non-communicable disease deaths is caused by cardiovascular diseases (48%), followed by cancers (21%), and chronic respiratory diseases (12%). Behavioral risk factors, including tobacco use, physical inactivity, unhealthy diet and the harmful use of alcohol, are estimated to be responsible for about 80% of coronary heart disease and cerebrovascular disease (World Health Statistics, 2012).

In September 2011, the United Nations held a high level meeting of the General Assembly on the prevention and control of non-communicable diseases. This meeting was held in response to the increase burden of these diseases around the world and the recognition that four major risk

factors (tobacco use, harmful use of alcohol, inadequate physical activity, and unhealthy diets) are modified through intervention. The resulting political declaration emphasized the need for food policies, stating that member states should “advance the implementation of multisectoral, cost effective, population-wide interventions in order to reduce the impact of unhealthy diets” (Hawkes, 2012).

Edo (2009) conducted a study on Praslin Island, where he used the Health Belief Model to discover which factors affected compliance with antihypertensive drug treatment and required lifestyle modifications. Findings revealed that participants generally had some form of education, were economically productive and had a source of income. The majority (60.78%) had lived with hypertension for more than five years, 42.14% had been diagnosed within 1-5 years prior to the study and only 2.94% had been diagnosed less than a year prior to the study. Results also revealed that 87.25% of the respondents were obese or overweight, and that 83.33% rarely or never had their blood pressure monitored. The respondents scored high on the compliance with the lifestyle modifications scale (median =3.09, mean= 3.04).

Respondents were insufficiently compliant with the following recommended behaviours: physical activity (50.00%), weight reduction (53.92%), sleep (27.56%), and relaxation (31.37%). Some respondents persisted with the following non-recommended behaviours: ingestion of animal fat (28.35%), ingestion of fast foods (27.45%), excessive salt intake (24.51%), alcohol consumption (21.57%) and smoking (15.84%). The respondents appeared to have internalized the importance of eating fruits (94.12%) and vegetables (92.16%), but apparently failed to

sufficiently relate their understanding of their condition and the importance of compliance into compliance behaviours (Edo, 2009).

South Africa confronts a quadruple burden of disease, with the chronic non communicable diseases burden increasing in the face of high levels of HIV, injuries and maternal and child health issues. Chronic diseases contributed nearly one- third of all disability- adjusted life years (DALY) in South Africa in 2000 (Bertram, Steyn, Wentzel-Viljoen, Tollman and Hofman, 2012). According to the Negotiated Service Delivery Agreement (National Department of Health, 2010b), the South African Government has agreed on 12 key outcomes as the key indicators for its programme of action for the period 2010-2014. The NSDA is a charter that reflects the commitment of key sectoral and intersectoral partners linked to the service delivery of identified outputs, as they relate to a particular sector of government (National Department of Health, 2010b). South Africa's life expectancy is adversely affected by communicable diseases, and increasing levels of non-communicable diseases such as hypertension, cardiovascular diseases and cancer (National Department of Health, 2010b).

Non-communicable diseases contributed to 28% of the total burden of disease measured by disability-adjusted life years in 2004. More than half of women and three quarters of men requiring some intervention for hypertension and diabetes did not even know that they were suffering from these conditions (hypertension, cardiovascular diseases and cancer (National Department of Health, 2010b). The lack of focused disease prevention programmes and interventions, poor health seeking behaviours and the late detection of diseases were some of the

factors contributing to the high burden of non-communicable diseases (National Department of Health, 2010b).

For the health sector, the priority is to improve the health status of the entire population and to contribute to Government's vision of "A Long and Healthy Life for All South Africans" (National Department of Health, 2010b). In order to achieve the goal of increasing life expectancy, the department would increase its focus on strategies aimed at the primary prevention of non-communicable and chronic diseases, through educating individuals, households and communities on the benefits of healthy lifestyles (National Department of Health, 2010b).

According to the World Health Organization (2003) and the International Society of Hypertension Guidelines (Lippincott and Wilkins, 2003), lifestyle modifications reduced the incidence of hypertension. Therefore, regardless of the level of blood pressure (BP), all individuals should adopt appropriate lifestyle modifications. This was in line with (Seedat, Croasdale, Milne, Opie, Atkinson, Rayner and Veriava, 2006) who claimed that a healthy lifestyle remained the cornerstone of the management of hypertension for all levels of BP. Lifestyle information should be given to every person whose BP was measured. A healthy lifestyle decreased hypertension, enhanced antihypertensive drug efficacy and decreased total cardiovascular risk (National Department of Health, 2010b).

In South Africa, the Guidelines for Managing and Treating Hypertension (National Department of Health, 2008) recommended that the treatment should start with non-pharmacological

approaches. For mild hypertension, if a person's blood pressure (BP) ranged from 140/90mmHg to 159/99mmHg, they should consider starting the lifestyle modification regime for 3months. If there was no change after 3months, the patient would then start the antihypertensive treatment. In cases of moderate hypertension, where the patient's BP ranged between 160/100mmHg and 179/109mmHg, anti-hypertensive treatment was to be initiated together with lifestyle modification. This was in line with (Seedat and Rayner, 2012), that the diagnosis of hypertension would be made if repeat measurements have been performed on three separate occasions, and either the initial Systolic Blood Pressure (SBP) is ≥ 140 mmHg, or the Diastolic Blood Pressure (DBP) is ≥ 90 mmHg, when taken over a period of two months.

Life style information should be given to every person for whom BP is measured, but when the BP is elevated, a programme of lifestyle modification should be implemented immediately. This should include weight reduction, regular physical activity, cessation of smoking, moderation of alcohol, salt reduction, increased intake of fresh fruits and vegetables, and reduces fat (Seedat and Rayner, 2012). Fitzgerald, cited by (Foladi et al., 2007) stated that health promotion was one of the key responsibilities of the nursing management of hypertension.

In KwaZulu-Natal, diseases of the circulatory system claim the most lives amongst White people (38.4%), followed by Asians (34.1%) and then by groups of Mixed Ethnic Origin (21.8%) (Cassimjee and Suleman, 2008). Coronary heart disease is the major cause of death amongst White people and Asians in the circulatory system disease category, (Cassimjee and Suleman, 2008). Singh, DeMeester and Wilezynska,(2010) reviewed an article in Poland, and results revealed that the second most common cause of deaths among the Indian population was

circulatory disease (29.1%), including heart attacks (10%), and sudden cardiac death (2%). In another large sample consisting of 150,000 subjects, there were 1,354 deaths in the first year follow-up, and verbal autopsy revealed that circulatory diseases were noted as the cause of death in 34% of the men and 30% of the women.

Usually in Primary Health Care Clinics (PHC), clients were given health education in the waiting area while they were still waiting for their consultations. Clinic staff had a structured health education programme that was done on a daily basis, and each and every staff member was allocated to give health education. They prepared for the topics that were allocated to them. Pamphlets were written in English and Zulu, and they were distributed to all hypertensive clients.

1.2. PROBLEM STATEMENT

Cardiovascular diseases have been proved to be the leading cause of morbidity and mortality in developed countries, and are gradually emerging as an important health problem in developing countries as well. Hypertension is one of the most common cardiovascular diseases with a prevalence ranging from 10 to 20% among adult population (Mahajan, Kazi, Sharma and Velhel, 2012). Non-adherence is a serious problem and should be understood as one of the major obstacles to the success of the treatment of hypertension. Achieving and monitoring the control of hypertension is a problem which is shared by the patients and their physicians. An important issue in the failure to control hypertension is low compliance with treatment, not adhering to follow-up appointments and failure to maintain the recommended lifestyle modifications (Al-Dabbagh and Aswad, 2010).

An integral and crucial element in controlling blood pressure is non-pharmaceutical treatment, which includes smoking cessation, weight reduction, proper diet, and regular physical activity. However, the level of patient's compliance with medical and non- medical treatment recommendations is low (Heymann, Gross, Tabenkin, Porter and Porath, 2011).

Worldwide, hypertension has been estimated to cause 7.1 million premature deaths and 4.5% of the disease burden (Lippincott and Wilkins, 2003). In 2001, non-communicable diseases accounted for almost 60% of the 56 million deaths annually and for 47% of the global burden of disease. In countries such as Nigeria, Ghana and South Africa, the existing threat of communicable and poverty-related diseases such as infant mortality, cholera and malnutrition, had been added to by the increasing prevalence of chronic diseases (Belue, Okotor, Iwelunmor, Taylor, Degboe, Agyemang and Ogedegbe, 2009).

In South Africa, the prevalence of hypertension in the adult Black population was 24.4% (Charlton, Steyn, Levitt, Peer, Jonathan, Gogela, Gwebushe and Lombard, 2008). The daily salt intake of 7,8g in this group exceeded the recommended maximum of 6g/d (Charlton et al., 2008). The South African Hypertension Guidelines recommend a maximum salt intake of 6g/day, which is the upper boundary of the 4-6g/day recommended by World Health Organization. South African diet is high in salt, with bread contributing to 25-40% of sodium intake (Bertram et al., 2012). Dr. A. Motsoaledi (Health Minister) is planning to introduce legislation to lower the salt content of food. "The South African diet has been shown to be very high in salt", Motsoaledi said in Parliament, (SAPA, 2011). "The desired amount of salt for your body is known to be 4g-6g a day, but in our country it is up to 9,8g". He said that most South African's daily salt intake came from processed food, rather than being added at the table. Salt made food tastier, but took

its toll on health. It drove up blood pressure, which increased the risk of heart attacks and stroke (SAPA, 2011).

The adoption of a healthy lifestyle has been identified as being of critical importance for preventing and managing hypertension. According to the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC7) guidelines, all patients with hypertension should adopt lifestyle modification strategies regardless of whether they took antihypertensive medications. The components of the lifestyle modifications, as per the JNC7 guidelines, were reducing weight, adopting the Dietary Approaches to Stop Hypertension (DASH) eating plan, reducing sodium intake, engaging in physical activity, and moderating alcohol consumption (Lenz and Monaghan, 2008). In the South African context, promotion of the DASH eating plan proved unrealistic due to high levels of food insecurity among the poor, and the very low intake of fruit, vegetables and dairy products. The identification of an affordable, sustainable and culturally acceptable dietary pattern is paramount to compliance in this group (Charlton et al., 2008).

Despite the ongoing health education provided to every client seeking treatment in the chronic clinic environment, the statistics reveal an increasing number of hypertensive clients. They consulted ± 136 hypertensive clients daily, ± 680 weekly and ± 2720 monthly. These statistics were taken from a selected institution in Durban. Statistics obtained from 13 institutions in the EThekweni district from January – July 2011 were as follows: new hypertensive clients numbered 2449, and repeats numbered 14 978. To date, no study has been done on lifestyle modification amongst hypertensive clients in Durban. This stimulated the researcher to conduct a study on compliance to lifestyle modification.

1.3 RESEARCH PURPOSE

The purpose of this study was to explore the compliance of hypertensive clients to lifestyle modification practices in a selected community in Durban, and to make recommendations for a structured programme of health promotion through lifestyle modification.

1.4 RESEARCH OBJECTIVES

1. To explore the knowledge of hypertensive clients about lifestyle modification practices.
2. To explore factors that contributes to the adoption and compliance with lifestyle modification practices.
3. To explore barriers that hinder compliance with lifestyle modification practices.
4. To explore factors that motivates a hypertensive client's readiness to change.

1.5 RESEARCH QUESTIONS

1. What do hypertensive clients know about lifestyle modifications practices?
2. What are contributing factors to the adoption and compliance of lifestyle modification practices?
3. What are the barriers that hinder compliance with lifestyle modification practices?
4. How do hypertensive clients initiate their readiness to change?

1.6 SIGNIFICANCE OF THE STUDY

Nursing practice- the results will help Health Care Professionals to educate the community about risky behaviours like smoking, consumption of alcohol, ingestion of food with high fat and salt content and physical inactivity.

Research- It can be used as basis or reference for further research as we do not have any studies on lifestyle modification of hypertensive clients.

1.7 OPERATIONAL DEFINITIONS

Client

The person to whom a (nursing) service is supplied (Kasner and Tindall, 2006). For the purpose of this study, hypertensive clients mean people who use health care services for management of hypertension.

Compliance

An act of adhering to the regimen of care recommended by the clinician, and persisting with it overtime (Bloom) cited by (Edo, 2009). For the purpose of this study, compliance means a hypertensive client who is able to meet the requirement of lifestyle modification according to JNC7 guidelines e.g. reduce sodium intake by using 2.4- 6g of sodium daily.

Community

People and the relationships that emerge among them as they develop and commonly use some agencies, institutions and physical environments (Stanhope and Lancaster, 1996).

Explore

This is to examine or investigate a subject or idea carefully (Allen and Delahunty, 2006). For the purpose of this study, exploring means examining the compliance with lifestyle modification by hypertensive clients, in a selected community in Durban.

Hypertension

A systolic blood pressure greater than 140mmHg, and a diastolic pressure greater than 90mmHg, based on the average of two or more accurate blood pressure measurements taken during two or more contacts with a health care provider (Smeltzer, Bare, Hinkle and Cheever 2010), and Chobanian, Bakris, Black, Cushman, Green, Izzo, Jones, Materson, Oparil, Wright and Roccella, 2003).

Lifestyle Modification

Lifestyle means a person's way of life (Allen and Delahunty, 2006). Modify means to alter, change or adjust (Allen and Delahunty, 2006). According to this study, it means a change to a person's way of life e.g. doing physical activities, eating correct diet with less fat and salt, and

reducing consumption of alcohol. According to the JNC7 guidelines, lifestyle modification to manage hypertension is as follows:

Table 1: Lifestyle Modification Programme

Modification	Recommendation
Weight reduction	Maintain normal body weight (body mass index 18.5 – 24.9kg/m ²)
Adopt DASH eating plan	Consume a diet rich in fruits and vegetables, and low fat dairy products with a reduced content of saturated and total fat.
Dietary sodium reduction	Reduce dietary sodium intake to no more than 100mmol per day (2.4 sodium or 6g sodium chloride).
Physical activity	Engage in regular aerobic physical activity such as brisk walking (at least 30 minutes per day, most of the days of the week).
Moderation of alcohol consumption	Limit consumption to no more than 2 drinks (30ml ethanol) per day in most men and to no more than 1 drink per day in women.
Cigarette Smoking	Smoking cessation
Follow-up dates	Returning of clients to health care providers at monthly intervals. Once BP is at goal and stable, follow-up visits can be reduced to 3-6 monthly intervals (JNC7 Guidelines).

1.8 THEORETICAL FRAMEWORK

The researcher adopted the Health Belief Model because it is the most commonly used theory in health education and health promotion. The Health Belief Model was developed to provide a framework for understanding why some people take specific actions to avoid illness, whereas others fail to protect themselves. It was developed in the 1950's by a group of U.S. Public Health Service social psychologists. When the model was developed, both the public and the private sectors were concerned that people were reluctant to be screened for tuberculosis, to have pap smears to detect cervical cancer, to be immunized, or to take other preventive measures that were

either free or available at nominal cost. The model was designed to predict which people would and would not use preventive measures, and to suggest interventions that might reduce client reluctance to access health care (Padilla and Bulcavage; Salazar, cited by (Glanz & Rimer, 2005). The underlying concept of the original Health Belief Model is that health behavior is determined by personal beliefs or perceptions about a disease, and the strategies available to decrease its occurrence (Hoch Baum cited by Glanz & Rimer, 2005). Perceptions are modified by other variables such as culture, educational level, past experience, skill and motivation (Glanz, Rimer & Lewis, 2002).

1.8.1 Assumptions of the Health Belief Model

For an individual to take action, he must decide that the behavior creates a serious health problem, and that he is personally susceptible to its harm and that moderating or stopping the behaviour will be beneficial.

The Health Belief Model has the following components:

- (a) Perceived susceptibility to disease (beliefs about the chances of getting a condition because they are eating food with high animal fat, salty diet and because they are obese).
- (b) Perceived severity (beliefs about the seriousness of a condition and its consequences – complications) that is severity of hypertension and having complications if they are not complying with lifestyle modification practices.

- (c) Perceived benefits (beliefs about the effectiveness of taking action to reduce risk or seriousness - modification through regular exercises and salt reduction, and therefore the reduction of morbidity and mortality as a result of high blood pressure).
- (d) Perceived barriers (prolonged waiting periods at the health care institutions).
- (e) Cues to action (factors that activate “readiness to change “like mass media campaigns about compliance with lifestyle modification practices, a reminder from a health care worker).
- (f) Self-efficacy (confidence in one’s ability to take action).

High Blood Pressure (BP) screening campaigns often identify people who are at high risk for heart disease and stroke, but who say they have not experienced any symptoms. Because hypertensive clients do not feel sick, they may not follow instructions like life style modifications. The Health Belief Model can be useful for developing strategies to deal with non-compliance in such situations. According to the model, asymptomatic people may not follow lifestyle modification unless they accept that, though they do not have symptoms, they potentially have hypertension (perceived susceptibility).

They must understand that hypertension can lead to cardiovascular diseases (perceived severity). Following a recommended weight loss program will reduce the risks (perceived benefits) without negative side effects or excessive difficulty, (perceived barriers). Print materials, reminder letters, advertisement in media might encourage people to consistently follow doctor’s recommendation (cues to action). For those clients who have, in the past, had a hard time losing weight or maintaining weight loss, a behavioral contract might help establish achievable, short-term goals to build confidence (self-efficacy) (Glanz et al., 2002).

Perceived Susceptibility to Lifestyle Modification

This is a belief that a person has with respect to acquiring chronic diseases (hypertension). A person may have this belief because she is eating incorrectly (diet with high fat and salt content), or is aware that her weight is excessive and that she is susceptible to hypertension. The more a person feels that she is susceptible to chronic diseases, the greater the likelihood of her taking preventive measures e.g. engaging in physical activities, avoiding diet with high fat and salt content, reducing consumption of alcohol and keeping scheduled appointments with her doctor.

Perceived Severity of Lifestyle Modification

This is a person's belief about lifestyle modification, and that failure to change their lifestyle practices could have a harmful effect on their health.

Perceived Benefits

If a client complies with lifestyle modification, it can promote life expectancy and prevent chronic diseases.

Perceived Barriers

A client may have barriers that may prevent them from complying with lifestyle modification practices, such as not having money to access health care institutions, problem of prolonged waiting periods in a health care institution.

Cues to Action

These are precipitating forces that make a person feel the need to take action. Clients might have seen health promotion awareness on television might have received pamphlets from a clinic or might have received a text message from their doctor about compliance with lifestyle modification practices.

Self-Efficacy

This is a person's belief or confidence that they can perform specific behaviours. The Health Belief Model proposes that hypertensive clients with high levels of perceived self-efficacy would be more compliant with lifestyle modifications than those with lower levels of self-efficacy.

1.8.2 Health Belief Model

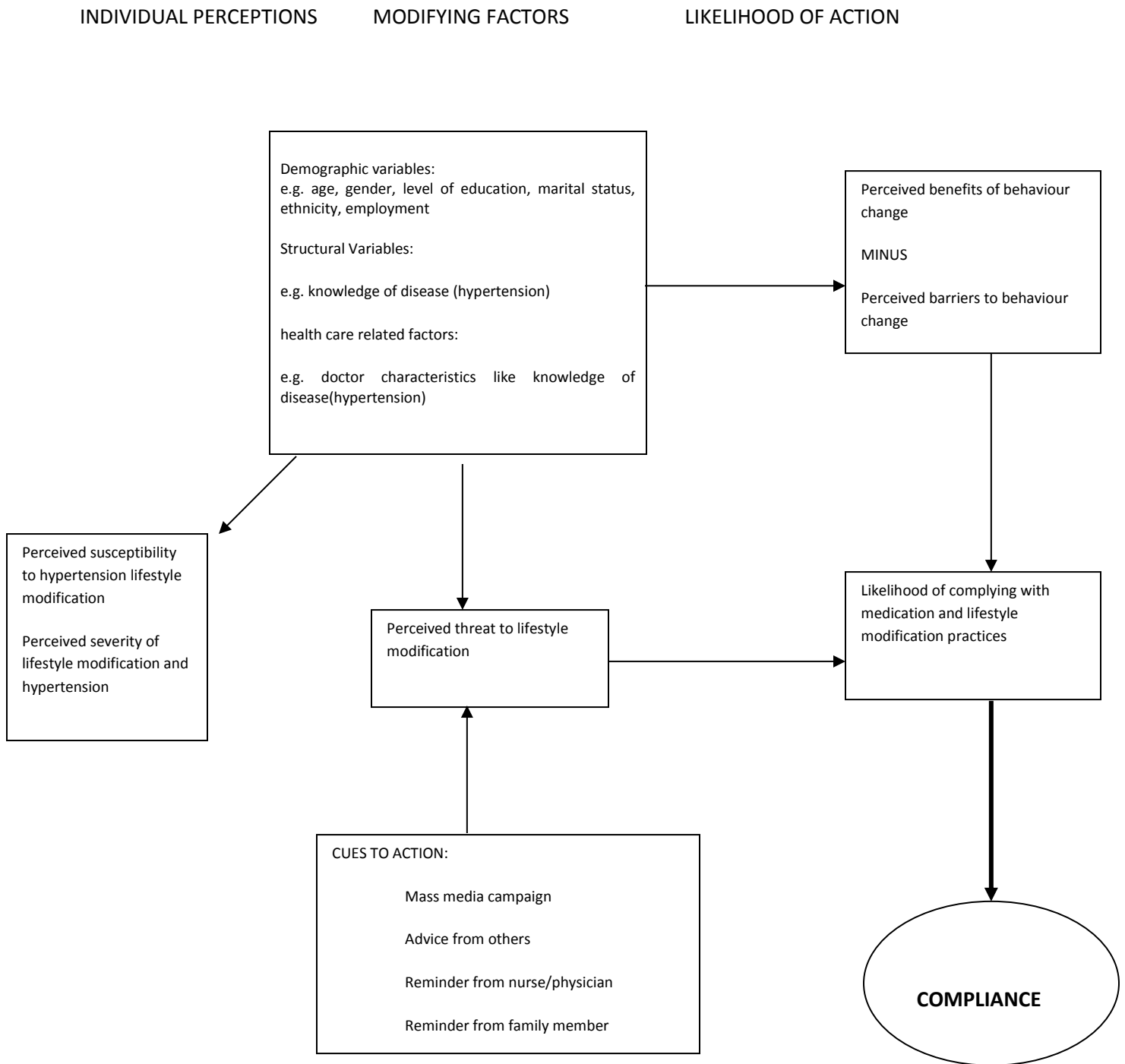


Figure 1: Structure of the Health Belief Model, adapted from Becker (1974) (Modified for this research)

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviewed literature relevant to lifestyle modification amongst hypertensive clients.

Literature review is a process that involves findings, reading, understanding and forming conclusions about published research and theory on a particular topic (Brink, 2006).

2.2 PURPOSE OF LITERATURE REVIEW

The purpose was to determine what was already known about the topic to be studied, so that a comprehensive picture of the state of knowledge on the topic could be obtained (Brink, 2006).

2.3 REVIEW OF LITERATURE

A search of relevant literature was undertaken. The researcher used UKZN libraries, Cinhal, Ebscohost, Primo, Pub med and Medline, and used various key words such as: lifestyle modification, non-drug management, compliance, Health Belief Model, DASH dietary plan, hypertension, alcohol and hypertension, smoking and hypertension, chronic disease, non-communicable disease, World Health Organization, weight and physical activities.

2.4 BURDEN OF CHRONIC DISEASE

Africa bears a significant proportion of the global burden of chronic diseases, along with poor countries of Asia and Latin America. The World Health Organization projects that over the next ten years the continent will experience the largest increase in death rates from cardiovascular disease, cancer, respiratory disease and diabetes. Africa's chronic disease burden is attributed to multifaceted factors including increased life expectancy, changing lifestyle practices, poverty, urbanization and globalization (Aikins, Unwin, Agyemang, Allotey, Campbell and Arhinful, 2010). According to the Annual Performance Plan, the country (South Africa) faced a burden of diseases consisting of HIV and AIDS, TB, high maternal and child mortality, non-communicable diseases, and violence and injuries. Available evidence indicated that 8.7% of the Gross Domestic Product (GDP) was expended on health, which was significantly more than in any other African country, and even though Government spent this amount, the country still had poor health indicators and outcomes. It was indicated that the burden of non-communicable disease accounted for close to a third of the total burden of disease measured by Disability Adjusted Life Years (DALY) in 2004. Cardiovascular diseases, diabetes mellitus, respiratory diseases and cancers contributed 12% of the overall burden (National Department of Health, 2010a).

Traditionally, attention to health problems by researchers and policy makers in Sub-Saharan Africa focused more on infectious diseases, but changes in lifestyle associated with urbanization have resulted in an epidemiological and nutritional transition towards a greater prevalence of non-communicable diseases (Njelekela, Mpembeni, Muhihi, Mligiliche, Spiegelman, Hertzmark, Liu, Finkelstein, Fawzi and Willett, 2009).

According to Horton (2009), the global epidemic of chronic diseases has been widely ignored or seen as less important than other health issues. Chronic disease was a global epidemic which claimed 35 million lives every year and was the leading cause of death worldwide (Horton, 2009). Between 1970 and 2000, an estimated 14-million cardiovascular disease deaths were averted in the United States, and another 3 million were averted in the United Kingdom. Most chronic diseases are caused by a small number of known and preventable risk factors. Three of the most important risk factors identified were: (a) tobacco use, (b) unhealthy diet and (c) physical inactivity (Horton, 2009). This could easily be prevented by providing health education to the community regarding lifestyle modifications. (Horton, 2009) stated that it was distressing to note that such pervasive negative effects were related to such a modifiable cause. The Negotiated Service Delivery Agreement (2010b) was a charter that reflected the commitment of key sectoral and inter-sectoral partners, linked to the delivery of identified outputs as they related to a particular sector of government. For the Health sector, their priority was improving the health status of the entire population and their contribution to the Government's vision of "A Long and Healthy Life for All South Africans". Government has gone a step further by taking practical measures to ensure that by the year 2014, the Department of Health would have contributed positively to improving the status of all South Africans. Government has identified the increasing of life expectancy as a strategic output, which the Health sector must achieve (National Department of Health, 2010b).

It has been said that life expectancy must increase from the current 53.9 years for males and 57.2 years for females, to 58 years and 60 years respectively by the year 2014 (National Department of Health, 2010b). The lack of focused disease prevention programmes and interventions, poor health seeking behaviours and late detection of diseases were some of the factors contributing to

the high burden of non-communicable diseases(National Department of Health, 2010b).In order to ensure that the country achieved the goal of increasing life expectancy, the Department of Health increased its focus on strategies aimed at the primary prevention of non-communicable and chronic diseases by educating individuals, households and communities on the benefits of a healthy lifestyle (National Department of Health, 2010b). This was in line with the Minister of Health for KwaZulu-Natal (Dr. S. Dlomo) when he started the project of Siyabangena by participating in the Comrades marathon that was held in Durban in May 2011 (Health, 2011).

2.5 LIFESTYLE MODIFICATION AND HYPERTENSION

Lifestyle modification, previously termed non-pharmacologic therapy, has an important role to play in the lives of hypertensive and non-hypertensive individuals. In hypertensive individuals, it can serve as the initial treatment before the start of drug therapy, and as an adjunct to medication in persons already on drug therapy (Cakir and Pinar, 2006). Rigsby(2011),conducted a study in Alabama with the purpose of examining the effectiveness of healthy lifestyle modification on blood pressure control amongst hypertensive African American adults. Participants were African Americans adults aged 19-years and older. Participants had to attend a 12-week project which consisted of a one hour session each week which provided a 30-minute educational and a 30-minute physical activity session.

The clinical practice guidelines from the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC7) were used to determine the classifications and measurements of blood pressure, healthy diet, and physical activity (Rigsby, 2011). An educational session was conducted focusing on hypertension, its risk factors, and the

benefit of implementing healthy lifestyle modifications. Results showed that overall; participants experienced an increase in the adoption of healthy lifestyle modifications, which resulted in an improvement in blood pressure control. The findings suggested that the recommendation of healthy lifestyle modification was crucial in the health care setting when providing quality patient care to hypertensive individuals (Rigsby, 2011).

Neutel and Campbell, (2008) had similar findings when they conducted the Longitudinal National Population Health Survey in Canada, when lifestyle modification was found to be an important part of hypertension management. They found that BP increased with weight, excess alcohol consumption and sodium intake, but decreased with physical activity. Hypertension management recommendations included that the body mass index (BMI) remain lower than 25kg/m², alcohol consumption be limited and physical activity be increased. Diet modification should aim at attaining an optimum weight, and reducing sodium and saturated fat intake, as well as increasing the amounts of fresh fruit, legumes, vegetables and low-fat dairy products (Neutel and Campbell, 2008). The Longitudinal National Population Health Surveys in Canada consisted of five interview cycles at two-year intervals between 1994 and 2002. Data were collected by personal interview in the first cycle (A) and telephone interviews subsequently (Cycle B). The information available included demographic variables, self-reported hypertension and risk factors for hypertension, such as BMI, smoking, physical inactivity and chronic disease. Excess alcohol use was considered to be more than nine drinks per week for women and more than 14 drinks for men, as per Canadian recommendations (Neutel and Campbell, 2008). Analysis consisted of comparing cycle A with cycle B for changes in lifestyle factors for the 1281 new hypertensive patients participating in the survey.

Changes in the proportion of lifestyle risk factors before and after hypertension were summarized by absolute risk reduction (ARR) and relative risk reduction (RRR). The new hypertensive patients showed few changes in lifestyle risk factors since the previous cycle, with the greatest improvement occurring in smoking cessation (RRR 18.2%) and some improvement in physical activity (RRR 7.9%) (Neutel and Campbell, 2008). The recommendations were that, in order to achieve lasting lifestyle changes, it was likely that system changes were needed, such as the creation of multidisciplinary teams with expertise in counselling and their remuneration for time spent in lifestyle counselling. Promotion needed to include a component indicating that hypertension in itself was not a condition that hampered one's lifestyle. On the contrary, if controlled; it would allow a normal lifestyle for a longer period of time (Neutel and Campbell, 2008).

According to Haung, Duggan and Harmann, (2008), lifestyle modification was indicated for all patients with hypertension, regardless of drug therapy, because it reduced the need for antihypertensive drugs. Guidelines by the National Heart Foundation of Australia recommended that doctors caring for patients with hypertension should routinely provide advice on smoking, nutrition, alcohol use, physical activity and body weight (Haung et al., 2008). This supported the statement by (Sarrafzadegan, Kelishadi, Esmailzadeh, Mohammadifard, Rabiei, Roohafza, Azadbakht, Bahonar, Sadri, Amani, Heidari and Malekafzali, 2009) that lifestyle modification, long considered the cornerstone of interventions, was extremely important in reducing the burden of chronic diseases.

2.6 COMPREHENSIVE LIFESTYLE INTERVENTION ON HYPERTENSION

Cakir and Pinar, (2006) conducted a randomized, controlled trial study in Turkey, to examine the effects of a comprehensive lifestyle intervention on BP and other cardiovascular risk factors in hypertensive patients. The main components of the comprehensive lifestyle modification were: (a) to reduce weight, (b) reduce sodium intake, (c) reduce alcohol consumption, (d) increase physical exercise to a moderate degree, (e) to give up smoking, (f) and to learn stress management. The intervention group attended 3 sessions of 30 minute classes, where they were given guidelines on how to reduce their weight, sodium and fat intake, how to avoid alcohol and smoking, as well as how to manage stress. They were given diaries and encouraged to keep records of their healthy lifestyles.

Participants in the control group were asked to maintain their usual lifestyles, including their dietary and exercise habits for a period of 6 months, until they were re-examined. The results revealed that both the Systolic BP and the Diastolic BP decreased in the intervention group but not in the control group (Cakir and Pinar, 2006). This was in line with JNC 7 guidelines (2003) that stated that major lifestyle modifications had been shown to lower BP. The modifications to the lifestyles of the participants included weight reduction in those individuals who were overweight or obese; the adoption of the Dietary Approach to Stop Hypertension (DASH) eating plan which is rich in potassium and calcium; dietary sodium reduction; an increase in physical activity and moderation of alcohol consumption. The researcher has identified that (Cakir and Pinar, 2006) did not indicate that they had adopted a quantitative approach, or that the sample size was too small(only 70 participants). The other problem identified was that participants were

using diaries to record the information, which could have introduced bias if they were providing only the information that suited them.

2.7 CLIENT'S EXPERIENCES REGARDING HYPERTENSION

LIFESTYLE MODIFICATION

Chan, Lock, Sea and Woo,(2009) conducted a qualitative study in Hong Kong. The purpose of this study was to examine the client's experiences of a community-based lifestyle modification programme. This lifestyle modification programme was self-help, community based programme in Hong Kong for those who were obese /overweight. The programme provided low calorie exchange diets, and physical and behavioural weight control methods individualized by nutritionists during counselling sessions. Chan et al. (2009) used cognitive behavioural therapy (CBT), which was derived from cognitive and behavioural psychological models of human behaviour. These models included theories of normal and abnormal development and theories of emotion and psychopathology, and were applied as the strategy on behaviour modification in the lifestyle modification programme. They used five levels of influence which included: (a) intrapersonal or individual factors, (b) interpersonal factors, (c) institutional or organizational factors, (d) community factors, and (e) public policy factors.

This lifestyle modification programme therefore focused on exploring the intrapersonal and interpersonal factors that influenced the clients to make lifestyle changes. Study participants were all clients attending the lifestyle modification programme, who were overweight with a Body Mass Index between 23 and 24.9kg /m². Upon enrolment in the programme, all individuals

underwent a comprehensive health and dietary assessment, and each individual completed an initial nutrition assessment with a nutritionist.

During the initial assessment the nutritionists carried out a complete behavioural assessment and collected important information such as the client's history of health problems, their current eating and lifestyle patterns, their concerns and feelings about specific lifestyle changes (perceived susceptibility and perceived severity, past experiences and barriers to change in dietary intake). The results showed that clients perceived the lifestyle modification programme as having had a positive impact on their health, nutrition and health knowledge. Findings revealed that clients experienced both psychological and environmental barriers to lifestyle and behaviour change throughout the lifestyle modification programme, and that the nutritionist's capability in providing professional information and psychological support was an important element in helping clients to overcome the barriers (Chan et al., 2009).

2.8 STRESS MANAGEMENT AND HYPERTENSION

The prevalence of hypertension in the elderly (aged 65 years and over) increased from 44% in 1993-1995 to 55% in 2001-2003, an increase of 6million elderly over this 11 year period (Dusek, Hibberd, Buczynski, Chang, Dusek, Johnston, Wohlhueter, Benson and Zusman, 2008). They conducted a randomized trial comparing 8 weeks of stress management, specifically relaxation response (RR) versus lifestyle modifications. They discovered that the primary outcome measure was a change in systolic BP (SBP) after 8 weeks. Patients who achieved a SBP lower than 140mmHg or a 5mmHg or greater reduction in their SBP were eligible for an additional 8 weeks of training, with supervised medication elimination. The SBP decreased by 9.4 and 8.8 mmHg in

the relaxation response and control groups respectively without group difference. Forty-four in the relaxation response group and thirty six in the control group were eligible for supervised anti-hypertensive medication elimination. Although both groups had similar reductions in SBP, significantly more participants in the relaxation response group eliminated an anti-hypertensive medication while maintaining adequate blood pressure control (Dusek et al., 2008).

It was further recommended that “a side-effect free treatment strategy such as RR offered an as yet untapped opportunity to meet the goals of treating hypertension. “Our findings in Systolic Hypertension can be extended to other patient populations, the benefits in preventing vascular events as well as the cost savings in decreased drug dependence are incalculable” (Dusek et al., 2008). Eight weeks of RR training and lifestyle modification reduced SBP by 9mmHg in elderly patients with Systolic Hypertension (SH), but patients receiving RR training were more likely to eliminate at least one antihypertensive treatment. They also recommended that additional studies were needed to evaluate whether medication elimination could be safely sustained through practice of the RR, and whether this approach resulted in decreased morbidity and mortality in the elderly with SH (Dusek et al., 2008).

Dr Ramaboea, however, was quoted as stating that: “With people leading busy lives, one of the easiest ways for patients to manage their hypertension may be through a “fixed dose combination.” The fixed dose combination treatment plan was one that combined two blood pressure medications into one pill. Dr. Ramaboea also ascertained that having regular blood pressure tests was the best way to find out how your lifestyle was affecting your heart (Burger, 2011).

2.9 ALCOHOL AND HYPERTENSION

Epidemiological studies have demonstrated a positive relationship between heavy alcohol use and hypertension. A meta-analysis of randomized controlled trials reported that a reduction in alcohol intake among heavy drinkers significantly reduces systolic and diastolic blood pressure (Son, 2011). Son, (2011), conducted a study to Korean adults who underwent their periodic health check-up at one institution in Incheon. This cross-sectional study confirmed that heavy alcohol intake increased hypertension risk, whereas light to moderate alcohol intake decreased hypertension risk. Light to moderate alcohol consumption had a protective effect on the prevalence of hypertension when consuming ≥ 4 drinks per week in this study. Heavy alcohol intake was significantly associated with an increased risk of hypertension for subjects who consumed ≥ 19 drinks per week (Son, 2011).

Haung, Duggan and Harmann, (2008) had similar findings. He reported that moderate drinking could increase blood pressure, while binge drinking appeared to increase the risk of hypertension. They also identified that reducing alcohol consumption could lower systolic blood pressure by an average of 3.8mmHg in patients with hypertension. The Heart Foundation recommended that patients with hypertension limit their alcohol intake to a maximum of two standards drinks per day for men, and one standard drink per day for women (Haung et al., 2008).

2.10 SMOKING AND HYPERTENSION

Even though tobacco smoking is a well-documented risk factor for cardiovascular diseases, its association with hypertension remains a paradox. Smoking is associated with chronic low grade

inflammation and arterial stiffness, which are associated with hypertension. Carefully controlled experiments in healthy humans have shown that smoking causes an acute increase of blood pressure, and that smoking cessation reduces blood pressure, heart rate and plasma epinephrine and nor epinephrine concentration among smokers (Thuy, Blizzard, Schmidt, Luc, Granger and Dwyer, 2010). They conducted a study in Vietnam to gain an understanding of the association between tobacco smoking and hypertension, in order to help health authorities in making health promotion and intervention policies (Thuy et al., 2010).

Results revealed that the longer a person smoked for, and the higher the number of cigarettes smoked, the higher the risk of hypertension. Current smokers were not at higher risk of hypertension than people who had never smoked before; compared to ex-smokers who were more likely to be hypertensive than either non-smokers or current smokers. Smoking cigarettes with a high nicotine content has been shown to induce a higher and more sustained elevation of blood pressure than smoking low-nicotine cigarettes (Thuy et al., 2010).

According to Horton (2009), there is a large amount of evidence to indicate the effectiveness of inexpensive measures that create rapid health gains, such as the increased taxation on tobacco which has been shown to reduce consumption while raising revenues for government. South Africa has doubled its tobacco revenue and reduced tobacco use by 33%, by increasing the tax on tobacco products to 50% of the retail price (Horton, 2009).

2.11 DIET AND HYPERTENSION

It has been suggested that lifestyle factors such as physical inactivity and the unhealthy and unbalanced nutritional consumption of excess calories, simple refined carbohydrates with a high

Glycaemic Index, and foods with a high saturated fat and high trans fatty acids content can cause genetic damage, contributing to the escalating rates of obesity and mortality due to cardiovascular diseases (Singh et al., 2010). The study that was conducted by (Bertram et al., 2012), confirmed that it was possible to produce bread with a sodium content of 342mg/100g, without affecting taste. Similar work with Unilever indicated that it was possible to reduce the sodium content of margarine by 61%, soup mix by 69% and seasoning by 51%. They calculated the change in sodium intake if these reductions were adopted in South Africa. For each 100mmol reduction in sodium intake, a Systolic Blood Pressure reduction of 5-10mmHg would be expected (Bertram et al., 2012).

According to Dolman, Stonehouse, van't Riet, Badham and Jerlin,(2007) South Africa is a country with great diversity in race as well as economic status. The country has highly industrialized cities which follow a predominantly urban western culture, as well as remote rural areas where many South Africans still follow a traditional African lifestyle. Dolman et al.,(2007) conducted a randomized cross-sectional study to investigate the beliefs of South African metropolitan adults regarding the importance of influencing cardiovascular health by eating certain food types, and to compare these beliefs between different race, living standard, age and gender groups. Results revealed that the majority of the population found the link between food and cardiovascular risk-related health issues to be either important or very important. The statements of most importance to the Indian population were 'Heart diseases' (98.4%) and 'Blood pressure' (95.8%), with 'Weight loss' (63.7%) being the least important of the risk factors. In the White population, 'Heart diseases' (94.3%) was the most important and 'Weight loss' (60.7%) the least important. The Black population reported 'Heart diseases' (92.4%) and 'Blood pressure' (90.1%) to be the most important and 'Weight loss' (59.2%) the least

important. 'Heart diseases' (95.2%) and 'Healthy blood vessels' (95%) were the most important in the Coloured population, whereas 'Weight loss' (72.8%) was the least important. This study showed that this population considered cardiovascular diseases an important issue and that some risk factors were considered more important than others.

Prevention programmes promoting a healthy lifestyle, which would address the risk factors associated with cardiovascular diseases, should be received with a positive attitude, according to (Dolman et al., 2007). Governments were encouraged to adopt policies that supported healthy diets at school and limited the availability of products high in salts, sugar and fats (World Health Organization, 2004). In South Africa, the Departments of Health, Welfare and Education were focusing on Health Promoting Schools, which was an international initiative supported by the World Health Organization (World Health Organization, 2004). Health Promoting Schools had a healthy school policy which said that school children should be given nutritious lunch packs, and that even tuck shops and vendors should sell nutritious food to children.

2.12 PHYSICAL EXERCISE AND HYPERTENSION

It has long been recognized that participation in regular physical exercise led to a lowered risk for all causes of morbidity and mortality. Physical inactivity has been associated with up to a two-fold increase in risk of both hypertension and coronary artery disease, and there was compelling evidence that exercise training reduced blood pressure in hypertensive patients Derman, Whitesman, Dreyer, Patel, Nossel, and Schwellnus, (2009). It was recommended that individuals engage in adequate levels of physical activity throughout their lives. Different types and amounts of physical activity were required for different outcomes: At least 30 minutes of

regular, moderate-intensity physical activity on most days reduced the risk of cardiovascular disease and diabetes, colon cancer and breast cancer. More activity would be required for weight control (World Health Organization, 2004).

In a similar vein, Marty, Wolff and Morgan,(2006) conducted a cross-sectional descriptive study in California to examine being overweight as an independent risk factor for hypertension in children. The association between BMI, BP, diet and physical activity were included in this study. Results revealed a significant difference in the prevalence of pre-hypertension and hypertension in school-aged children between those with a BMI for age above the 85th percentile and those with a BMI for age lower than the 85th percentile. As excess weight increased, so too did an elevated BP. Those overweight children were found to have higher hypertension rates and significantly lower levels of physical activity than children of normal weight. It was recommended that parents, teachers and school district personnel made efforts to promote physical activity and increased fruit and vegetable consumption among students, both in and out of school (Marty et al., 2006).

World Health Organization, (2004) had previously identified physical activity as a fundamental means of improving the physical and mental health of individuals. One of the four main objectives of their global strategy was to increase the overall awareness and understanding of the influences of diet and physical activity on health, and of the positive impact of preventive interventions(World Health Organization, 2004). Physical activity was cited as a key determinant of energy expenditure, and was thus fundamental to energy balance and weight control. It reduced risks for cardiovascular diseases and diabetes and had substantial benefits for many conditions, not only those associated with obesity (World Health Organization, 2004). Schools were encouraged to provide students with daily physical activities and other healthy behaviours.

Governments were encouraged to adopt policies that supported healthy diets at school and limited the availability of products high in salts, sugar and fats (World Health Organization, 2004).

2.14 CONCLUSION

The literature discussed in this chapter exposed the studies conducted on lifestyle modifications and the participant's responses to lifestyle modifications. It is evident that government is trying the preventive and promotive strategies in order to promote a healthy lifestyle within the communities.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter discusses research methodology and the research process. It also includes discussions of the research approach, research design, sampling strategy and ethical considerations.

3.2 RESEARCH APPROACH

A quantitative approach was conducted to explore compliance to lifestyle modification amongst hypertensive clients, and the factors which prevented them from complying with lifestyle modification. According to (Burns and Grove, 2009), quantitative research was a formal, objective, systematic process in which numerical data were used to obtain information about the world. This study was suitable for a quantitative research approach because it examined the compliance to lifestyle modification practices in a selected community, and used numerical data to obtain information about the people in a selected community in Durban.

3.3 RESEARCH PARADIGM

The quantitative approach to scientific inquiry emerged from a branch of philosophy called logical positivism, which operated on strict rules of logic, truth, laws, axioms and predictions. This philosophy evolved from positivism but focused on the discovery of reality that was

characterized by patterns and trends that could be used to describe, explain, and predict phenomena. Quantitative research incorporated logistic, deductive reasoning as the researcher examined particulars to make generalizations about the universe (Burns and Grove, 2009).

3.4 RESEARCH DESIGN

A design is the blueprint for conducting a study that maximizes control over factors that could interfere with the validity of the findings (Burns and Grove, 2009). Exploratory research design refers to a study designed to explore the dimensions of a phenomenon or to develop or refine hypotheses about relationships between phenomena (Polit and Hungler, 1997). Exploratory research design was appropriate for this study as it explored compliance to lifestyle modification.

3.5 RESEARCH SETTING

The research setting for this study was a selected public health care institution, namely a regional hospital. It operated every day from Monday to Friday from 07h00 – 16h00, excluding weekends and public holidays. The Outpatient Department of the hospital had many consultation rooms which were used by doctors. Hypertensive clients arrived in the morning and were given numbers. They were seated according to their allocated numbers, and then screened in numerical order. They were initially screened by the nurses, who tested their urine and determined their weight. The clients were then allocated to doctors and examined by them in the consulting rooms. There, their BPs were checked, their medication was ordered, and they were given dates for their follow-up appointments. Health education was provided to the patients every morning while awaiting their appointments. This education was provided by trained staff and student

nurses, and would be continued or emphasized by the doctor in the consulting room if he saw the need for it or if the client's BP was elevated. According to the statistics from the health care institution, they consulted ± 136 hypertensive clients on a daily basis, approximately ± 680 clients on a weekly basis, and approximately ± 2720 clients on a monthly basis.

3.6 STUDY POPULATION

The study population is the element (individual, object, or substance) that meets certain criteria for inclusion in a given universe (Burns and Grove, 2009). The study population for this study was all clients attending the clinic in the public health care setting, who ranged in ages from 25 to 80 and had been diagnosed as hypertensive. Sampling criteria or eligibility criteria included a list of characteristics essential for membership or eligibility in the target population (Burns and Grove, 2009). To be eligible for inclusion in this study, members of the population had to: (a) have been diagnosed with chronic hypertension, (b) be aged between 25 to 80 years, and (c), and appear mentally alert. Clients were excluded from this study if they were: (a) too sick to be interviewed, (b) not mentally alert, (c) did not have chronic hypertension.

3.7 SAMPLE SIZE AND SAMPLING TECHNIQUE

Sampling is the process of selecting a portion of the population to represent the entire population, so that inferences about the population can be made (Polit and Beck, 2008). According to (Burns and Grove, 2009), non-probability sampling means that not every element of the population has an opportunity to be included in the sample. For the purpose of this study, convenience sampling was used. Convenience sampling is also referred to as accidental or availability sampling and it

involves the choice of readily available participants for the study Brink, van Der Walt and van Rensburg, (2012). Convenience sampling was appropriate for this study because participants happened to be readily available, as well as hypertensive. The participants were attending an Out Patient's Department in a selected public health institution. The population size was based on the number of hypertensive clients seen per day ± 136 , weekly ± 680 and per month, which was estimated at 2720. The total number of clients seen was constant. The RAOSOFT Sample Size Calculator (2004) was used, and a formula was used to calculate the recommended minimum sample size for this study. As the margin of error was set at 5%, and the confidence level was set at 95%, the minimum recommended sample size was 337.

3.8 DATA COLLECTION INSTRUMENT AND DATA COLLECTION PROCESS

Data collection was through the use of a structured, self-administered questionnaire (refer to Annexure 1). The questionnaire was prepared in two languages, namely English and isiZulu, so as to cater for participants who did not understand English.

The questionnaire was divided into nine sections. Section A obtained biographic data, Section B focused on compliance with lifestyle modification, and sections C to I focused on health belief model constructs. A four-point Likert scale was used to assess the health belief model constructs. The participants were asked not to fill section A (biographic data) as it had measurement of blood pressure, weight and height. These were filled by the researcher. Participants were asked to start filling the questionnaire from section B to section I.

The following subheadings collected information as follows:

- (a) Section A -Demographic Data: This comprised of 14 items which elicited demographic data such as age, gender, marital status, ethnic background, access to food and the duration of the illness.
- (b) Section B – Compliance with Lifestyle Modification Practices: An 11 item scale was developed to measure compliance with lifestyle modification practices. Responses were noted on a 4 point Likert Scale using: daily (4), frequently (3), rarely (2), and never (1) as the parameters.
- (c) Section C- Perception of Severity: This was the first of the remaining sections which dealt with health belief model constructs. Here, the 4 point Likert Scale included: strongly agree (4), agree (3), disagree (2), and strongly disagree (1).
- (d) Section D- Perception of Risks: The 4 point Likert Scale assessed: Very often (4), often (3), moderate chance (2), and very little chance (1), of developing stroke, visual impairment, heart problems, kidney problems, paralysis, career being affected, disrupted family life and disrupted social life.
- (e) Section E- Perception of Benefits: The 4 point Likert scale used: Extremely beneficial (4), beneficial (3), somewhat beneficial (2), and not at all beneficial (1)(as the parameters for the benefits of treatment or lifestyle modifications).
- (f) Section F- Perception of Barriers: The 4 point Likert scale of options included: Extremely problematic (4), problematic (3), somewhat problematic (2), and not at all problematic (1).

- (g) Section G- Internal Factors. The options available on the 4 point Likert scale were: Strongly agree (4), agree (3), disagree (2), and strongly disagree (1).
- (h) Section H- Health Care Providers: The parameters of the 4 point Likert scale were: Strongly agree (4), agree (3), disagree (2), and strongly disagree (1).
- (i) Section I- Cues to action: The 4 point Likert scale included: Strongly agree (4), agree (3), disagree (2), and strongly disagree

The researcher convened a meeting with hypertensive clients in the Hypertension Clinic at the selected public hospital. Before the data was collected, the researcher explained the purpose of the study, the importance of the participant's involvement in the study and their rights as participants. An Information Sheet was used for this purpose (refer to Annexure 2). All participants were assured that their confidentiality and anonymity would be assured as their names would not be used. After explaining the correct information to the sample, all those who volunteered to participate in the study were requested to sign a letter of informed consent (refer to Annexure 3). No incentives were given to the participants. Completion of the questionnaire took about 30 to 45 minutes. The data collection process took a further twenty weeks which started in March to July 2012. Clients were asked to fill in their questionnaires before they were seen by the doctors, who started consulting at 08h00, but some opted to complete them after they had been seen by the doctors. The researcher sat down with them and explained everything in both languages before the questionnaires were completed. Where participants did not understand English, the tool was translated into isiZulu. Those who could not write were assisted by the researcher when completing the questionnaire, the respondents were asked to write in pencil, and

were thanked for their participation upon completion. The researcher explained verbally to the respondents how to fill in the questionnaire.

The questionnaire used was adapted from that of (Edo, 2009) in his study conducted on hypertensive patients from Praslin Island. The researcher was stimulated by the tool as it used Health Belief Model and it was also based on hypertension. The questionnaire was modified to meet the needs of South African people who are usually poor and not working. The researcher added a question on how people access food like having vegetable garden. This is also recommended in South Africa as one home one garden project so that people could manage to access food even if they are unemployed.

3.8.1 RELIABILITY

Reliability is the degree of consistency or dependability with which an instrument measures an attribute. Three key aspects for reliability of the instrument are stability, internal consistency and equivalence. The stability of an instrument is the extent to which similar results are obtained on two separate occasions (Polit and Beck, 2008). The researcher administered the tool (pilot study) to a sample of 10 participants at the Out Patient's Department before the actual study was conducted. The results obtained from the pilot study were not included in the study for data analysis. No changes were made on the tool, as there were no problems encountered during pilot study. A test-retest was performed on some hypertensive clients who were not part of the study, in order to assess reliability. The researcher administered the same instrument to a sample of ten individuals at the Out Patient's Department on two different occasions, and then compared the scores obtained. Results obtained were not included in study for data analysis. Test-retest

reliability is the determination of the stability or consistency of a measurement technique, by correlating the scores obtained from repeated measures (Burns and Grove, 2009). Internal consistency reliability was evaluated by performing a calculation of the coefficient alpha. The normal range of values for coefficient alpha is between 0.00 and 1.00. The higher the reliability coefficient, the more accurate the measure (internal consistency) (Polit and Beck, 2010). The results were consistent, as the Chronbach's alpha coefficient of Section B for lifestyle modification practices was 0.75.

3.8.2 VALIDITY

Validity is the degree to which an instrument measures what it is supposed to measure (Polit and Beck, 2008). The validity of the instrument (questionnaire) was maintained by ensuring that all participants were interviewed at the research setting identified by the researcher, and that the tool had the same questions for all the participants. For those participants who did not understand English, the tool was translated into isiZulu and was acceptable to the ethics committee. The researcher used content and construct validity. The translation of the tool was done by the researcher and was checked and approved by the University of KwaZulu-Natal Ethics Committee.

3.8.2.1. CONTENT VALIDITY

Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured and adequately covers the construct domain (Polit and Beck, 2008). This was measured by checking the items in the data collection tool against research

objectives and concepts in the theoretical framework, to ascertain whether they measured all components of the study. For the purpose of this study, all items in the data were in line with the constructs of the Health Belief Model. The instrument was also subjected to the scrutiny of the experts in the disciplines of Community Health and Research.

3.8.2.2 CONSTRUCT VALIDITY

This refers to the validity of inferences from observed persons, settings and interventions, in a study of the constructs that these instances might represent within an instrument, or the degree to which it measures the construct under investigation (Polit and Beck, 2008). According to Burns and Grove (2009), construct validity examined the fit between the conceptual and operational definitions of variables and determined whether the instrument actually measured the theoretical constructs that it purported to measure. For the purpose of this research, the researcher measured research objectives and questions in accordance with the theoretical framework which used constructs of the Health Belief Model. (See table below).

Table 2: Construct Validity

Research objective	Research question	Questionnaire item
1	1	Section A, B, C, D, E
2	2, 4	Section G
3	3	Section F, H
4	4	H, I

3.10 DATA ANALYSIS

The aim of data analysis is to convey data into an answer to the original research question. The most powerful tool available to the researcher in analyzing quantitative data is statistics (Brink et al., 2012). Statistical procedures are used to analyze quantitative data. The collected data was captured and organized using the Statistical Package for Social Science (SPSS), version 19 and was analysed using descriptive statistics. Descriptive statistics allow the researcher to organize the data in ways that give meaning and insight, and to examine a phenomenon from a variety of angles (Burns and Grove, 2009). The analysed data was reported as frequencies and row percentages in all of the tables, and as percentages in the graphs. The researcher used different types of graphs like pie, bar and column graphs.

3.11 ETHICAL CONSIDERATIONS

The study obtained Ethical Clearance from the Research Ethics Committee of the faculty of Health Sciences at the University of KwaZulu-Natal (Ethics reference number: HSS/0036/012M, refer to Annexure 4). Permission to conduct the study was sought and subsequently granted by the CEO of the selected public health care institution (Annexure 5), and from the Department of Health (KwaZulu-Natal), as detailed in Annexure 6.

A signed consent form was obtained from each participant before data collection (see Annexure 3). The researcher fully described the nature of the study to participants and participants had a right to refuse participation in the study. Participation in the research was voluntary. The researcher protected anonymity by giving each subject a code number (see Annexure 3). Refusal to participate in the study would not affect your clinical treatment at the outpatient department.

All information with subject's names and code numbers was kept in a safe place. The participants were not subjected to any physical and psychological discomfort.

3.12 CONCLUSION

This chapter focused on the methodology of the study. It revealed that the study was a quantitative study and the design used was exploratory. Data collection method used self-administered questionnaire, which used both English and IsiZulu languages. Ethical considerations were also observed.

CHAPTER 4

DATA ANALYSIS

4.1 INTRODUCTION

This chapter details an analysis and discussion of the data collected through the use of the questionnaires. Out of 337 respondents who were given questionnaires only 205 completed and returned their questionnaires. The response rate was 60.8%. The questionnaire was divided into nine sections. Section A gathered biographic data, Section B gathered information on the participant's compliance with lifestyle modification, and sections C to I dealt with the Health Belief Model constructs. A four-point Likert scale was used to assess the Health Belief Model constructs. The Statistical Package for Social Science (SPSS) version 19 was used.

4.2 RESULTS/ DEMOGRAPHIC DATA

4.2.1 Age of the Respondents

A small percentage of the respondents, 3.9% (n=8) fell into the 25-34 year age group, followed by 13.7% (n=28) who fell into the 35-44 year age group. The majority 27.3% (n=56) fell into the 45-54 year age group, 27.3% (n=56) fell into the 55-64 year age group, and 21.5% (n=44) fell into the 65-74 year age group, followed by 6.3% (n=13) who fell into the 75 and above group. The statistics indicated that all respondents were adults, and that they ranged from young to senior adulthood.

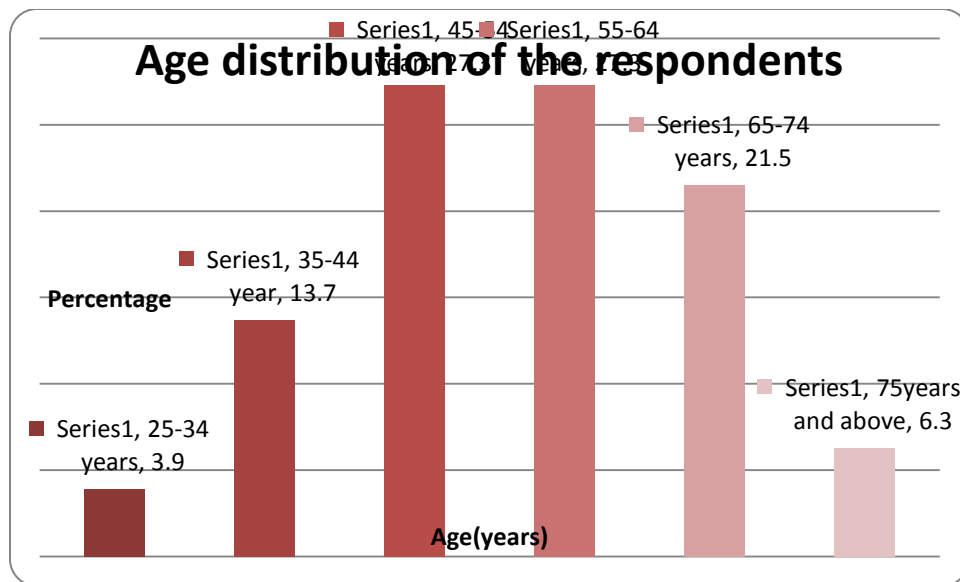


Figure 2: Age Distribution of the Respondents

4.2.2 Ethnic Distribution of the Respondents

The ethnic groups of the respondents (n=205) were as follows: Indians 56.6% (n=116), Blacks 40.5% (n=83), Mixed 2.4% (n=5) and foreigner 0.5% (n=1). The statistics revealed that Indians were the most affected by hypertension, followed by Blacks, and then by participants of Mixed Ethnic Origin. Foreigners comprised the lowest number of respondents affected, and the White population group was not sampled, as none of the clients treated at the clinic at the time of this study were from that ethnic group.

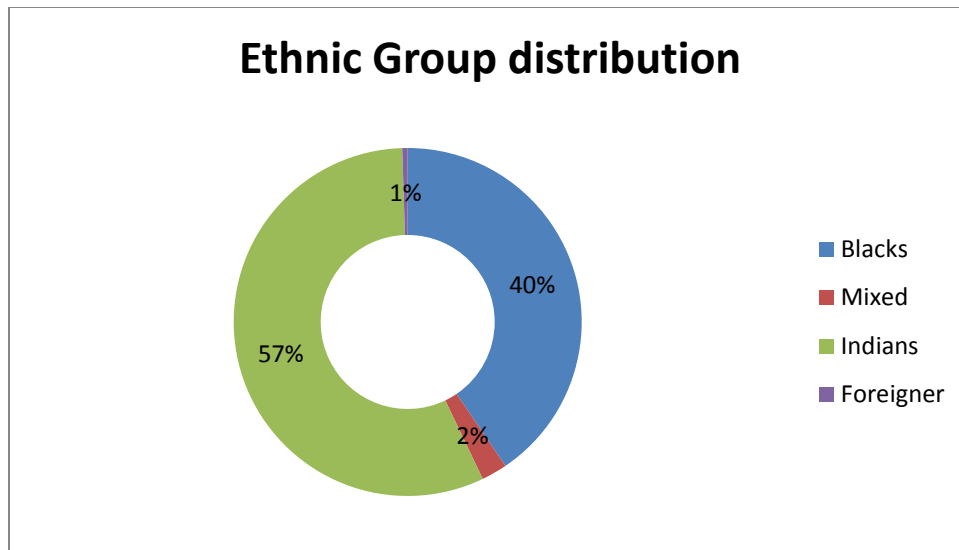


Figure 3: Ethnic Group Distribution of the Respondents

4.2.3 Gender Distribution of the Respondents

The gender of the respondents comprised up largely of females 75% (n= 154) and 25% males (n=51). The statistics revealed that females were more affected by hypertension than men.

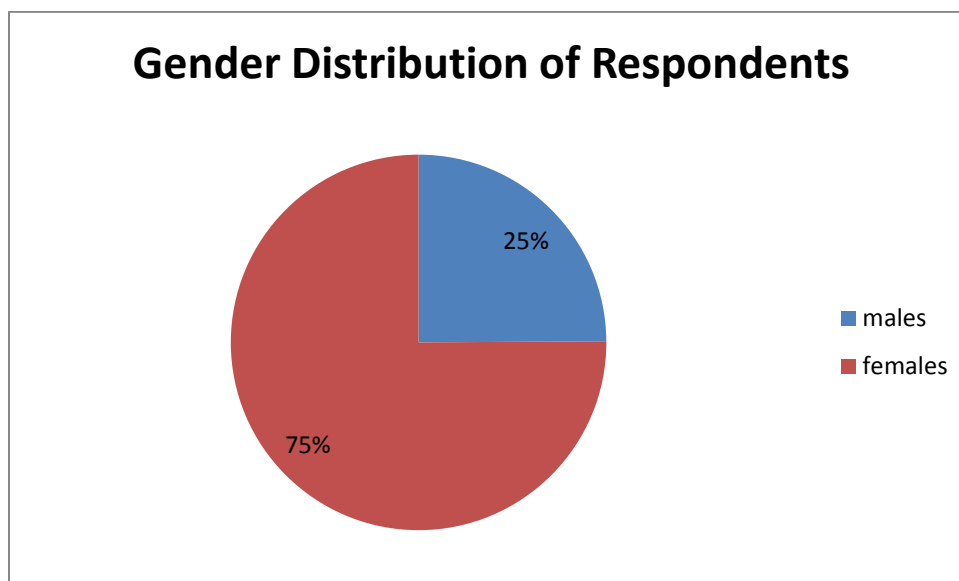


Figure 4: Gender Distribution of the Respondents

4.2.4 Educational Status of the Respondents

The majority of the respondents, 43.4% (89), had secondary education, 34.6% (n=71) had primary education, 11.2% (n=23) had no educational background, and 6.8% (n=14) had a university education. The results revealed that the majority of respondents had formal education and were literate; therefore they had good knowledge of understanding about life style modification practices and hypertension. This was illustrated in Figure 5 below.

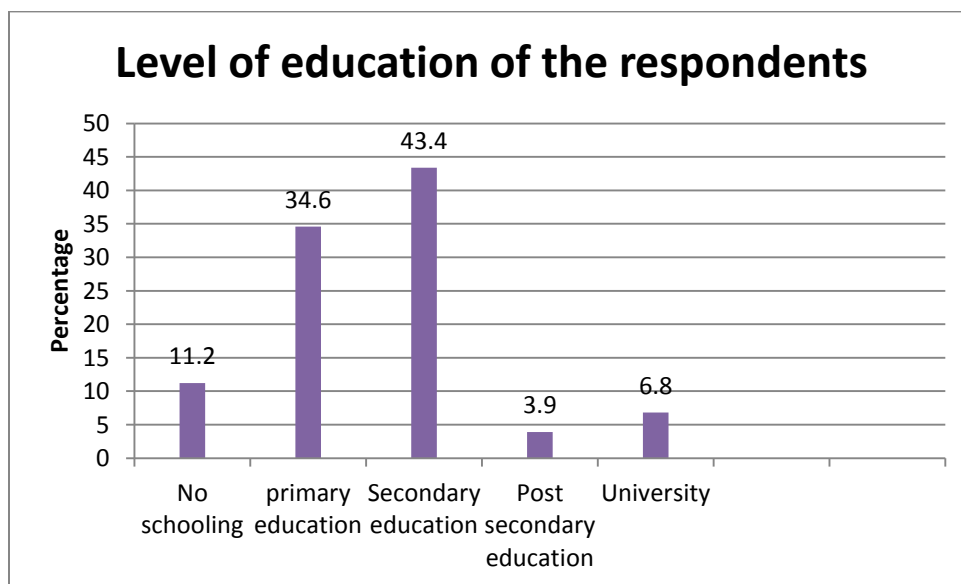


Figure 5: Education Level of the Respondents

4.2.5 Work Status of the Respondents

The work statuses of the respondents were as follows: 39.5% (n=81) were pensioners, 25.4% (n=52) were unemployed. Of those employed, 21.5% (n=44) were non-government employees, 7.8% (n=16) were government employees, and 3.4% (n=7) were self-employed. Of the remainder, 2% (n=4) were students and .5% (n=1) was retired. The results showed that out of

205 respondents who filled in and returned the questionnaire, only (n67) were employed. The results proved that most of the respondents were able to afford food, particularly fruits and vegetables, and were therefore able to comply with lifestyle modification practices.

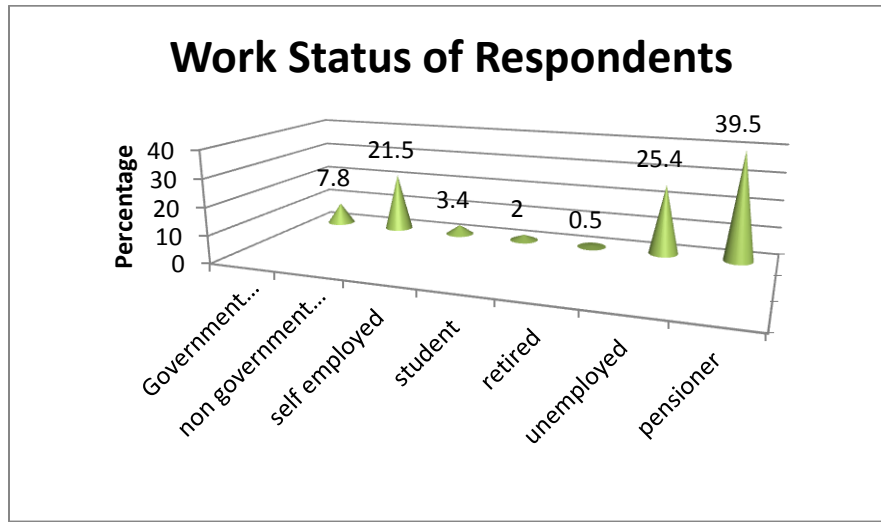


Figure 6: Work Status of the Respondents

4.2.6 Marital Status

The majority of the respondents, 63.4% (n=130), were married, 20% (n=41) were never married, 10.7% (n=22) were widowed, 2.4% (n=5) were cohabiting with a partner, 2% (n=4) were divorced and 1.5% (n=3) were separated from their spouses. According to the results shown, the majority of the respondents were married, 'which might be likely that married women get support from their partners'.

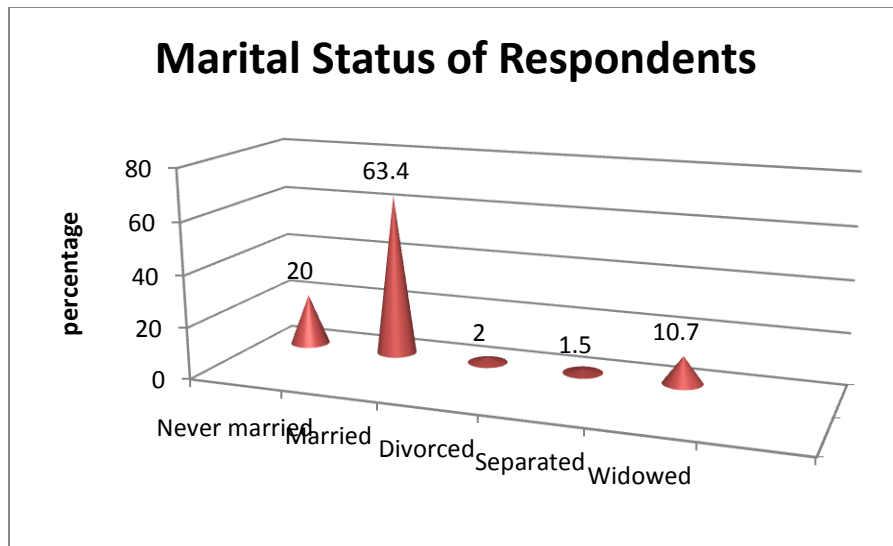


Figure 7: Marital Status of the Respondents

4.2.7 Duration of Illness

Most of the respondents 18% (n=37) were diagnosed three years prior to the study, followed by 15.1% (n=31) who were diagnosed two years previously. Of the respondents, 14.6% (n=30) were diagnosed five years previously, and 14.6 % were diagnosed 1 year a year ago. A further 13.7% (n=28) were diagnosed four years previously. A total of 12.7% (n=26) of the respondents were diagnosed more than five years ago, with 11.2% (n=23) having been diagnosed within the period of 1 year prior to the study.

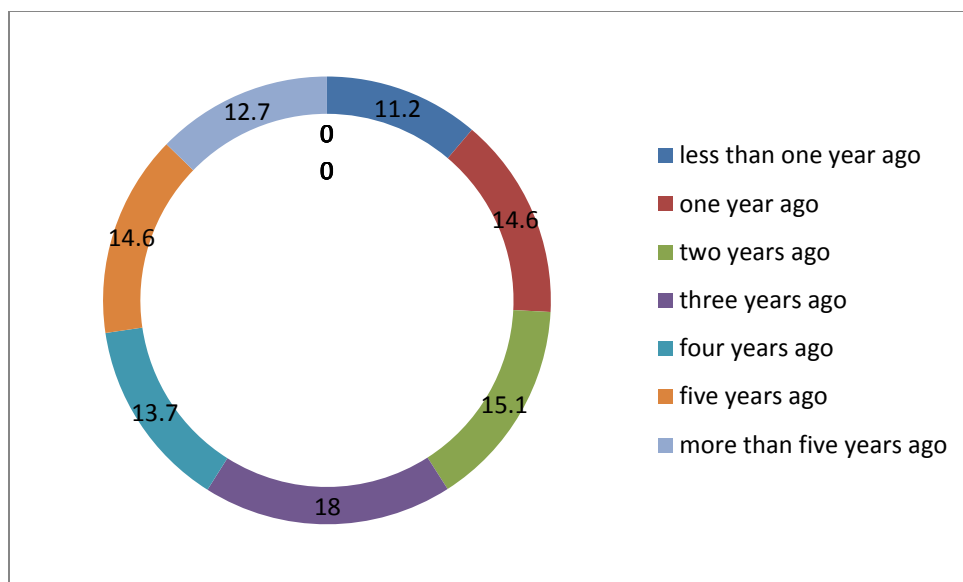


Figure 8: Duration of illness

4.2.8 Blood Pressure of the Respondents

The Blood pressure readings of the respondents were as follows: 37% (n=76) had prehypertension, 51% (n=105) had stage 1 hypertension, 11% (n=23) had stage 2 hypertension and 1% (n=2) had normal blood pressure.

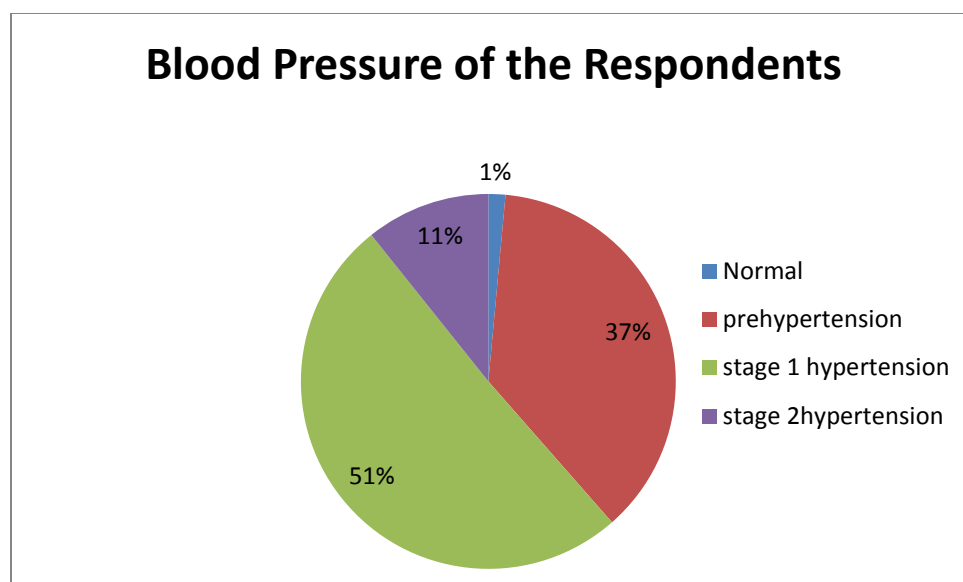


Figure 9: Blood Pressure of the Respondents

4.2.9 Health Complaints Other Than High Blood Pressure

The majority of respondents 25.9% (n=53) had visual impairment, followed by 18% (n=37) who had shortness of breath on exertion, 16.1% (n=33) had swelling of their feet, 12.2% (n=25) had an irregular heartbeat, 8.3% (n=17) had swelling of their legs, 4.4% (n=9) experienced heart problems, 3.9% (n=8) had heart cramps, 2.4% (n=5) had shortness of breath at rest and 1.5% (n=3) had kidney problems. This is illustrated in table 1 below.

Table 3: Health Complaints Other Than High Blood Pressure

Health complaint	Frequency	Percentage
Heart problems	9	4.4
Paralysis of the limb	4	2.0
Swelling of the feet	33	16.1
Swelling of the legs	17	8.3
Visual impairment	53	25.9
Kidney problems	3	1.5
Heart cramps	8	3.9
Shortness of breath on exertion	37	18.0
Shortness of breath at rest	5	2.4
Irregular heartbeats	25	12.2

4.2.10 Other Health Complaints

Some of the respondents suffered from health complaints other than hypertension. These were reportedly: 2.4% (n=5) with headaches, 2% (n=4) with arthritis, 1% (n=2) had diabetes, 0.5% (n=1) were infected with the Human Immunodeficiency Virus (HIV) and 0.5% (n=1) suffered from migraines.

Table 4: Other Health Complaints

Other health complaints	Frequency	Percentage
Arthritis	4	2.0
Diabetes	2	1.0
Dizziness	1	0.5
Headache	5	2.4
HIV	1	0.5
Migraine	1	0.5

4.3 RESEARCH OBJECTIVES

4.3.1 Knowledge of Hypertensive Clients about Lifestyle Modification Practices

Smoking

The majority of respondents 155 (75.6%) had never smoked, followed by 33 respondents (16.1%) who continued to smoke several times a day, and 15 (7.3%) who smoked daily. The total number of respondents who answered the question on smoking was (n=205). The mean was 1.55, mode 1, and median 1.000. This proved that most respondents did not smoke and were compliant with the lifestyle modification suggested in the Seventh Report of the Joint National

Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC7) Guidelines(JNC7, 2003).

Alcohol Consumption

The majority of respondents 167 (81.5%) had never ingested alcohol, followed by 24 respondents (11.7%) who had rarely ingested alcohol, and 14 (6.8%) who frequently ingested alcohol. The mean was 1.2, mode 1 and median 1.00. This clearly proved that most respondents complied with lifestyle modification practices by not ingesting alcohol.

Consumption of Meat High in Animal Fats

Most respondents, 109 (53.2%), frequently ate meat high in animal fats, 45 (22%), rarely did so, followed by 35 respondents (17.1%), ate meat high in animal contents on daily basis and 16, (7.8%) who never used meat with a high animal fat content. The mean was 2.79, mode 3 and median 3.00. These results revealed that most of the people sampled were not compliant with lifestyle modification practices.

Consumption of Vegetables

The majority of respondents, 116 (56.9%) ate vegetables frequently, followed by those who consumed them on a daily basis, 62 (30.4%), 25 (12.3%) who rarely ate them, and 1 (0.5%) who never ate any vegetables at all. The mean was 3.1, mode 3 and median 3.00. The results indicated

that the majority of the respondents were compliant with lifestyle modification practices. The researcher also observed that gardening projects were significant as most of the respondents grew their own vegetables.

Consumption of Fruits

The majority of the respondents 100 (48.8%) were able to eat fruits frequently, followed by those who ate at least 1 fruit daily 52 (25.4%), 52 (25.4%) who rarely ate fruit, and 1 who never 1 (0.5) ate fruit at all. The mean was 2.9, mode 3 and median 3.00. Results revealed that the majority of the respondents were compliant with the suggested lifestyle modification practices.

Fast Food Consumption

Of the respondents that answered positively to the consumption of fast foods, the majority of them rarely ate fast foods (122 or 59.8%), followed by 49 (24%) who frequently ate fast foods, 16 (7.8%) who ate them on a daily basis and 17 (8.35) who never consumed fast foods. The mean was 2.31, mode 2 and median 2.00. Results showed that participants were not complying with lifestyle modification practices, as fast food was known to have a high salt content.

Addition of Salt to Food

Most respondents 122 (59.5%) rarely added additional salt to their food prior to consumption, whereas 34 (16.6%) never did so. Conversely, 13 (6.3%) used salt on daily basis, and 36 (17.6%)

added additional salt frequently. The mean was 2.13, mode 2 and median 2.00. This equated to the fact that most respondents were not complying with lifestyle modification practices, an observation borne out by Dr A. Motsoaledi's assertion that the South African diet contained excessive salt (SAPA, 2011). Health education campaigns are needed to educate the communities about the dangers of elevated levels of salt in our bodies.

Engagement in Physical Activities

The majority of respondents 82 (40%) never engaged in physical activities, followed by 71 (34.6%) who were rarely engaged, 34 (16.6%) who frequently engaged in physical activity, and 18 (8.8%) who were physically active on a daily basis. The mean was 1.94, mode 1 and median 2.00. It could therefore be seen that most of the respondents were not active enough, and therefore non-compliant with lifestyle modification practices.

Efforts to Lose Weight

The majority of respondents 150 (73.2%) had made no attempt to lose any weight. 32 (15.6%) respondents had made a token effort, or rarely tried, to lose weight. Fifteen (7.3%) had made more of an effort, and had tried to lose some weight on a daily basis, while 8 (3.9%) had frequently tried to lose weight. The mean was 1.45, mode 1 and median 1.00. The statistics had once again indicated that most of the respondents were not compliant with lifestyle modification practices.

Relaxation

The majority of respondents 120 (58.8%) frequently relaxed, followed by 54 (26.5%) who were not able to relax very well. Twenty-eight (13.75) were relaxing on daily basis and 2 (1%) were not able to relax at all. The mean for this question was 2.85, mode 3 and median 3.00. The statistics shown provided indicate that the majority of the respondents were complying with lifestyle modification practices with regard to relaxing.

Sufficient Rest

Most respondents 119 (58%) were getting enough rest on a regular basis (frequently), followed by 51 (24.95) on a rare basis. Twenty-nine (14.1%) were able to relax on a daily basis and 6 (2.9%) never had enough rest. The mean was 2.83, mode 3 and median 3.00. Statistics showed that most respondents had enough rest and were therefore complying with lifestyle modification practices. (See table 5 below.)

Table 5: Compliance with Lifestyle Modification Regimen**How many times do you?**

	Daily		Frequently		Rarely		Never		Mean	N	STD. Dev.	Total
	Freq	%	Freq	%	Freq	%	Freq	%				
Smoke	15	7.3%	33	16.1%	2	1%	155	75.6%	1.5512	205	1.00663	205
drink alcohol	0	0%	14	6.8%	24	11.7%	167	81.5%	1.2537	205	.57228	205
eat meat high in animal fat	35	17.1%	109	53.2%	45	22%	16	7.8%	2.7951	205	.81468	205
eat vegetables*	62	30.4%	116	56.9%	25	12.3%	1	0.5%	3.1716	205	.64707	205
eat fruits	52	25.4%	100	48.8%	52	25.4%	1	0.5%	2.9902	205	.72754	205
eat fast food*	16	7.8%	49	24%	122	59.8%	17	8.3%	2.3137	205	.73586	205
sprinkle salt on your food	13	6.3%	36	17.6%	122	59.5%	34	16.6%	2.1366	205	.76111	205
engage in physical activity	18	8.8%	34	16.6%	71	34.6%	82	40%	1.9415	205	.95819	205
try to lose weight	15	7.3%	8	3.9%	32	15.6%	150	73.2%	1.4537	205	.87674	205
relax*	28	13.7%	120	58.8%	54	26.5%	2	1%	2.8529	205	.64932	205
get enough rest	29	14.1%	119	58%	51	24.9%	6	2.9%	2.8341	205	.69438	205

*missing system

4.3.1.1 Perceptions of Risk: Knowledge of Hypertensive Clients about Lifestyle

Modification Practices

Risk of Stroke

The majority of respondents 157(76.6%) perceived the risk of having a stroke as very little chance, followed by 25 (12.2%) who perceived the risk of developing a stroke as moderately possible. 14 (6.8%) of the respondents thought that there was a high risk of developing a stroke (often), whereas 9 (4.4%) respondents felt that they were at very high risk for suffering a stroke (very often). The mean was 1.39; the mode was 1 and the median, 1.00. The majority of the respondents perceived the risk of stroke as very low, as they were compliant with lifestyle modification practices which were known to reduce the risk of such an event.

Risk of Visual Impairment

Most respondents 101 (49.3) perceived very little chance of developing visual impairment, followed by 70 (34.1%) who understood there to be a moderate chance of developing visual impairment, 26 (12.7%) of the respondents understood there to be a high risk of impairment (often), while 8 (3.9%) perceived a very high(very often) risk of visual impairment. The mean was 1.71, mode 1 and median 2.00, indicating that the perceived of risk for this impairment was fairly low.

Risk of Heart Problems

The majority of respondents 107 (52.2%) perceived very little chance of developing heart problems as a result of their hypertension, followed by 72 (35.1%) who perceived a moderate chance of this development. Of the respondents, Twenty (9.8%) perceived a high risk (often) of developing heart problems and 6 (2.9%) viewed the risk of this occurring as very high (very often).

Risk of Renal Problems

The majority of the respondents 170 (83.3%) perceived there to be very little chance of developing kidney problems. Fourteen of the respondents (6.9%) understood that there was a moderate chance of this occurring, while 13 (6.4%) of them had the perception of the risk being high (often) and a further 7 (3.4%) of the risk being very high (very often). The mean, mode and median were 1 and the standard deviation was 0.98. The majority of the respondents perceived the risk as very low for this complication, because they were knowledgeable about their condition and treatment options, and therefore more compliant with lifestyle modification practices. It was this compliance that prevented the development of complications.

Risk of Paralysis

The vast majority of respondents 173(84.4%) perceived there to be very little chance of developing paralysis, followed by 14 (6.8%) who perceived the risk for this complication as high (often). A further 12 (5.9%) understood the risk to be moderate, and 6 (2.9%) had the perception

that the risk of developing paralysis was very high (very often). Knowledge of their conditions and compliance with lifestyle modification practices accounted for the perception of the lowered risk for developing paralysis.

Risk of Becoming a Burden to Their Families

Once again, the majority of the respondents perceived there to be very little risk of this eventuality, because of their knowledge and compliance. One hundred and sixty-six (81%) viewed the risk as very low (very little chance), 26 (12.7%) viewed risk as a moderate, 8 (3.9%) viewed this risk as likely (often) and 5 (2.4%) viewed it as very likely (very often). The mean, mode and median were 1 and standard deviation was 0.65.

Negative Effect on Career

Of the respondents, (83.3%) perceived very little risk of their careers being affected, while 19 (9.3%) felt that there was a moderate chance of this happening. Ten respondents (4.9%), however, thought that this was likely to happen (often), and a further 4 (2%) thought this to be a distinct possibility, having answered 'very often' to this question.

Disruption of Family Life

The majority of the respondents 158 (77.1%) felt that there was very little chance of a disrupted family life, followed by 30 (14.6%) who thought that the chance of this happening was moderate,

at best. Twelve respondents (5.9%) viewed this risk of this as high (often) and 5 (2.5%) thought the risk very high (very often). Knowledge of their conditions and compliance with lifestyle modification practices meant that the majority of respondents viewed the disruption of their family lives as unlikely.

Disrupted Social Life

Most respondents (156 or 76.1%) thought that there was very little risk of a disrupted social life, and indicated as such by selecting ‘very little chance’ on their questionnaire. Twenty-seven respondents (13.2%) thought the risk to be moderate, 16 (7.8%) viewed the risk as likely by selecting ‘often’ as their answer, and 6 (2.9%) viewed the risk very likely to happen (very often). The majority of the respondents did not foresee their social lives being disrupted because of their hypertension.

The results to these questions are tabulated below in Table: 6

Table 6: Perceptions of Risk: Knowledge of Hypertensive Clients about Life style Modification Practices

How do you view your risk of the following happening to you as a result of high blood pressure?

	Very often Freq	%	Often Freq	%	Moderate chance Freq	%	Very little chance Freq	%	Mean	N	Std. dev	Total
1 to have stroke	9	4.4	14	6.8	25	12.2	157	76.6	1.3902	205	.80068	205
2 to develop visual impairment	8	3.9	26	12.7	70	34.1	101	49.3	1.7122	205	.83437	205
3 to develop heart problems	6	2.9	20	9.8	72	35.1	107	52.2	1.6341	205	.77826	205
4 to develop kidney problems*	7	3.4	13	6.4	14	6.9	170	83.3	1.3333	205	.98594	205
5 to develop paralysis	6	2.9	14	6.8	12	5.9	173	84.4	1.2829	205	.71944	205
6 to become a burden for my family	5	2.4	8	3.9	26	12.7	166	81.0	1.2780	205	.65361	205
7 career being negatively affected*	4	2	10	4.9	19	9.3	171	83.8	1.4461	205	3.05484	205
8 disrupted family life	5	2.5	12	5.9	30	14.6	158	77.1	1.3707	205	.95441	205
9 disrupted social life	6	2.9	16	7.8	27	13.2	156	76.1	1.3756	205	.75433	205

***missing system**

4.3.1.2 Perceptions of Severity: Associated with Knowledge about lifestyle Modification practices in Hypertensive clients

My blood pressure condition is serious

The majority of respondents 106 (51.7%) perceived that their blood pressure condition was serious. The mean was 2; mode and median 3. These figures revealed that most respondents understood their condition which made them to be compliant with lifestyle modification practices.

I am relaxed about my blood pressure condition because I do not have symptoms

Most respondents 169 (82.8%) disagreed that they were relaxed as they were not experiencing any symptoms. The results revealed that most respondents were aware that hypertension is a silent killer.

I am worried about my blood pressure condition because I have symptoms

The majority of respondents 125 (61.3%) were worried about their blood pressure condition which made them to be compliant with lifestyle modification practices.

I think I am cured because I do not have symptoms

Most respondents 177 (86.8%) disagreed with this statement. The results revealed that most respondents were knowledgeable about hypertension that it is symptomless, and that hypertension cannot be cured but it can be managed by complying with lifestyle modification practices.

The results to these questions are tabulated below in Table: 7

Table 7: Perceptions of Severity: Knowledge of Hypertensive Clients about Life style Modification Practices

How do you view severity of your high blood pressure following compliance with lifestyle modification practices?

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	N	Std. dev	Total
	Freq	%	Freq	%	Freq	%	Freq	%				
1. My blood pressure condition is serious	22	10.7%	84	41%	85	41.5%	14	6.8%	2.5561	205	.77524	205
2. I am relaxed about my blood pressure condition because I don't have any symptoms *	3	1.5%	32	15.7%	149	73%	20	9.8%	2.0882	205	.55448	205
3. I am worried about my blood pressure because I have symptoms *	11	5.4%	114	55.9%	67	32.8%	12	5.9%	2.6078	205	.68275	205
4. I think I'm cured because I don't have symptoms	7	3.4%	20	9.8%	154	75.5%	23	11.3%	2.1373	205	1.44549	205

*missing system

4.3.1.3 Perceptions of Benefits Associated with Knowledge about Lifestyle Modification Practices in Hypertensive Clients

Keeping My Blood Pressure under Control

The majority of respondents, namely 135 (65.9%) perceived the keeping of their blood pressure under control as a benefit, a further 62 (30.2%) perceived this as extremely beneficial, 7 (3.4%) perceived it as somewhat beneficial and 1 (0.5%) perceived this to be of no benefit at all. The mean was 3.25, mode 3 and median 3.00. These figures revealed that most respondents were complying with their doctor's treatment and that they saw the control of their BP as beneficial.

Increasing my quality of Life

The majority of the respondents, 161 or 78.5% perceived that compliance and knowledge were beneficial to them, and a further 37 respondents (18, 5%) felt this to be extremely beneficial. Of the remaining respondents, 5 (2.4%) perceived this as somewhat beneficial and 1 (0.5%) felt that there was no benefit at all. The mean was 3.13, mode 3 and median 3.00. This revealed that most respondents were knowledgeable about the importance of complying with their treatment thus increasing their quality of life.

Increased Sense of Well-Being

Most respondents 161 (78.5%) perceived complying with their treatment as beneficial to their sense of well-being, 30 (14.6%) perceived this as extremely beneficial. Nine respondents (4.4%) perceived this as only somewhat beneficial and 5 (2.4%) foresaw no benefit to complying with their treatment and felt no increase in their sense of well-being.

Protection of Oneself from Complications

The majority of respondents, namely 156 (76.1%) perceived complying with their doctors' treatment as beneficial in protecting themselves from developing further complications. Thirty-eight respondents (18.5%) perceived this as extremely beneficial, 7 (3.4%) perceived their compliance as somewhat beneficial, and 4 (2%) did not see any benefit to their compliance. The mean was 3.11, mode 3 and median 3.00. Most respondents felt that they had protected themselves from further complications of hypertension as a result of their compliance with their treatment regimes.

Avoiding Added Financial Burden to Treat Complications

Most respondents 177 (86.8%) perceived that complying with their doctors' treatment benefitted them in that they avoided any added financial costs or burdens arising as a result of any additional complications from their hypertension. Fourteen respondents (6.9%) perceived this cost saving as extremely beneficial, 10 (4.9%) felt that the cost savings were only somewhat beneficial and 3 (1.5%) perceived no benefit at all. The mean was 2.9, mode 3 and median 3.00.

Decreased Chance of Death

The majority of respondents 168 (82%) felt that compliance with their doctor's treatment benefited them by decreasing their chances of dying. A further 28 (13.7%) felt that compliance was extremely beneficial in this regard. 7 (3.4%) respondents were of the opinion that compliance was somewhat beneficial and another 2 (1%) saw no benefit at all. The mean was 3.0, mode 3 and median 3.00.

Peace of Mind

The majority of respondents 169 (82.4%) perceived that they were benefiting from complying with doctors treatment as it gave them peace of mind, followed by 26 (12.7%) who felt that this aspect was extremely beneficial. Seven respondents (3.4%) reported being only somewhat benefited by their compliance and 3 (1.5%) did not foresee any benefit, namely peace of mind, at all. The mean was 3.0, mode 3 and median 3.00. The statistics shown proved that most respondents felt that they benefited from complying with their doctors' orders as they experienced peace of mind.

Table 8 details these findings.

Table 8: Perceptions of Benefits: Knowledge of Hypertensive Clients about Lifestyle Modification Practices

How do you view the benefits of complying with lifestyle modification?

	Extremely beneficial		Beneficial		Somewhat beneficial		Not at all beneficial		Mean	N	Std. dev.	Total
	Fre q	%	Fre q	%	Fre q	%	Freq	%				
1 keeping my blood pressure under control	62	30.2 %	135	65.9 %	7	3.4%	1	0.5%	3.2585	205	.53914	205
2 increasing my quality of life	37	18%	161	78.5 %	5	2.4%	2	1%	3.1366	205	.47576	205
3 increasing my sense of well-being	30	14.6 %	161	78.5 %	9	4.4%	5	2.4%	3.0537	205	.53509	205
4 protecting myself from complications	38	18.5 %	156	76.1 %	7	3.4%	4	2%	3.1122	205	.53514	205
5 avoiding added financial burden to treat complications*	14	6.9%	177	86.8 %	10	4.9%	3	1.5%	2.9902	205	.42100	205
6 decreasing my	28	13.7	168	82%	7	3.4%	2	1%	3.0829	205	.45152	205

	Extremely beneficial		Beneficial		Somewhat beneficial		Not at all beneficial		Mean	N	Std. dev.	Total
chance of dying		%										
7 giving me peace of mind	26	12.7 %	169	82.4 %	7	3.4%	3	1.5%	3.0634	205	.46535	205

*missing system

4.3.2 Internal factors: Factors That Contributed to Compliance with Lifestyle Modification Practices

I understand the nature of my condition

The majority of respondents (168, 82%) agreed that they understood the nature of their condition, followed by 28 (13.7%) who strongly agreed, 6 (2.9%) who disagreed and 3 (1.5%) strongly disagreed about their understanding. The mean was 3, mode 3 and median 3.00. The results revealed that the majority of respondents understood their condition, which meant that they were able to comply with lifestyle modification practices.

I understand what caused my blood pressure condition

Most respondents 162 (79%) agreed that they understood the cause of their blood pressure condition, followed by 21 (10.2%) who strongly agreed. Sixteen (7.8%) respondents disagreed with this statement and 6 (2.9%) strongly disagreed. The mean was 2.9, mode 3 and median 3.

The statistics proved that most respondents understood what caused their blood pressure condition, and that this understanding motivated them to be more compliant with lifestyle modifications and their doctor's treatment.

I understand how the treatment works to keep my blood pressure under control

One hundred and seventy-five of the respondents (85.4%) agreed that they understood how the treatment worked to keep their blood pressure under control, and a further 21 (10.2%) strongly agreed with this statement. As they understood, they were more likely to remain compliant with their treatment regime. Eight (3.9%), however, disagreed and 1 (0.5%) strongly disagreed that they understood. The mean was 3, mode 3 and median 3.00.

I understand why it is necessary to comply with lifestyle modification practices as advised

Most of the respondents 169 (82.4%) agreed that they understood why it was necessary to comply with the lifestyle modification practices required of them. Twenty-two (10.7%) respondents strongly agreed, 9 (4.4%) disagreed and 5 (2.4%) strongly disagreed. The mean, mode and median were 3. The majority of the respondents were therefore shown to understand the importance of their compliance with these practices. This not only increased their sense of wellbeing, but also helped limit any complications associated with non-compliance.

I understand what I can do to keep my blood pressure under control

Most respondents agreed that they knew how to control their blood pressure (173, or 84.4%). Another 21 (10.2%) respondents strongly agreed, 10 (4.9%) disagreed and 1 (0.5%) strongly disagreed. The mean, mode and median scored 3. The results revealed that most of the respondents were knowledgeable on how to keep their blood pressure under control.

I understand the meaning of the blood pressure reading

Ninety-two of the respondents (45.1%) agreed that they understood the meaning of a blood pressure reading, but an equal number of 92 (45.1) disagreed. Seventeen (8.3%) strongly agreed and 3 (1.5%) strongly disagreed with this statement. The mean was 2.6, mode 2 and median 3. Results revealed that more respondents understood the meaning of blood pressure reading, than not.

I think I can cure my hypertension with local herbs rather than lifestyle modification

Most of the respondents 158 (77.5%) disagreed that local herbs could cure their hypertension and a further 17 (8.3%) strongly disagreed, but 21 (10.3%) of them agreed that hypertension could be cured with local herbs and a further 8 (3.9%) strongly agreed. The mean, mode and median scored 3. The results revealed that most respondents were knowledgeable about hypertension and its treatment.

I have the ability to manage my hypertension

Most respondents 171 (83.4%) agreed that they had the ability to manage their hypertension, followed by 14 (6.8%) who strongly agreed. However, 12 (5.9%) of the respondents disagreed and another 8 (3.95) strongly disagreed that they were able to do so. The mean was 2.9, mode 3 and median 3. The results revealed that most of the respondents were knowledgeable about managing their hypertension, and that they felt comfortable doing so.

I am primarily responsible for managing my hypertension

The majority of the respondents (175, or 85.4%) agreed that they were primarily responsible for managing their hypertension, followed by 22 (10.7%) who strongly agreed and 8 (3.9%) who disagreed with the statement. The mean, mode and median scored 3. Most respondents were therefore knowledgeable about their condition, which made them take responsibility for their own health. Although respondents were responsible for their own health, they also thought doctors were primarily responsible for their conditions.

My doctor is primarily responsible for managing my hypertension

Most of the respondents (111, or 54.1%) believed that their doctors were primarily responsible for managing their hypertension and a further 5 (7.3%) strongly agreed with this statement. Seventy-four respondents (36.1%) disagreed with this statement, and another 5 (2.4%) strongly disagreed. The mean was 2.9, and the mode and median were 3. The results revealed that most respondents thought their doctors were primarily responsible to manage their conditions.

I am in charge of my physical health

Most respondents, 170 (83.3%), agreed that they were in charge of their own health, followed by 30 (14.7%) who strongly agreed with this statement and 4 (2%) who disagreed. The mean, mode and median scored 3. The results indicated that most of the respondents were knowledgeable about their condition and that they felt responsible for their own health

My physical health is determined largely by what I do or what I do not do

The majority of the respondents, 171(83.4%), agreed that their physical health was determined by their behaviour or actions, and a further 20 (9.8%) strongly agreed with the statement. Twelve respondents (5.9%) disagreed, however, and another 2 (1%) strongly disagreed with the statement. The mean, mode and median scored 3. Most of the respondents therefore believed that their health was largely determined by what they did or did not do, and indicated that they were knowledgeable about their condition and the course of action required to keep their blood pressure under control.

I am aware of how healthy my body feels

Most respondents (172 or 83.9%) agreed, and another 12 (5.9%) strongly agreed that they were aware of how their bodies felt when they were healthy. Sixteen respondents (7.8%) disagreed with this statement, and another 5 (2.4%) strongly disagreed. The mean was 2.9, mode and median 3. Results revealed that most of the respondents were aware of how their bodies felt

when they were healthy, and that this motivated them to comply with lifestyle modification practices.

I notice immediately when my body does not feel healthy

The majority of the respondents, 172 (83.9%) agreed that they noticed immediately when their bodies did not feel healthy, followed by 18 (8.8%) who strongly agreed, 13 (6.3%) who disagreed and 2 (1%) who strongly disagreed. The mean, mode and median scored 3. Most of the respondents believed that they would notice immediately when their bodies did not feel healthy.

The answers to the abovementioned questions are recorded in Table: 9

Table 9: Internal Factors**To what extent do you agree with the following statements?**

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	N	Std. dev	Total
	Freq	%	Freq	%	Freq	%	Freq	%				
1. I understand the nature of my condition	28	13.7%	168	82%	6	2.9	3	1.5%	3.0780	205	.46837	205
2. I understand what caused my blood pressure condition	21	10.2%	162	79%	16	7.8%	6	2.9%	2.9659	205	.54575	205
3. I understand how treatment works to keep my blood pressure under control	21	10.2%	175	85.4 %	8	3.9%	1	0.5%	3.0537	205	.39859	205
4. I understand why it is necessary to comply with lifestyle modification as advised	22	10.7%	169	82.4	9	4.4%	5	2.4%	3.0146	205	.49978	205
5. I understand what can I do to keep my blood pressure under control	21	10.2%	173	84.4 %	10	4.9%	1	0.5%	3.0439	205	.41186	205
6. I understand	17	8.3%	92	45.1 %	92	45.1 %	3	1.5%	2.6029	205	.66153	205

the meaning of blood pressure reading*												
7. I think I can cure my hypertension with local herbs other than lifestyle modification.*	8	3.9%	21	10.3 %	158	77.5 %	17	8.3%	2.0980	205	.57894	205
8. I have the ability to manage my hypertension	14	6.8%	171	83.4 %	12	5.9%	8	3.9%	2.9317	205	.52880	205
9. I am primarily responsible for managing my hypertension	22	10.7%	175	85.4 %	8	3.9%	0	0%	3.0683	205	.37732	205
10. My doctor is primarily responsible to manage my hypertension	15	7.3%	111	54.1 %	74	36.1 %	5	2.4%	2.6634	205	.64844	205
11. I am in charge of my physical health*	30	14.7%	170	83.3 %	4	2%	0	0%	3.2696	205	2.12674	205
12. My physical health is determined largely by what I do or what I do not do.	20	9.8%	171	83.4 %	12	5.9%	2	1%	3.0195	205	.44238	205
13. I am aware of how	12	5.9%	172	83.9 %	16	7.8%	5	2.4%	2.9317	205	.48022	205

healthy my body feels.												
14. I notice immediately when my body does not feel healthy.	18	8.8%	172	83.9%	13	6.3%	2	1%	3.0049	205	.43721	205

*missing system

4.3.3 Barriers that Hinder Compliance with Lifestyle Modification Practices

The waiting time at the clinic is acceptable

One hundred and forty-four respondents (70.2%) disagreed that the waiting time at the clinic was acceptable, and a further 33 (16.1%) strongly disagreed. Eighteen respondents (8.8%) agreed and 10 (4.9%) strongly agree. The mean, mode and median scored 2. The results indicated that most respondents perceived the length of time that they had to wait at the clinic as a barrier which could hinder them from coming for their scheduled check-ups.

The doctor who attends to me at the clinic is experienced

The majority of the respondents (179, or 87.3%) agreed that doctors who treated them appeared to be experienced, and another 22 (10.7%) strongly agreed with the statement. Two (1%) disagreed and another 2 (1%) strongly disagreed. The mean, mode and median scored 3. The majority of the respondents perceived their doctors to be experienced. A doctor seen to be inexperienced could potentially act as a barrier, leading to a lack of trust and faith in his or her

abilities. As a result, clients could be prevented from complying with lifestyle modification practices and treatment.

The doctor who attends to me at the clinic is knowledgeable

Most respondents, 177 (86.3%), agreed that doctors were knowledgeable, followed by an additional 26 (12.7%) who strongly agreed. One respondent (1%) disagreed and another 1 (0.5%) strongly disagreed. The mean, mode and median were 3. The results revealed that most respondents found the doctors to have adequate knowledge of hypertension, and did not identify a lack of knowledge which could act as a barrier hindering their attendance at the clinic.

I have confidence in the doctor

The majority of the respondents (179, 87.3%) agreed that they had confidence in the doctor who had attended to them, followed by 23 (11.2%) who had strongly agreed. Two respondents (1%) disagreed and another 1 (0.5%) strongly disagreed. The mean, mode and median scored 3. The majority of the respondents indicated that they were confident in their doctor's abilities. There was therefore no barrier to prevent clients from accessing the health care service as respondents had trust in their doctors.

The doctor is patient with me

Most respondents (174, 85.3%) agreed that the doctors were patient with them, followed by 16 (7.9%) who strongly agreed, 9 (4.4%) who disagreed and 5 (2.5%) who strongly disagreed with the statement. The mean, mode and median were 3. The result revealed that most respondents did not perceive any doctor's lack of patience as a barrier which might prevent them from accessing health care service.

The doctor treats me with respect

The majority of respondents (174, 84.9%) agreed that the doctors treated them with respect, followed by a further 14 (6.8%) who strongly agreed. Fourteen (6.8%) disagreed and 3 (1%) strongly disagreed with this. The mean was 2.9, mode 3 and median 3. Results indicated that most of the respondents believed that the doctors had showed respect for them and that there was no disrespect to hinder them from seeking medical advice.

The health care workers other than doctors treat me with respect

The majority of the respondents, 180 (87.8%), believed that health care workers other than doctors treated them with respect. A further 12 (5.9%) strongly agreed with this statement, while 9 respondents (4.4%) disagreed and 4 (2%) strongly disagreed. The mean was 2.9, mode 3, median 3 and the standard deviation was 0.425. Results revealed that most respondents were satisfied regarding the degree of respect that they received from other health care workers. This motivated them to comply and to attend health care services.

The doctor listens to my concerns

Most respondents (168, 82%) agreed that doctors listened to their concerns, followed by 18 (8.8%) who disagreed with this statement, 13 (6.3%) who strongly agreed and 6 (2.9%) who strongly disagreed. The mean was 2.9, mode 3, median 3 and standard deviation was 0.512. Results revealed that most respondents were motivated by the fact that doctors were listening to their concerns, which motivated them to access health care institutions.

The doctor understands my concerns

Most of the respondents (171, 83.8%) agreed that the doctors understood their concerns, followed by 17 (8.3%) who disagreed, 12 (5.9%) who strongly agreed and 4 (2%) who strongly disagreed. The mean was 2.9, mode 3, median 3 and standard deviation 0.46. Results revealed that most respondents were motivated by doctor's behaviours which made them to comply with lifestyle modification and treatment, and thus prevented further complications.

The doctor clearly explains my condition to me

Most respondents 174 (85.3%) agreed that their doctors were able to clearly explain their condition to them, followed by 13 (6.4%) who strongly agreed, 12 (5.9%) who disagreed and 5 (2.5%) who strongly disagreed. The mean, mode and median scored 3 and the standard deviation was 2.1. Results indicated that most respondents were motivated by the doctors who were able to explain their condition, and that this led to compliance with their treatment, lifestyle modification practices and follow-up dates as clients knew what was wrong with them.

The doctor clearly explains to me how I should manage my blood pressure condition

The majority of the respondents, 171 or 83.8%, agreed that their doctors had adequately explained to them how they should manage their blood pressure condition. Eighteen (8.8%) respondents strongly agreed, 8 (3.9%) strongly disagreed and 7 (3.4%) disagreed. The mean was 2.9, mode 3, median 3 and standard deviation 0.52. Results revealed that most respondents were satisfied with the explanations provided by their doctors regarding the management of their blood pressure condition. This in turn motivated them to comply with their treatment and lifestyle modification practices thus reducing the perceptions of having complications.

The management I receive at the clinic is effective

Most respondents (181, or 88.3%) agreed that they were satisfied by the management that they received at the clinic, followed by 15 (7.3%) respondents who strongly agreed, 5 (2.4%) who strongly disagreed and 4 (2%) who disagreed. The mean, mode and median scored 3 and the standard deviation was 0.43. The satisfaction expressed regarding the management received, in turn, motivated the clients to be more compliant with their treatment regime and follow-up dates.

Table 10: Barriers created by health care providers which hinder compliance with lifestyle modification practices are detailed in table 10 below.

To what extent do you agree with the following statements?

	Strongly agree		Agree		Disagree		Strongly disagree		Mode	N	Std. dev	Total
	Freq	%	Freq	%	Freq	%	Freq	%				
1 The waiting time at the clinic is acceptable	10	4.9%	18	8.8%	144	70.2%	33	16.1%	2.00	205	.66744	205
2 The doctor who attends to me at the clinic is experienced	22	10.7%	179	87.3%	2	1.0%	2	1.0%	3.00	205	.38825	205
3 The doctor who attends to me at the clinic is knowledgeable	26	12.7%	177	86.3%	1	1.0%	1	0.5%	3.00	205	.37324	205
4 I have confidence in the doctor	23	11.2%	179	87.3%	2	1.0%	1	0.5%	3.00	205	.36541	205
5 The doctor is patient with me*	16	7.9%	174	85.3%	9	4.4%	5	2.5%	3.00	205	2.08435	205
6 The doctor treats me with respect	14	6.8%	174	84.9%	14	6.8%	3	1.5%	3.00	205	.44183	205
7 The health care workers other than doctors treat me with respect	12	5.9%	180	87.8%	9	4.4%	4	2.0%	3.00	205	.42518	205

	Strongly agree		Agree		Disagree		Strongly disagree		Mode	N	Std. dev	Total
8 The doctor listens to my concerns	13	6.3%	168	82%	18	8.8%	6	2.9%	3.00	205	.51254	205
9 The doctor understands my concerns*	12	5.9%	171	83.8%	17	8.3%	4	2.0%	3.00	205	.46647	205
10 The doctor clearly explains my condition to me*	13	6.4%	174	85.3%	12	5.9%	5	2.5%	3.00	205	2.15420	205
11 The doctor clearly explains to me how I should manage my blood pressure condition *	18	8.8%	171	83.8%	7	3.4%	8	3.9%	3.00	205	.52932	205
12 The management I receive at the clinic is effective	15	7.3%	181	88.3%	4	2.0%	5	2.4%	3.00	205	.43721	205

*missing system

4.3.4 Perceptions of Barriers

Ineffectiveness of treatment to stabilize my blood pressure

The majority of respondents 153 (74.6%) had not perceived any ineffectiveness of treatment to stabilize their hypertension as a barrier that could hinder their compliance with their treatment. Twenty-nine respondents (14.1%) had perceived treatment as somewhat problematic, 17 (8.3%) had perceived the treatment as problematic and 6 (2.9%) had perceived the treatment as extremely problematic.

Lack of motivation because I cannot be cured

Most respondents 162 (79%) felt that their sense of motivation was not negatively affected by the fact that their hypertension could not be cured (no problems). Twenty-six respondents (12.7%) confirmed that the lack of a cure was extremely problematic for them the mean, mode and median scored 1 and standard deviation was 0.73. Results revealed that most respondents did not perceive themselves as being unmotivated by the fact that their disease was manageable but not curable, and therefore did not view this fact as a barrier to their compliance with lifestyle modification practices.

Not having enough time to exercise

Most respondents 113 (55.1%) perceived not having enough time to do exercises as somewhat problematic, followed by 57 (27.8%) who had not perceived this as a problem at all. Twenty-two (10.7%) respondents viewed this as problematic, and a further 13 (6.3%) perceived this fact as

extremely problematic. The mean was 2.9, mode and median 2 and standard deviation was 0.80. Results revealed that most respondents did not have enough time to engage in physical activities which might help them in reducing weight and keeping themselves healthy.

Lack of discipline to comply with dietary restrictions

Eighty-nine respondents 89 (43.4%) expressed no problems or lack of discipline regarding their ability to comply with their dietary restrictions, while a further 88 (42.9%) stated that it was 'somewhat problematic' for them to remain disciplined in this regard. Nineteen of the respondents (9.3%) revealed that they had difficulty maintaining their discipline, and selected 'problematic' for their response. A further 9 (4.4%) admitted that it was extremely difficult (extremely problematic) for them to remain disciplined. This therefore implied that most of the respondents were not complying with dietary restrictions. This then put them at risk of having uncontrolled blood pressure and the resultant complications.

Lack of discipline to stop smoking

Most of the respondents, 154 (75.1%), answered that they did not have any perceived lack of discipline to stop smoking (not at all problematic). This should be viewed in context though, as, 155 (75.6%) of them had never smoked before. Twenty-three (11.2%) of them had perceived this task as somewhat problematic, a further 23 (11.2%) as 'problematic' and 5 (2.4%) had answered that this was extremely problematic for them. Of note was the fact that these results would have been skewed by the fact that most respondents did not smoke.

Lack of time to relax

Most of respondents 148 (72.2%) viewed their answer of 'not at all problematic' for this statement, followed by 40 (19.5%) who had responded with 'somewhat problematic'. Ten (4.9%) of the respondents had viewed their lack of sufficient relaxation time as 'problematic'; while another 7 (3.4%) had indicated that a lack of relaxation time had proved to be extremely problematic for them. The mean, mode and median were 1 and standard deviation was 0.73. Results revealed that most of the respondent had sufficient time to relax.

Having sleeping problems

The majority of the respondents, 166 (81%), did not perceive any problems with sleep, while 20 (9.8%) of them had indicated that this was somewhat problematic for them. Eleven (5.4%) of them indicated that sleep was perceived as problematic and 8 (3.9%) perceived this as extremely problematic. The mean, mode and median were 1. Results revealed that most respondents did not perceive sleeping problems as barriers that could prevent them from accessing health care services and prevent them from complying with lifestyle modification practices.

Table 11: Perceptions of Barriers (2)**Which aspects are problematic and hinder you from complying with lifestyle modifications?**

	Extremely problematic		Problematic		Somewhat problematic		Not at all problematic		Mean	N	Std. dev	Total
	Freq	%	Freq	%	Freq	%	Freq	%				
1 ineffectiveness of treatment to stabilize my blood pressure	6	2.9%	17	8.3%	29	14.1 %	153	74.6%	1.5268	205	2.19748	205
2 lack of motivation because I cannot be cured	8	3.9%	9	4.4%	26	12.7 %	162	79%	1.3317	205	.73912	205
3 not having enough time to exercise	13	6.3%	22	10.7 %	113	55.1 %	57	27.8%	1.9561	205	.80014	205
4 lack of discipline to comply with the dietary restrictions	9	4.4%	19	9.3%	88	42.9 %	89	43.4%	1.7463	205	.80076	205
5 lack of discipline to stop Smoking	5	2.4%	23	11.2 %	23	11.2 %	154	75.1%	1.4098	205	.78460	205
6 lack of time to relax	7	3.4%	10	4.9%	40	19.5 %	148	72.2%	1.3951	205	.73763	205
7 having sleeping problems	8	3.9%	11	5.4%	20	9.8%	166	81%	1.3220	205	.75000	205

4.3.5 Factors that Activated Hypertensive Client's Readiness to Change

TV programmes on high blood pressure

Most respondents (108, 52.7%) agreed that TV programmes were important motivators to help them comply with lifestyle modification practices and treatment, followed by 80 (39%) who disagreed, 13 (6.3%) who strongly agreed and 4 (2%) who strongly disagreed.

Radio programmes on high blood pressure

The majority of the respondents (185, 90.2%) agreed that radio programmes were strong motivators which helped them to comply with lifestyle modification practices and treatment, followed by 11 (5.4%) who strongly agreed, 6 (2.9%) who disagreed and 3 (1.5%) who strongly disagreed.

Advice from my friends

Most respondents (156, or 76.5%) agreed that advice from their friends and family was a strong motivator for them to comply with their treatments and lifestyle modification practices. Another 10 (4.9%) strongly agreed with this, however 29 respondents (14.2%) disagreed that this was a motivator for them, and a further 9 (4.4%) strongly disagreed with this statement.

Advice from my doctor

Most respondents (171, 83.4%) agreed that their doctors motivated them to comply with their treatment and lifestyle changes, and a further 22 (10.7%) strongly agreed. Eight (3.9%) disagreed and 4 (2%) strongly disagreed with the statement. Results revealed that most respondents agreed that their doctors strongly motivated them to comply with treatment and lifestyle modification practices.

Advice from a health care worker other than my doctor

Most respondents (175, 85.4%) agreed that other health care workers also motivated them to comply be compliant, followed by 22 respondents (10.7%) who strongly agreed with this statement, and 4 (2%) who disagreed. Results reveal that health care workers other than doctors were strong motivators who motivated respondents to comply with their treatment and lifestyle modification practices.

Advice from a family member

One hundred and sixty-five respondents (80.5%) agreed that advice from family members helped them to comply with their treatment and lifestyle changes, followed by 25 (12.2%) who disagreed with the statement, 10 (4.9%) who strongly agreed with it and 5 (2.45) who strongly disagreed. Results revealed that respondents used advice from their family members as strong motivators to comply with their treatment and lifestyle modification practices.

Death of a relative or a friend due to high blood pressure

The majority of the respondents, 108 (52.7%) in total, agreed that the death of a relative or friend as a result of high blood pressure motivated them to comply with their treatment, followed by 74 (36.1%) who disagreed with this, 14 (6.8%) who strongly agreed and 9 (4.4%) who strongly disagreed with the statement. The death of a relative or friend as a result of hypertension was predominantly a strong motivator for respondents to remain compliant.

Newspaper or journal article

Newspaper and journal articles were weaker motivators for clients to remain compliant with their treatment and lifestyle modification changes. One hundred and twenty-two respondents 122 (59.5%) disagreed that they were motivated by them, and a further 24 (11.7%) strongly disagreed. Of those who did view these as motivators, 49 (23.9%) agreed and 10 (4.9%) strongly agreed.

Information on the internet

The majority of respondents, 138 (67.3%), disagreed that information on the internet motivated them to comply with treatment, followed by 34 (16.6%) who strongly disagreed. Twenty-eight (13.7%), however, agreed that this was a motivator and a further 5 (2.4%) strongly agreed. Information on the internet was therefore not a powerful motivator for respondents to comply with their treatment.

Health posters displayed

The majority of the respondents, 169 (82.4%), agreed that health posters displayed were motivating them to comply with their treatment, followed by 16 (7.8%) who strongly agreed. Seventeen (8.3%), however, disagreed with this statement, as did a further 3 (1.5%) who strongly disagreed. Health posters on display were therefore predominantly strong motivators and reminders for respondents to comply with their treatment.

Health education leaflets given to me

Most respondents 182 (88.8%) agreed that health education leaflets given to them motivated them to comply with treatment, followed by 16 (7.8%) who strongly agreed. Five (2.4%) of the respondents disagreed and 2 (1%) strongly disagreed. Health education leaflets distributed to clients at the clinics were therefore beneficial in motivating respondents to comply with their treatment.

When I feel unwell

The majority of respondents, 167 (81.5%), agreed that they were motivated to comply with their treatment when they felt unwell, followed by a further 10 respondents (4.9%) who strongly agreed. Twenty-six (12.7%) disagreed with this as a motivator, as did another 2 (1%) who strongly disagreed. The physical condition of the respondents was therefore a strong motivator for them to remain compliant with their treatment.

Table12: Factors that activated a hypertensive client's readiness to change**Which of the following motivates you to comply with your blood pressure treatment?**

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	N	Std. dev	Total
	Freq	%	Freq	%	Freq	%	Freq	%				
1 TV programm es on high blood pressure	13	6.3%	108	52.7%	80	39.0%	4	2.0%	2.6341	205	.63230	205
2 radio programm es on high blood pressure	11	5.4%	185	90.2%	6	2.9%	3	1.5%	2.9951	205	.37701	205
3 advice from my friends*	10	4.9%	156	76.5%	29	14.2%	9	4.4%	2.8186	205	.58000	205
4 advice from my doctor	22	10.7%	171	83.4%	8	3.9%	4	2.0%	3.0293	205	.47395	205
5 advice from a health care worker other than my doctor	22	10.7%	175	85.4%	4	2.0%	4	2.0%	3.0488	205	.45110	205
6 advice from a family member	10	4.9%	165	80.5%	25	12.2%	5	2.4%	3.0146	205	2.09453	205
7 death of a relative or a friend due to high blood pressure	14	6.8%	108	52.7%	74	36.1%	9	4.4%	2.6195	205	.67997	205
8 newspaper or journal article	10	4.9%	49	23.9%	122	59.5%	24	11.7%	2.3610	205	2.26145	205
9 informatio n on the	5	2.4%	28	13.7%	138	67.3%	34	16.6%	2.0195	205	.63370	205

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	N	Std. dev	Total
internet												
10 health posters displayed	16	7.8%	169	82.4%	17	8.3%	3	1.5%	2.9659	205	.46842	205
11 health education leaflets given to me	16	7.8%	182	88.8%	5	2.4%	2	1.0%	3.0341	205	.37548	205
12 when I feel unwell	10	4.9%	167	81.5%	26	12.7%	2	1.0%	2.9024	205	.45401	205

***missing system**

4.3.6 Assessment of Health Care Providers

The waiting time at the clinic is acceptable

Most of the respondents perceived the waiting time at the clinic was unacceptably long waiting for health care providers and considered that as a barrier that could hinder them from keeping their follow up appointments. Of the respondents, 144 (70.2%) disagreed that the waiting time at the clinic was acceptable, and a further 33 (16.1%) strongly disagreed. Eighteen respondents (8.8%) however, agreed and 10 (4.9%) strongly disagreed. The mean, mode and median scored 2.

The doctor who attends to me at the clinic is experienced

The majority of the respondents, namely 179 (87.3%), agreed that the doctors who treated them were experienced, and a further 22 (10.7%) strongly agreed. Two respondents (1%) however, felt that this was not the case and disagreed, together with another 2 (1%) who strongly disagreed with the statement. The mean, mode and median scored 3. Most respondents were therefore seen to perceive the doctors to be experienced enough to treat them. The doctor's levels of experience were therefore not seen as barriers preventing the respondents from complying with lifestyle modification practices and treatment. This motivated the respondents to comply with scheduled appointment dates.

The doctor who attends to me at the clinic is knowledgeable

Most respondents, 177 (86.3%), agreed that doctors were knowledgeable, followed by 26 (12.7%) who strongly agreed, however 1 respondent (1%) disagreed and another 1 (0.5%) strongly disagreed with this statement. The mean, mode and median were 3. Most of the respondents therefore believed the doctors treating them to be knowledgeable enough, and a lack of knowledge on their part was not seen as a barrier hindering their attendance at the clinic, and this motivated them to be more compliant with lifestyle modification practices.

I have confidence in the doctor

The majority of the respondents, 179 (87.3%), agreed that they had confidence in the doctor who attended to them, followed by 23 (11.2%) who strongly agreed. Two respondents (1%), however,

disagreed, as did another 1 (0.5%) who strongly disagreed. The mean, mode and median scored 3. A lack of confidence in the doctors at the clinic was therefore not a barrier to respondent's attendance and resultant access health care service and compliant with doctor's orders.

The doctor is patient with me

Most respondents, 174 (85.3%), agreed that the doctors were patient with them, and 16 (7.9%) respondents strongly agree with this statement. Nine (4%) disagreed and 5 (2.5%) strongly disagreed, as they felt that the doctors had exhibited impatience. The mean, mode and median were 3. A lack of patience on the doctor's part was therefore not seen as a barrier which prevented them from accessing the health care service. This also promoted doctor-patient relationship and trust.

The doctor treats me with respect

The majority of respondents (174 or 84.9%) agreed that the doctors had treated them with respect, and another 14 (6.8%) strongly agreed with this statement. Fourteen respondents (6.8%) felt that this had not been the case, and disagreed. Another 3 (1%) strongly disagreed that they had been treated with respect. The mean was 2.9, mode 3 and median 3. As could be seen, most of the respondents believed that the doctors were respectful towards them and this motivated them to be compliant with lifestyle modification practices.

The health care workers other than doctors treat me with respect

Most respondents, 180 (87.8%), believed that other health care workers also treated them with respect. Twelve respondents (5.9%) strongly agreed with this. Nine respondents (4.4%) disagreed and another 4 (2%) strongly disagreed that this was the case. The mean was 2.9, mode 3, median 3 and standard deviation 0.425. Results revealed that most respondents were satisfied with the level of respect that they received from other health care workers. This motivated them to comply and to attend health care clinics.

The doctor listens to my concerns

Most respondents 168 (82%) agreed that doctors listened to their concerns, and 13 (6.3%) strongly agreed that this was the case. Eighteen respondents (8.8%) disagreed, and another 6 (2.9%) strongly disagreed. The mean was 2.9, mode 3, median 3 and the standard deviation was 0.512. Results revealed that most respondents were motivated by the fact that they believed that the doctors were listening to their concerns and also took their concerns into consideration when treating them.

The doctor understands my concerns

The majority of the respondents, 171 (83.8%), agreed that doctors understood their concerns, and another 12 (5.9%) strongly agreed with this. Seventeen (8.3%) disagreed, and 4 (2%) strongly disagreed. The mean was 2.9, mode 3, median 3 and standard deviation 0.46. Results indicated

that most respondents were motivated to comply with lifestyle modification and treatment as a result of the doctors' behaviour towards them.

The doctor clearly explains my condition to me

Of the respondents, 174 (85.3%) agreed that their doctors were able to clearly explain their condition to them, followed by 13 (6.4%) who strongly agreed. Twelve respondents (5.9%) disagreed and 5 (2.5%) strongly disagreed that this was the case. The mean, mode and median scored 3 and standard deviation was 2.1. Most respondents therefore felt motivated by the fact that their doctors clearly explained all of the pertinent information regarding their condition to them, and were more compliant.

The doctor clearly explains to me how I should manage my blood pressure condition

The majority of the respondents 171 (83.8%) agreed that their doctors had clearly explained the management of their condition to them, and a further 18 (8.8%) strongly agreed with the statement. Eight respondents (3.9%) strongly disagreed and 7 (3.4%) disagreed that this was the case. The mean was 2.9, mode 3, median 3 and standard deviation 0.52. Results revealed that most of the respondents were motivated by and satisfied with the explanations provided by their doctors with regard to the management of their conditions.

The management I receive at the clinic is effective

Most of the respondents, 181 (88.3%), agreed that they were satisfied by the in which their cases were managed at the clinic, followed by 15 (7.3%) who strongly agreed with this statement. Five respondents (2.4%) were unhappy and strongly disagreed, while and another 4 (2%) also disagreed that this was the case. The mean, mode and median scored 3 and standard deviation was 0.43. Effective management at the clinic was therefore seen as a powerful motivator for compliance with treatment regimens and attendance at the clinics. The results revealed that respondents were satisfied with the management they received.

Statistics are tabled in Table 13 below.

Table13: Health Care Providers as Effective Motivators

To what extent do you agree with the following statements?

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	N	Std. dev	Total
	Freq	%	Freq	%	Freq	%	Freq	%				
1 The waiting time at the clinic is acceptable	10	4.9%	18	8.8%	144	70.2%	33	16.1%	2.0244	205	.66744	205
2 The doctor who attends to me at the clinic is experienced	22	10.7%	179	87.3%	2	1.0%	2	1.0%	3.0780	205	.38825	205

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	N	Std. dev	Total
3 The doctor who attends to me at the clinic is knowledgeable	26	12.7%	177	86.3%	1	1.0%	1	0.5%	3.1122	205	.37324	205
4 I have confidence in the doctor	23	11.2%	179	87.3%	2	1.0%	1	0.5%	3.0927	205	.36541	205
5 The doctor is patient with me*	16	7.9%	174	85.3%	9	4.4%	5	2.5%	3.1225	205	2.08435	205
6 The doctor treats me with respect	14	6.8%	174	84.9%	14	6.8%	3	1.5%	2.9707	205	.44183	205
7 The health care workers other than doctors treat me with respect	12	5.9%	180	87.8%	9	4.4%	4	2.0%	2.9756	205	.42518	205
8 The doctor listens to my concerns	13	6.3%	168	82%	18	8.8%	6	2.9%	2.9171	205	.51254	205
9 The doctor understands my concerns*	12	5.9%	171	83.8%	17	8.3%	4	2.0%	2.9363	205	.46647	205
10 The doctor clearly explains my condition to me*	13	6.4%	174	85.3%	12	5.9%	5	2.5%	3.0980	205	2.15420	205
11 The doctor clearly	18	8.8%	171	83.8%	7	3.4%	8	3.9%	2.9755	205	.52932	205

	Strongly agree		Agree		Disagree		Strongly disagree		Mean	N	Std. dev	Total
explains to me how I should manage my blood pressure condition*												
12 The management I receive at the clinic is effective	15	7.3%	181	88.3%	4	2.0%	5	2.4%	3.0049	205	.43721	205

***missing system**

4.4. Conclusion

This chapter presented the results of the descriptive statistics. Various factors that were connected to the participant's compliance with lifestyle modification practices were included. The results revealed that many respondents (82%) were knowledgeable about the nature of their condition, which motivated them to comply with lifestyle modification practices like eating fruits and vegetables, and treatment. One hundred and eighty seven respondents (91%) were not compliant as they were eating fast food. One hundred and seventy one (83.4%) respondents were also not compliant with salt restrictions as they sprinkled salt on their food. It was evident that many of the respondents (43.4%) were educated, which contributed to their compliance with their treatments and to their understanding of how the treatment worked.

CHAPTER 5

DISCUSSIONS OF FINDINGS, RECOMMENDATIONS AND LIMITATIONS

5.1 INTRODUCTION

This chapter offers a discussion of the findings of this research study, the limitations experienced by the researcher, recommendations made for further qualitative studies on hypertension, recommendations made for a structured programme of health promotion through lifestyle modification, and the conclusions drawn. The purpose of this study was to explore the compliance of hypertensive clients to lifestyle modification practices in a selected community in Durban. The findings will be discussed in relation to the research objectives and the theoretical framework used in this study, as well as to the literature and previous studies on lifestyle modification.

5.2 DISCUSSION OF THE SAMPLE

The characteristics of the sample showed that all respondents (100%) were adults, which proved that hypertension was a condition affecting mostly adults, as it affected respondents from young adults to senior adulthood. Results revealed that Indians (56.6%) were the most affected by hypertension, followed by Blacks at 40.5%. Most of the respondents (n=154) were females, and the majority of the respondents were married (63.4%). This proved that, despite the support that

they received from their partners and other family members, they were still adversely affected by hypertension.

Many of the respondents (43.4%) were educated, which assisted them in understanding the nature of their disease and contributed towards their compliance with their treatment and lifestyle modification practices. The fact that 39.5% of the respondents were employed meant that they were able to afford to follow a healthy diet containing better quality meat and fruits and vegetables, as per the recommendations of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (JNC7, 2003).

5.3 DISCUSSION OF THE FINDINGS

5.3.1 Objective One: Knowledge of Hypertensive Clients about Lifestyle Modification Practices

Compliance with the Lifestyle Modification Regimen

Most of the respondents, 109 (53.2%), frequently reported eating meat high in animal fat content. This indicated that most people were not compliant with lifestyle modification practices in this regard. The majority of the respondents, namely 116 (56.9%), ate fruit and vegetables frequently, and were therefore compliant with the required practices. Many of the respondents were better able to achieve this goal because they grew their own vegetables. One hundred and twenty-two of the respondents (59.8%) rarely ate fast foods. The mean for the number of respondents who ate fast food was 2.31; the mode was 2 and the median 2.00. This indicated that these participants were not complying with the lifestyle modification practices required of them, since

fast food is known to have a high salt content. Most of the respondents, 171 or 83.4%, admitted to adding salt to their food, a practice once again not compliant with their required lifestyle modification practices. This was in accordance with World Health Organization that reduced salt intake in food and replacement of trans fat with poly unsaturated fat among its “best buys” for prevention and control of non-communicable diseases, interventions that it considers “not only highly cost-effective but also cheap, feasible and culturally acceptable to implement” (Hawkes, 2012). To date, diet and nutrition are important factors in the promotion and maintenance of good health throughout the entire life course, and their role as determinants of chronic degenerative diseases is well established, thus occupying a prominent position in prevention activities (Sofi et al., 2013).

Physical activities were not a priority for the majority of the respondents. Eighty-two (40%) recorded that they never engaged in physical activities, and a further 71 (34.6%) indicated that they rarely engaged in such activities. Of the remaining respondents, only 34 (16.6%) of them reported frequently engaging in any such activities, and a disappointing 18 (8.8%) respondents engaged in physical activities on a daily basis. This was despite the fact that they were aware of the fact that engaging in physical activity lowered the risk of them developing non-communicable diseases like hypertension and cardiovascular diseases. This showed that more emphasis was needed on the importance of engaging in physical activities. This was in line with the study conducted by Kirk, Tytus, Tsuyuki and Sharma (2012), that surprisingly few overweight or obese patients reported receiving advice about weight management. This suggested that the health care system was not providing adequate obesity management services. One of the reasons that physicians would be more likely to address hypertension than obesity

could be because hypertension is recognized as disease, whereas obesity is still only considered a risk factor for disease (Kirk et al., 2012).

Perceptions of Risk

Most of the respondents were knowledgeable about their condition and the risks associated with it, the need to minimise the risks, and how to achieve this goal. 52.2% of the respondents had a low perception of developing heart problems and 83.3% had low perception of their careers being negatively affected as a direct result of their hypertension.

Perceptions of Benefits

The construct of perceived benefits is an individual's opinion regarding the usefulness of new behaviour in decreasing the risk of developing the complications of hypertension. The majority of the respondents (65.9%) understood the benefits of complying with their doctor's treatment and an additional 78.5% understood that compliance with the treatment regimen increased their quality of life. This was in line with the study conducted by Viera, Kshirsagar and Hinderliter, (2008) who reported that lifestyle modifications were an important component of the management of high blood pressure in all individuals with hypertension.

5.3.2 Objective Two: Factors That Contributed to the Adoption and Compliance with Lifestyle Modification Practices

Internal Factors

Most respondents (82%) understood the nature of their hypertensive condition, and 84.4% understood what could be done to keep their blood pressure condition under control. This motivated them to comply with their treatment, thereby preventing complications. The results from this study contradicted the findings of (Iyalomhe and Iyalomhe, 2010), where a reasonable number (30%) of their respondents believed that hypertension was caused by evil spirits, remote enemies and food poisoning. Results showed 89 hypertensive clients included in their study, both educated and illiterate, were unaware of the symptomless nature of the disease known as the silent killer. These factors could have been responsible for their negative attitude of non-compliance towards their treatment, which included the failure to adjust their lifestyles and include vegetables and fruits in their diets (Iyalomhe and Iyalomhe, 2010).

Seedat et al., (2006) had advocated that that lifestyle information was to be given to every person whose blood pressure was measured. In every instance where the blood pressure was found to be elevated, a programme of lifestyle modification was to be implemented immediately. Kaur, Sharma, Jhaji, Kaur and Bajwa (2007) found that educating the patient was the most important factor in achieving blood pressure control.

5.3.3. Objective Three: Barriers That Hindered Compliance to Lifestyle Modification

Practices

Health Care Providers

In order for a new behaviour to be adopted, an individual needed to believe that the benefits of the new behaviour outweighed the consequences of continuing with the old behaviour. Most respondents (70.2%) perceived the length of the waiting period at the clinics to be the strongest barrier which prevented them from seeking medical advice timeously. Another barrier was not having enough time to exercise and a lack of discipline to comply with their dietary restrictions. According to the study that was conducted in Canada, results revealed that the barriers that were reported by the respondents who were not engaging in lifestyle behaviours were lack of self-discipline to engage in physical activity, time constraints to engage in physical activity and coexisting physical condition or health problems like arthritis, back problems and paralysis and stroke (Gee, Bienek, Campbell, Bancej, Robitaille, Kaczorowski, Joffres, Dai, Gwadry-Sridar and Nolan (2012). This was in accordance with (Viera et al., 2008) who reported that regular aerobic exercise lowered the systolic BP by an average of 5mmHG and the diastolic BP by an average of 4mmHG. Adequate reduction of salt in the diet leads to a similar average reduction in BP. The Dietary Approaches to Stopping Hypertension (DASH) diet, an eating plan low in saturated fats and high in fruits and vegetables was able to reduce the systolic BP by an average of 11mmHG and the diastolic BP by an average of 5.5mmHG.

Another barrier affecting (88%) of the respondents in this researcher's study was a lack of discipline regarding their dietary restrictions. The results obtained revealed that most respondents were not complying with their required lifestyle modification practices regarding their diet which could result in them developing complications. This was in controversy with (Heymann et al.,

2011), that physicians play an important role in helping patients modify unhealthy lifestyle and behaviours, but they do not always routinely advise their hypertensive patients to change their behaviours. It was reported that the elevated BP of patients who gained weight, performed little physical exercise, smoked and drank alcohol in excess could be impossible to control despite progressively increasing doses of multiple medications (Kaplan, 2004, Newell et al., 2009).

5.3.4. Objective Four: Factors That Activated a Hypertensive Client's Readiness to Change Cues to Action

These were events, things and people that motivated an individual to change their behaviour. The majority of respondents believed that the following factors were strong motivators which made them compliant with lifestyle modification practices: (a) Radio programmes highlighting hypertension (90.2%), (b) TV programmes on the same topic (52.7%), (c) health education leaflets given to them at the clinic (88.8%), (d) health posters displayed (82.4%), (e) advice from health care workers other than doctors (85.4%), (f) advice from their doctors (83.4%) and finally, (g) advice from their family members (80.5%). The weaker motivators were: (a) information on the internet (13.7%) and (b) newspaper or journal articles on the subject (23.9%). According to the study by (Osamor and Owumi, 2011), their findings revealed that almost half of the respondents reported high compliance with treatment with drug, and 86% claimed high compliance with keeping their appointments with doctors. The reasons for compliance with treatment included fear of the complications of hypertension and the desire to control blood pressure.

This was in line with the findings by (Viera et al., 2008) that, adults with known hypertension who recall being given advice by a doctor or other health professional to make lifestyle changes to lower or control their blood pressure (BP), are more likely to report making such lifestyle modifications than those who do not recall being given such advice.

This corresponded with the findings by (Osamor and Owumi, 2011) that social support networks were important in the long-term management of chronic conditions such as hypertension, which required a radical and life-long change in the lifestyle of the affected person. Results from (Osamor and Owumi, 2011) study revealed that, those who had support from friends or family members who were concerned about their illness and gave them reminders about their medication exhibited better compliance with treatment regimens than those who did not. Of interest was the fact that this difference was greater for those who receiving support from friends rather than family.

Health Care Providers

Health care providers proved to be important motivators of compliance with lifestyle modification practices and treatment, for the respondents who (a) regarded the doctor treating them as being knowledgeable about hypertension (87.3% of the respondents), (b) could see that the doctor understood their concerns (83.8%), (c) received respect from health care providers other than the doctor treating them (87.8%), (d) received clear explanations regarding their condition from the doctor (85.3%), and (e) were treated with respect by their attending doctors (84.9%).

According to Butterworth (2008), the most important first step toward improving staff's health coaching skill set was to embrace a client-centred approach. Patients could ascertain whether health care workers were truly attempting to understand their situation and help them explore their ambivalence, or whether they were merely trying to manipulate them into change. By respecting each patient's autonomy and resisting the urge to push against the patient's resistance, staff had a better chance of achieving treatment compliance. She concluded by saying that, by evoking reasons, desire, ability, and the need for change; staff were able to strengthen the patient's motivation to make the required lifestyle changes.

5.4 RECOMMENDATIONS

Health education campaigns and a more structured programme of health promotion concerning lifestyle modification practices should be emphasized, especially with regard to diet, the avoidance of high animal fat and salt content in foods, and fast foods, as well as the importance of engaging in physical activities for at least 30 minutes, three times a week. These structured programmes can be done at the clinics, churches, and in work places. Government to make use of cheap and reliable source to cascade the information to the communities, like mass media as most respondents indicated that mass media and televisions were the strong factors which motivated them to comply with lifestyle modification practices.

Doctors and nurses are to motivate patients to reduce the amount of salt in their diet, in order to fulfill the Minister of Health's vision of a healthier, hypertension- free population (SAPA, 2011). The results of this research revealed that more than half of the respondents (56.9%) were complying with dietary requirements in terms of vegetable consumption but that (40%) of

respondents never engaged in physical activities. Health education strategies are needed to educate the communities about the complications caused by eating food high in animal fat. More emphasis is to be given to people with regard to avoiding eating too much processed and fast foods, as they have high salt and fat contents. Mahajan et al., (2012) concluded by saying that people have to be educated through mass media on hypertension and its risk factors. The health workers have to play part by educating the people and also themselves being an example in avoiding the risk factors for hypertension like consumption of fatty food, alcohol and smoking.

Health care workers are to emphasize the importance of engaging in physical activities, like walking, doing house chores, and gardening and to advise those using cars to walk for 15 minutes, at least 3 to 5 days a week. Those using lifts and escalators in their workplaces should make use of the stairs.

The Nursing Manager is to monitor and improve the waiting period spent by patients in the Outpatients' Department, and to ensure that there are enough staff members available to attend to the waiting clients. As the majority of the respondents (90.2%) had indicated that they were motivated by radio programmes, and as most people have access to radios, Department of Health should utilize radio as an affordable means of providing more educational talks regarding hypertension and other health issues.

5.5 LIMITATIONS

The limitation of this study was the small sample size and the missing data resulting from incomplete information given by participants. A significant number of participants (337)

consented to voluntary participate in the study; however, only 205 respondents filled in and returned the questionnaires. The researcher was challenged by the respondents who were reluctant to leave their seats in the queue for the purpose of discussing the study and completing the questionnaire in a private, quieter environment.

The questionnaire was too long, which resulted in some of the participants losing interest as they focussed on the movement of the queue. Some of the participants were also unable to complete the questionnaire before their consultation, and so had to come back after their consultation to complete the process. The researcher was challenged by the programme of end note when she was referencing. Other participants were unable to put their signatures on the consent form, which proved challenging, as no alternative was available for them. The researcher overcame this difficulty by recording the fact that the participant was unable to write, in the space provided for signature on the relevant participant's form.

5.6 CONCLUSION

This was a quantitative, exploratory study that was conducted to explore compliance of hypertensive clients to lifestyle modification practices, in a selected community in Durban. The findings in this study provided evidence regarding the usefulness of Health Belief Model constructs in exploring compliance to lifestyle modification practises. The study revealed that most of the respondents (65.9%) believed that they benefited from complying with lifestyle modification practices and treatment.

The study also showed that most respondents were knowledgeable about their condition, which made them more compliant with lifestyle modification practices. Factors like radio and TV

programmes, and advice from concerned family members, friends and doctors motivated them to comply with their treatments and lifestyle modification practices. The highest number of respondents that were affected by hypertension were Indians (56.6%) followed by Blacks (40.5%). Most of the respondents that suffered from hypertension were females (n=154), and most respondents that were affected by hypertension (100%) were all adults, starting from young adults to senior adulthood, the majority of which were married (63.4%).

As a result of their knowledge about the causes and consequences of hypertension, the respondents in this study had adopted behaviours to prevent hypertension, but most of them had indicated that they had not had enough time to engage in physical activities. This was in contrast with the study conducted by Newell et al., (2009) where, despite their knowledge about the causes and consequences of hypertension, most of the respondents in that study had not changed their behaviours to prevent hypertension.

Regardless of the benefits of hypertension prevention and blood pressure reduction, designing and implementing effective strategies to bring about a sustained lifestyle change in the population is difficult. Dolman et al., (2007) maintained that, in order for prevention programmes to be effective, it was important for health promotion advice to be culturally sensitive and relevant for the target population. It is therefore important that the beliefs of specific target groups regarding food and health matters are taken into account when planning and implementing primary prevention programmes. Structured educational programmes are needed to educate the community about the importance of lifestyle modification practices which would help them with compliance. This was in line with (Mahajan et al., 2012), in his study that before intervention patients had poor knowledge, attitude and practices which improved significantly after health interventions. Patients who had poor practices scores had poor control

on systolic and diastolic blood pressure. In pre-intervention phase only 16.58%, 30.89% and 26.76% study population had good knowledge, attitude and practice towards hypertension respectively which after intervention improved to 75%, 78.23% and 66.18% respectively (Mahajan et al., 2012).

More studies on hypertension and lifestyle modification practices are needed in KwaZulu-Natal province, as the statistics show that the majority of deaths here are caused by hypertension and cardiovascular diseases and there is no study has been conducted on lifestyle modification practices. The researcher recommends that more qualitative studies be conducted to obtain more detailed information on factors that could improve the patients' compliance with lifestyle modification practices.

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ANNEXURES

ANNEXURE 1: QUESTIONNAIRE

Interview schedule

Responded identification code: _____

Section A: BIOGRAPHICAL DATA

For office use

1 Blood pressure _____ / mmHg

2 weight _____ kg

3 height _____ metre

4 age in years _____

Below 25years

25- 34 years

35- 44 years

45 – 54 years

55- 64 years

65- 74 years

75 years and more

5 What is your gender?

Male

Female

6. What is your ethnic background?

Black

A1	_____

A2	_____

A3 _____

A4 _____

A5

1

2

1

Mixed	2	
White	3	
Indian	4	
Other - foreigner	5	
A6		

7 What is your marital status?

Never married	1	
Married	2	
Divorced	3	
Separated	4	
Widowed	5	
Cohabiting	6	
A7		

8 What is the highest level of education you have completed?

No schooling	1	
Primary school	2	
Secondary school	3	
Post-secondary school (e.g. college)	4	
University	5	
Other (specify) _____	6	
A8		

9 What has your work status been in the last three months?

Government employee	1	
---------------------	---	--

Non-government employee	2
Self-employed	3
Student	4
Retired	5
Unemployed	6
Pensioner	7

A9

10 When were first told that you have high blood pressure? Would

You say.

Less than one year ago	1
One year ago	2
Two year ago	3
Three year ago	4
Four year ago	5
Five year ago	6
More than five years ago	

A10

11 What health complaints other than high blood pressure do you have?

Heart problems	1
Paralysis of a limb	2
Swelling of the feet	3
Swelling of the legs	4

Visual impairment	5	
Kidney problems	6	
Heart cramps (angina)	7	
Shortness of breath on exertion	8	
Shortness of breath at rest	9	
Irregular heartbeats (palpitations)	10	
Non		
Other - specify	11	<div></div>
	A11	<div></div>

12 How many cigarettes do you smoke per a day?

None	1	
1-4	2	
5-9	3	
10-14	4	
15-19	5	
20 and more	6	
	A12	<div></div>

13 How often you consume alcohol per day?

More than once per day	1
Once daily	2
A few times a week	3
About once a week	4

Less than once per week 5

Seldom 6

Never 7

A13

14 How do you access food?

Buy from shop/ market 1

Supported by family members 2

Have vegetable garden 3

Cannot afford to access food 4

A14

SECTION B: COMPLIANCE TO THE LIFESTYLE MODIFICATION REGIMEN

How often do you	Daily 4	Frequently 3	Rarely 2	Never 1
1 smoke?				
2 drink alcohol?				
3 eat a meat high in animal fat?				
4 eat vegetables?				
5 eat fruits?				
6 eat fast food?				

7 sprinkle salt on your food?				
8 engage in physical activity?				
9 try to lose some weight?				
10 relax?				
11 get enough rest?				

SECTION C: PERCEPTIONS OF SEVERITY

To what extent do you agree with the following statements?	Strongly agree 4	Agree 3	Disagree 2	Strongly disagree 1
1 My blood pressure condition is serious				
2 I am relaxed about my blood pressure condition because I don't have any symptoms				
3 I am worried about my blood pressure condition because I have symptoms				
4 I think I am cured because I don't have symptoms				

SECTION D: PERCEPTIONS OF RISK

How do you view your risk of the following happening to you as a result of your high blood pressure?	Very often 4	Often 3	Moderate chance 2	Very little chances 1
1 to have stroke				
2 to develop visual impairment				
3 to develop heart problems				
4 to develop kidney problems				
5 to develop paralysis				
6 to become a burden for my family				
7 career being negatively affected				
8 disrupted family life				
9 disrupted social life				

SECTION E: PERCEPTION OF BENEFITS

How do you view the benefits of complying with doctor's treatment?	Extremely beneficial 4	Beneficial 3	Somewhat beneficial 2	Not at all beneficial 1
1 keeping my blood pressure under control				
2 increasing my quality of life				
3 increasing my sense of well-being				
4 protecting me from complications				
5 avoiding added financial burden to treat complications				

6 decreasing my chance of dying				
7 giving me peace of mind				

SECTION F: PERCEPTIONS OF BARRIERS

Which aspects are problematic and hinder you from complying with your treatment	Extremely problematic 4	Problematic 3	Somewhat problematic 2	Not at all problematic 1
1 ineffectiveness of treatment to stabilize my blood pressure				
2 lack of motivation because I cannot be cured				
3 not having enough time to exercise				
4 lack of discipline to comply with the dietary restrictions				
5 lack of discipline to stop smoking				
6 lack of time to relax				
7 having sleeping problems				

SECTION G: INTERNAL FACTORS

To what extent do you agree with the following statements?	Strongly agree 4	Agree 3	Disagree 2	Strongly disagree 1
1 I understand the nature of my condition				
2 I understand what caused my blood pressure condition				

3 I understand how treatment work to keep my blood pressure under control				
4 I understand why it is necessary to comply with lifestyle modification as advised.				
5 I understand what I can do to keep my blood pressure under control				
6 I understand the meaning of the blood pressure reading				
7 I think that I can cure my hypertension with local herbs other than lifestyle modification				
8 I have the ability to manage my hypertension				
9 I am primarily responsible for managing my hypertension				
10 My doctor is primarily responsible to manage my hypertension				
11 I am in charge of my physical health				
12 My physical health is determined largely by what I do or what I do not do				
13 I am aware of how healthy my body feels				
14 I notice immediately when my body does not feel healthy				

SECTION H: HEALTH CARE PROVIDERS

To what extent do you agree with the following statements?	Strongly agree 4	Agree 3	Disagree 2	Strongly disagree 1
1 The waiting time at the clinic is acceptable				
2 The doctor who attends to me at the clinic is experienced				
3 The doctor who attends to me at the clinic is knowledgeable				
4 I have confidence in the doctor				
5 The doctor is patient with me				
6 The doctor treats me with respect				
7 The health care workers other than doctors treat me with respect				
8 The doctor listens to my concerns				
9 The doctor understands my concerns				
10 The doctor clearly explains my condition to me				
11 The doctor clearly explains to me how I should manage my blood pressure condition				
12 The management I receive at the clinic is effective				

SECTION I: CUES TO ACTION

Which of the following motivates you to comply with your blood pressure treatment	Strongly agree 4	Agree 3	Disagree 2	Strongly disagree 1
1 TV programmes on high blood pressure				
2 radio programmes on high blood pressure				
3 advice from my friends				
4 advice from my doctor				
5 advice from a health care worker other than my doctor				
6 advice from a family member				
7 death of a relative or a friend due to high blood pressure				
8 newspaper or journal article				
9 information on the internet				
10 health posters displayed				
11 health education leaflets given to me				
12 when I feel unwell				

ANNEXURE 2: INFORMATION SHEET

TITLE: Exploring Compliance to Lifestyle Modification Amongst Hypertensive Clients in a Selected Community in Durban

Researcher: Mrs. N.E. Muthwa

Dear Participant

I, Nelisiwe Eugenia Muthwa (student number: 971199137) will be conducting a research exploring hypertensive client's compliance to lifestyle modification. I hereby invite your participation and feedback in the research study. The purpose of this study will be to explore compliance of hypertensive clients to lifestyle modification practices and to make recommendations for structured programme of health promotion through lifestyle modification.

The study might benefit you as hypertensive clients, health care professionals and institution in improving the proper management of hypertension. The study does not have any risk or discomfort and is conducted as part of the requirements for Master's Degree (Community Nursing).

Your anonymity is guaranteed which means that your name will not appear in the documents. No incentives will be given. Your participation in the study is totally voluntary and you can withdraw at any time without any penalty even after signing the consent. Refusal to participate in the study would not affect your clinical treatment at the outpatient department.

Once the questionnaire has been completed and submitted to the researcher it is not possible to withdraw the data as the researcher will be unable to identify your response from those of others. Data collected will be stored in a safe environment under lock and key. Data captured in the computer will be safe because the password will be known by the researcher only. All material used for the collection of data will be destroyed by shredding after five years. The result of the study will be communicated to you and the copies will be given to the institution and the University. For any questions about the study feel free to contact me at the following numbers:

Home: 031 5787923

Work: 031 4596187 Cell No: 0825808583

Thank you

Mrs. N.E. Muthwa

Supervisor: TT Myeza

ANNEXURE 3: INFORMED CONSENT FORM

TITLE: Exploring Compliance to Lifestyle Modification Amongst Hypertensive Clients in a Selected Community in Durban

Researcher: Mrs. N.E. Muthwa

Contact Numbers: Home: 031 5787923 Work: 031 4596187 Cell No: 0825808583

Purpose of the Study: The purpose of this study will be to explore compliance of hypertensive clients to lifestyle modification practices and to make recommendations for structured programme of health promotion through lifestyle modification.

Please circle the appropriate answer

- | | |
|---|----------|
| 1. Have you read the participant information sheet? | Yes / No |
| 2. Have you had the opportunity to ask questions regarding the study? | Yes/No |
| 3. Have you received satisfactory answers to your questions? | Yes/ No |
| 4. Have you had the opportunity to discuss this study? | Yes/ No |
| 5. Have you received enough information about the study? | Yes/ No |
| 6. Do you understand that you are free to withdraw from the study at any time? Yes/
No | |
| 7. Did you agree to voluntarily participate in this study? | Yes/No |

I _____ (Full names of the participants) hereby confirm that I consent to participate in the research project

Signature: _____ Date: _____

Researcher's Name: Mrs. N.E. Muthwa

Researcher's Signature: _____ Date: _____

ANNEXURE 4: ETHICAL CLEARANCE



Research Office, Govan Mbeki Centre
Westville Campus
Private Bag x54001
DURBAN, 4000
Tel No: +27 31 260 3587
Fax No: +27 31 260 4609
ximbap@ukzn.ac.za

2 February 2012

Mrs Nelisiwe Eugenia Muthwa (971199137)
School of Nursing

Dear Mrs Muthwa


PROTOCOL REFERENCE NUMBER: HSS/0036/012M
PROJECT TITLE: Exploring compliance to lifestyle modification amongst hypertensive clients in a selected community in Durban

In response to your application dated 27 January 2012, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment /modification prior to its implementation. In case you have further queries, please quote the above reference number. Please note: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully


.....
Professor Steven Collings (Chair)
Humanities & Social Science Research Ethics Committee

cc Supervisor Mrs T T Myeza
cc Ms P Nene

ANNEXURE 5: LETTER FROM THE HOSPITAL CEO GRANTING PERMISSION TO CONDUCT THE STUDY



R.K. Khan Hospital
Private Bag X004,
CHATSWORTH, 4030
Tel.: 031 4596001, Fax.: 031 4011247
Email.: reena.ramcharan@kznhealth.gov.za
www.kznhealth.co.za

ENQUIRIES: DR P.S. SUBBAN

10 FEBRUARY 2012

Mrs. N.E. Muthwa
University of KwaZulu Natal
School of Nursing

Dear Mrs. N.E. Muthwa

RE: REQUEST TO CONDUCT RESEARCH: EXPLORING COMPLIANCE TO LIFESTYLE MODIFICATION AMONGST HYPERTENSIVE CLIENTS IN A SELECTED COMMUNITY IN DURBAN.

Permission is granted to conduct the above research at this institution provided:-

- Confidentiality is maintained at all times,
- Your research does not interfere with the smooth running of the hospital
- Proper consent is obtained from patients participating in your study
- Hospital records are not taken out of the hospital
- Research is conducted during normal working hours
- The hospital receives a copy of your research on completion.

Yours faithfully

HOSPITAL CEO

uMnyango Wezempilo . Departement van Gesondheid

Fighting Disease, Fighting Poverty, Giving Hope

ANNEXURE 6: LETTER FROM THE DEPARTMENT OF HEALTH GRANTING PERMISSION TO CONDUCT THE STUDY



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Health Research & Knowledge Management sub-component
10 – 103 Natalia Building, 330 Langalibalele Street
Private Bag x9051
Pietermaritzburg
3200

Tel.: 033 – 3953189

Fax.: 033 – 394 3782

Email.: hrkm@kznhealth.gov.za

www.kznhealth.gov.za

Reference : HRKM24/12
Enquiries : Mrs G Khumalo
Telephone : 033 – 3953189

13 February 2012

Dear Mrs N E Muthwa

Subject: Approval of a Research Proposal

1. The research proposal titled 'Exploring compliance to lifestyle modification amongst hypertensive clients in a selected community in Durban' was reviewed by the KwaZulu-Natal Department of Health.

The proposal is hereby **approved** for research to be undertaken at RK Khan Hospital.

2. You are requested to take note of the following:
 - a. Make the necessary arrangement with the identified facility before commencing with your research project.
 - b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.
3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Mrs G Khumalo on 033-3953189.

Yours Sincerely


Dr E Lutge

Chairperson, Health Research Committee
KwaZulu-Natal Department of Health

Date: 14/02/2012