THE KNOWLEDGE OF YOUNG ADULTS ON HYPERTENSION

Naomi Magdalena Mondzinger

Thesis presented in partial fulfilment
of the requirements for the degree of
Master of Nursing Science
in the Faculty Medicine and Health Sciences
at Stellenbosch University

Supervisor: Mr. Aaron Mtsha

Co-supervisor: Dr E.L Stellenberg

December 2012

DECLARATION

By submitting this thesis electronically, I declare that the entirety of the work contained therein is my own, original work, that I am the sole author thereof, that reproduction and publication thereof by Stellenbosch University will not infringe any third party rights and that I have not previously in its entirety or in part submitted it for obtaining any qualification.

Date: ....

I

ABSTRACT

Hypertension is on the increase among patients as found on the Routine Monthly Report (RMR) at Kayamandi Clinic. The staggering figures showed that the number of patients with hypertension between January 2009 until December 2009 was 5 754. It was further identified on the Routine Monthly Report (RMR) statistics that, more and more young adults between 18 and 40 years who are visiting the clinic for other health problems are diagnosed with hypertension and its complications. The incident rate of these young adults ranges between 151 and 340 per month. It is very alarming that some of them who are diagnosed with hypertension never return for further follow-up visits and are at risk of debilitating complications which are preventable in later life.

The objectives of this study were to determine the knowledge young adult patients have of:

- hypertension
- the management of hypertension
- the complications of hypertension.

The study adopted a descriptive, exploratory design with a quantitative approach. The research question determines the research design or approach. In this case a broad overview is necessary of the knowledge young adults at Kayamandi Clinic have on the topic of hypertension. This then serves as a platform for further in-depth studies on this phenomenon.

A yes/no scale was used to collect data. The questionnaire was designed in such a way that the participants could understand all the questions. The layout of the questionnaire was easy and the questions were straightforward. The questionnaires were written in English, Xhosa and Afrikaans. After the translation of the questionnaires, a second person scrutinized it for the correctness of the Xhosa translation. An interpreter assisted with the questionnaire in the Xhosa speaking community at the time of data collection, where a language barrier was anticipated. The Cronbach's alpha test was used to test the reliability of the questionnaire.

Informed consent was obtained from each participant. Permission was obtained from the University of Stellenbosch via the Health Research Ethical Committee ((HREC). Permission was also obtained from the Director: Department of Health, Western Cape Province and the authorities of the Cape Wine lands district. A statistician from the University of Stellenbosch

was consulted regarding the data analysis and the interpretation of the data. Data was articulated in the form of frequency tables and histograms.

The Spearman test was used to determine the correlation between variables. 10% of the participants used in the pilot study were from Cloetesville Clinic and 21% of the participants used for the main study were from Kayamandi Clinic, that is n=210 participants. The results of the study showed that for the n=172 participants that partook in the study, there was a correlation between complications and hypertension but no correlation on lifestyle management. Statistical associations were determined by using the Spearman test on a 95% confidence interval between various variables. The normal descriptive statistical analysis was completed. The implication of the results of this study is that high blood pressure can affect young and old people. Recommendations consist of on going health promotion and continuous education that include both old and young people.

OPSOMMING:

Hipertensie is aan die toeneem onder die pasiënte soos gevind in die maandelikse roetine-verslag.Die skokkende syfers soos gerapporteer in die maandelikse roetine-verslag,wys dat die aantal pasiënte met hipertensie by Kayamandi-kliniek van Januarie 2009 tot Desember 2009 was 5 754. Dit is verder geidentifiseer in die maandelikse roetine-verslag dat al hoe meer jong mense tussen die ouderdomsgroep van 18 to 40 jaar oud wat die kliniek vir ander siektetoestande besoek, met hipertensie en verwante komplikasies gediagnoseer word. Die voorkomssyfer van jongmense met hipertensie wissel tussen 151 tot 340 per maand. Dit is sorgwekkend dat sommige van die pasiënte nadat hulle met hipertensie gediagnoseer is, nie terugkeer na die kliniek vir verdere opvolgbesoeke nie en daardeur blootgestel word aan uitmêrgelende komplikasies in hul latere leeftyd wat voorkombaar is.

Die doelwitte van die studie is om jong volwasse pasiënte se kennis vas te stel ten opsigte van:

- hipertensie
- die behandeling van hipertensie
- die komplikasies van hipertensie.

Die studie neem die vorm van 'n beskrywende, verkennende ontwerp met 'n kwantitatiewe benadering aan. Die navorsingsvraag bepaal die navorsingsontwerp of benaderring. In hierdie geval is 'n breë oorsig nodig van die kennis van jong volwassenes by Kayamandi-kliniek oor die onderwerp aangaande hipertensie. Dit dien dan as basis vir verdere indringende studies rakende hierdie fenomeen.

'n Ja/nee skaal is gebruik om data te versamel. Die vraelys is ontwerp op 'n manier sodat die deelnemers dit kan verstaan. Die uitleg van die vraelys is eenvoudig en die vrae maklik. Die vraelys is geskryf in Engels,Xhosa en Afrikaans.Na die vertaling van die vraelys,is dit deur 'n tweede person wat ook Xhosa magtig is nagegaan om die korrektheid van die vraelys te verseker. 'n Tolk het gehelp met die vraelys ten tye van data-insamelling in die Xhosa-sprekende gemeenskap, waar taal 'n moontlike probleem kon wees. Die Cronbach alpha-toets was gedoen om die betroubaarheid van die vraelys te toets.

Ingeligte toestemming was verkry van elke deelnemer. Toestemming was verkry van die Universiteit deur middel van die Gesondheids Navorsings Etiese Kommitee (GNEK). Toestemming was ook verkry van die Direkteur: Departement van Gesondheid, Wes Kaap

IV

Provinsie en die owerhede van die Kaap Wynland streek. 'n Statistiekus van die Universiteit van Stellenbosch was geraadpleeg aangaande die data analise. Data was geartikuleer in die vorm van frekwensies in tabelle en histogramme.

Die Spearman-toets is gebruik om die korrelasie tussen variante vas te stel .10% van die deelnemers wat vir die loodprojek gebruik is, is van Cloetesville-kliniek. 21% van die deelnemers wat vir die hoofstudie gebruik is, is van die Kayamandi-kliniek , dus 'n total van n=210 deelnemers. Die studie het bewys dat vir n=172 deelnemers wat aan die studie deelgeneem het, daar 'n korrelasie tussen die komplikasies en die hipertensie toestand is, maar geen korrelasie met leefstylgewoontes is gevind nie. Statistiese assosiasies is bepaal deur gebruik te maak van die Spearman-toets op 'n 95%-interval tussen verskeie variante. Die normale, beskrywende statistiese analise is voltooi. Die implikasie van die resultate van die studie, is dat hoë bloeddruk jonk en ouer mense affekteer. Aanbevelings dui op aanhoudende gesondheids promosies en voortdurende opvoeding wat jonk en ouer persone insluit.

v

Acknowledgement

I WANT TO THANK THE FOLLOWING PEOPLE AND INSTITUTIONS:

- My Heavenly Father for granting me the strength and courage to fulfil my dream
- My family for supporting me through this difficult period
- My supervisor : Mr Aaron Mtsha for his continuous motivation and help during this taxing time
- My co-supervisor: Dr E.L Stellenberg for keeping a guiding eye whilst the going was tough
- Colleagues at Kayamandi clinic, Cloetesville day hospital and Idas Valley Clinic, as well as the late Eric Menziwa who in the early days of the study was always available to help me
- My language editor Illona Meyer for her support
- Mr Goussard for binding my thesis
- Prof Kidd who helped me with the data analysis
- The Department of Health for granting me permission to perform my research at Kayamandi Clinic and Cloetesville day hospital
- The Cape Wine-lands District who also granted permission to collect data at Kayamandi Clinic and Cloetesville day hospital.

TABLE OF CONTENTS

x

LIST OF TABLES

LIST OF FIGURES

XIII

LIST OF ANNEXURES

CHAPTER 1: SCIENTIFIC FOUNDATION OF THE STUDY

1.1 Introduction

In America it is reported that 50 million Americans have hypertension or high blood pressure persistently, according to Tortoro & Derrickson (2006:798), because of their bad lifestyle habits. Although a South African study by Gaziano, Steyn, Cohen, Weinstein & Opie (2005:112,3569-3576), stated that hypertension is one of the leading causes of death in the black population, further South African statistics have shown that 21 percent of the overall population suffers from hypertension and that counts for almost 10 million men and women (Kowalski, 2007:22). The number of patients with hypertension in Kayamandi Clinic from January 2009 to December 2009 was 5 754, as reported in the Routine Monthly Report (RMR).

The significance of this study is therefore to identify the knowledge young adults have of hypertension and its contributing factors (between 18-40 years old, specifically in Kayamandi Clinic). According to Hutchison (2011:273), young adulthood is the period between 17 and 40 years old. This is the age group where many of the long term preventable problems commence that ends up in early death or serious debilitating complications to be discussed later in this study.

1.2 RATIONALE AND BACKGROUND LITERATURE

According to Kowalski (2007:9), nearly 3, 3 million South Africans with hypertension that is left uncontrolled, contribute to the progression of cardiovascular disease. A Manhattan stroke study in the United States of America, states that black people are twice more at risk than white people. The high incident rates of stroke are similar to other black populations worldwide, including South Africa (Allen, 2009:32; 312). There is a high occurrence of stroke incidence in young adults in and among specific communities, according to Allen (2009:32;312). A cerebro-vascular accident is the onset of neurological dysfunction, resulting from disruption of blood supply to the brain. The small blood clots travel through the bloodstream and eventually block other vessels or the brain causing a cerebro-vascular accident (Casey & Benson, 2006:11). After HIV/AIDS, heart attack, stroke and vascular disease have killed more South Africans than any other disease according to Kowalski (2007:22).

I.

There are certain risk factors that we have no control over, such as genetics, age, gender and race according to Casey & Herbert (2006:14-15). There are risk factors we do have control over. One is obesity defined being more than 20 percent of the ideal body weight and identified by overeating (Casey & Benson, 2006:16). It is estimated that more than one billion adults worldwide are obese, according to (Kruger, Puone, Senekal & van der Merwe, 2005-491). They further state that countries that are most affected are China, Brazil and South Africa.

Obesity is often associated with essential hypertension as stated by Opie (2004:455). The greater the body mass, the more blood is needed to supply oxygen and nutrients to the muscle and other tissues. Obesity also increases the number and length of blood vessels and therefore, increases resistance of blood that has to travel longer distances through those vessels. The occurrence of obesity has dramatically increased and is now estimated that over 50% American adults are either overweight or obese (Loscalzo, 2005:15). Loscalzo (2005:15) further states that obesity adds to the development of several cardiovascular disease risk factors, especially hypertension, diabetes mellitus, low cholesterol elevated triglycerides and elevated levels of inflammatory markers.

Sodium and salt intake remain controversial as risk factors for hypertension, while it is true that some individuals are particularly sensitive to sodium. Sodium is one of the minerals, or electrolytes that affect blood pressure (Kowalski, 2007:24). Kowalski (2007:24) is also of the opinion that sodium causes the body to retain extra fluid. It means that the heart must work harder (Casey & Benson, 2006:56).

A number of studies done by Loscalzo (2005:14) revealed that people with a more active lifestyle are at lower risk of cardiovascular disease. Inactive teenagers are more likely to have higher blood pressure (Science Daily, 2007:n.p.) Inactive young adults tend to have higher heart rates, because their heart muscle does not function efficiently and have to work harder to pump blood. Furthermore, physical activity is also a vasodilator and allows the blood to circulate faster (Kowalski, 2007:23-24). A study done in the Western Cape documented low levels of physical activity; according to Kruger et al.(2005:493). They also claim that environmental factors such as air pollution, heavy metal and infectious agents; prevent South Africans from partaking in physical activities.

It is found that alcohol definitely causes an elevation in the arterial pressure. Vasoconstrictive effects which are caused by smoking cigarettes are likely to increase blood pressure swings (Opie, 2004:455). The amount of people who indulge in

cigarette smoking has increased by over 40% over the past two decades according to Akinboboye et al.(2002:17,381-387).

According to Kowalski (2007:24) stress is another controversial subject who affirms that stress increases the heart rate and blood requirements, and can over a period of time, raise blood pressure and precipitate a heart attack and stroke. Opie (2004:479) is of the opinion that central stress leads to raised hypothalamus and medullar centre activity and the increase in adrenaline gives rise to a series of events, namely myocardial oxygen uptake, tachycardia, increased contractility and increased cardiac output.

A study by Casey and Benson (2006:17), indicate that stress definitely has an effect on blood pressure. As the stress level decreases, so does the blood pressure. Hyperlipidaemia (high serum cholesterol), is a major risk factor for coronary artery disease in adults (Akinboboye, Idris, Akinboboye & Akinkugbe, 2002:17, 381-387). It assists with the manufacturing of bile acids that play a role in digestion and absorption. Inflammation and thickening of the arterial walls encourage a build-up of debris that consists of fats (Casey & Benson, 2006:10.64).

In the light of the above data, the patient must understand that non-drug treatment is very important in treating this condition and includes advice to the patient on doing daily exercises for ten to thirty minutes, restricting salt intake, encouraging a healthy eating plan, as well as stress management and no smoking or consuming of alcohol (Tortora & Derrickson, 2006:798). The patient must understand that hypertension is a chronic disease. If it is left untreated, hypertension can damage major organs and even cause death (Mani, Pein, Truscott, Strätling & Prangley, 2009:72).

Young children between the ages of twelve to fourteen who consume alcohol have higher blood pressures. Smoking of cigarettes is a problem factor among teenagers that continues until adulthood. Biddulph (2003:35) further claims that alcohol is the cause of more than 100 000 deaths every year. Besides the contribution to hypertension, the nicotine substance in the tobacco leaf is more addictive and toxic than any other drug, which makes tobacco to contribute to the killing of one person every ten seconds, which adds up to four million deaths per year (Farrington, 2002:11-12).

Kowalski (2007:23), also states that race plays a definite role in hypertension. He further states that black people are more affected by high blood pressure than any other race group and it occurs at a much earlier age in black people (Kowalski, 2007:23). They also are prone to malignant hypertension, which is a serious medical condition that places people at risk of

3

myocardial infarction, cerebro-vascular accidents, heart failure, and permanent kidney damage (Casey & Benson, 2006:8). Risk factors such as heart conditions, high blood pressure, and other illnesses generally appear only later in adult life due to long-term unhealthy lifestyle habits such as tobacco use, unhealthy diet, alcohol consumption, stress and an inactive lifestyle and these again contribute to high blood pressure, cardiac disease and other condition of ill health. It is thus alarming that these risk factors are common among these young people (Van Rensburg, 2004:242-243).

The number of patients with hypertension who visited the Kayamandi Clinic between January and December 2007 were 4603 and the number of patients with hypertension who visited the Kayamandi Clinic between January and December 2009 were 5 754. Although there could be many reasons for the increase in patients with hypertension, such as the migration of patients from neighbouring countries, unhealthy lifestyle habits, non-compliance to medication, and a lack of knowledge of hypertension, such an increase is still a factor not to be ignored. When we look at the statistics of the Routine Monthly Report (RMR), more and more young adults between 18 and 40 years who are visiting the clinic are diagnosed with hypertension and its complications. The incident rate of these young adults ranges between 151 and 340 per month. It is very alarming that some of them who are diagnosed with hypertension never return for further follow-up visits and are at risk of debilitating complications which are preventable in later life.

1.3   PROBLEM STATEMENT

Welman, Kruger and Mitcell (2005:14) echoed that in the process of scientifically investigating research problems, there must be discernment between different, successive stages called the empirical cycle. This process leads to the setting of the research question (Welman et al., 2005:13).

Therefore, it appears that there is a lack of knowledge about hypertension by this age group,18 to 40 years of age, that leads to further serious complications.

1.4   RESEARCH QUESTION

A research question is a brief, probing statement that is phrased in the present tense and includes one or more variables (Burns & Grove, 2007:115). Brink, Van der Walt and Van Rensburg (2006:52) stated that a clear researchable question is the key to the researcher's data collection and analysis. The research question in this study is therefore:

Do the young adult patients, visiting Kayamandi Clinic, have the knowledge of hypertension and its management in order to prevent complications of the disease?

4

1.5   GOAL AND OBJECTIVES

The goal of the present study was to explore the knowledge young adult patients have of hypertension.

The objectives of this study were to determine the knowledge young adult patients have of:

- hypertension
- the management of hypertension
- the complications of hypertension

This knowledge is important for the patients in order to make informed decisions about their lifestyle, their medication usage and the outcome and management of their health condition in general. This knowledge is also important for the healthcare provider to see where the shortcomings and myths regarding hypertension lie, in order to address this by very specific directed health promotion programs.

1.6   RESEARCH METHODOLOGY

1.6.1   Research approach

This study will be descriptive and exploratory with a quantitative approach.

A descriptive research according to Burns and Grove (2007:24), is an exploration and description of phenomena in real life situations. The research question determines the research design or approach. In this case a broad overview is necessary of the knowledge of young adults at Kayamandi Clinic on the topic of hypertension. This then serves as a platform for further in-depth studies on this phenomenon.

1.6.2   Study population

Currently at Kayamandi Clinic, up to 600 patients per month are on antihypertensive treatment, of which 214 represent young adult patients between 18 to 40 years, 186 between 40 and 60 years, and 200 over 60 years old. Only participants from the black population with the same eating habits were used in the study with the same cultural background. Race can be used because it is evidence based.

A population is a complete group of people that holds some common characteristics that are of value to the researcher (Brink et al., 2006:206).

5

1.6.3 Study Sample

A sample is a subset of a population consisting of a selection of people who participate in a study (Polit & Beck, 2012:742). It is a division of the population that represents the population (Brink et al., 2006:207).

The study sample consisted of 210 participants between 18 and 40 years. They were targeted for this study over a 4-week period. Young adult males and females were included.

Table 0.1: Shows the number of young adults between 18 to 40 years who attended Kayamandi Clinic each month from January to December 2009.

JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
240	173	207	151	172	316	162	154	326	340	315	222
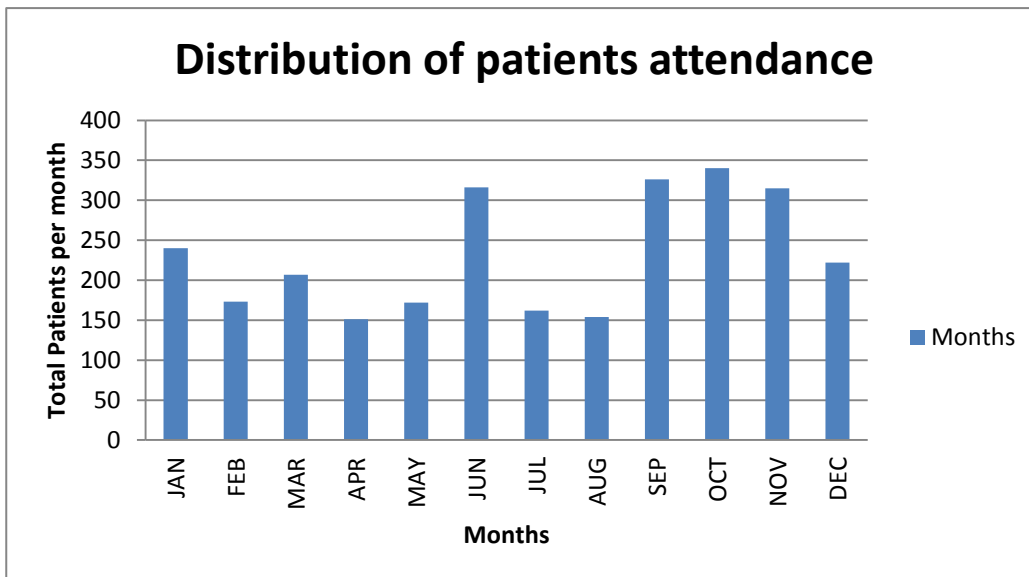
Figure 0.1: Distribution of Hypertensive-patients

Figure 1.1 showed the attendance of patients with hypertension from January 2009 till December 2009. February, April, May, July and August showed a decline in patients' attendance, below 200 in total to the clinic which means that some of the patients were defaulting and not cooperative regarding their medication and management of hypertension.

1.6.4 Instruments

An instrument is a tool that is used to collect data, for example a questionnaire (Polit & Beck, 2012:730). A self-administered questionnaire was used to collect the data required for this study. An instrument or tool, according to Brink et al. (2006:53), is a guide to establish which route to follow to gather data.

6

A yes/no scale was used to collect data. The questionnaire was designed in such a way that the participants could understand all the questions. The layout of the questionnaire was easy and the questions were straightforward. It was available in English, Xhosa; and Afrikaans. After the translation of the questionnaires, a second person scrutinized it for correctness of the Xhosa translation. An interpreter assisted with the questionnaire in the Xhosa speaking community at the time of data collection, where a language barrier was anticipated.

The questionnaire had the potential to determine the participants' knowledge of hypertension, as well as the participants' knowledge of factors that may influence lifestyle changes and complications of the condition. The researcher consulted the literature and worked together with a statistician and a research methodologist, regarding the final construction of the questionnaire.

The questionnaires were handed directly to the participants with clear instructions on how to complete the questionnaires. The questionnaire were handed out in a sealed envelope and handed back to the researcher to ensure confidentiality. The importance of completing the questionnaires were emphasized. According to Cluett and Bluff (2007:105), if participants understand the importance of the study and how the data will be analyzed and used, they will participate more willingly.

1.6.5   Research setting

The researcher undertook the study in the Kayamandi Sub district, Stellenbosch. All inhabitants of Kayamandi receive their medication for chronic diseases at Kayamandi Clinic, being the primary health care facility of the Kayamandi Township. The majority of the black population are residing in Kayamandi. The Kayamandi Clinic is central for most of the inhabitants of Kayamandi.

1.6.6   Pilot study

Polit and Beck (2012:737) explain that a pilot study is a small scale version or trial run, done in preparation for a major study. A pilot study was done before the main study commenced, in order to improve the questionnaires. This was done in accordance with the studies of Burns and Grove (2007:49). During the pilot study the researcher identified and addressed some problems by gathering information for the improvement of the project (Brink et al., 2006:54). The instrument was adapted where necessary after the pilot study. Twenty- two participants (10%) were used in the pilot study. The participants who were used in the pilot study were excluded from the main study. The pilot study was conducted at Cloetesville Community Health Centre, the other nearest institution where chronic diseases are treated in

the Stellenbosch District. This ensured participation from the same population group, culture; and community.

1.6.7   Validity and reliability

Validity means whether a person has investigated what needs to be trustworthy (Thomas & Pollio, 2002:40). It is therefore, the enlargement to which the research findings accurately represent what is actually happening (Welman, Kruger & Mitchel, 2005:145). Reliability is defined as uniformity in research findings (Thomas & Pollio, 2002:39). Welman et al., (2005:145), further stated that reliability is concerned with the findings of the research and recount to the credibility of the findings. A measuring instrument is reliable if it produces the same result every time it is used to measure data (Burns & Grove, 2007:227). According to Brink et al. (2006:165), it is of no use to utilize an instrument that is not valid, although it might be reliable. If a tool measures a phenomenon of importance, but the measurement is not reliable, it is useless.

Measures to ensure validity and reliability of this study were:
- a pilot study tested the instruments before the main study
- a statistician was consulted regarding the instrument
- the proposal was presented to a panel of research methodologists
- the questionnaire was compiled to be systematic and simple in order to accommodate all participants
- the sentences are brief and clear
- every question consisted of only one thought
- each participant received a questionnaire in his/ her own language
- The translation in Xhosa was re-checked by a second person who is also Xhosa literate.

Content, face and construct validity were assured by experts in the field of ,nursing, statistics and research methodology.
- Face validity refers to whether the instrument appears as if it is measuring the target construct (Polit & Beck, 2012:336).
- Content validity refers to the degree to which a measure covers the range of meanings integrated within a concept (Babbie, 2007:147).
- Construct validity procedures challenge to determine what an instrument is measuring. It is the degree to which a measure relates to other variables as expected within a system and testing of theoretical relationship (Babbie, 2007:147).

1.6.8 Data analysis

A statistician from the University of Stellenbosch was consulted regarding the data analysis and the interpretation of the data. Data was articulated in the form of frequency tables and histograms. MS Excel was used to capture the data. The statistician used the STATISTICA data analysis software system (Stat Soft Inc: 2008). A p-value $p<0.05$ was set to determine statistical significance at a 95% confidence intervals. The normal descriptive statistical analysis was completed.

1.7   REPORTING OF DATA

No individuals were identified. All data was reported in the form of statistics and tables.

Copies of the research results will be given to the University of Stellenbosch. The findings of the research will also be forwarded to the Department of Health.

1.8   ETHICAL CONSIDERATION

Informed written consent was obtained from each participant. Permission from the University of Stellenbosch was obtained via the Health Research Ethics Committee (HREC). Permission was also obtained from the Director: Department of Health, Western Cape Province and the authorities of Kayamandi Clinic. All data was considered as confidential. The participant was also treated with dignity and respect. Participation was voluntary and participants could withdraw from the study at any stage. Withdrawing from the study did not influence any service rendered to them. This study adhered to the ethical principles of the *Declaration of Helsinki*, whereby the participants benefitted from the research project, that means that hypertension and its complications identified during the study was managed during the study with the participant's permission (Williams, 2009:1-28). The cost of this study was from the researcher's budget.

1.9   DEFINITIONS OF KEY CONCEPTS

1.9.1   Young adult

Young adulthood is the period between 17 and 40 years old (Hutchison, 2011:273). The participants used in the study were between 18 and 40 years old.

1.9.2   Blood pressure

Blood pressure is the amount of force exerted by the blood on the inside of the arteries as the blood is pumped throughout the circulatory system. Each time the heart muscle contracts, blood is pressed against the walls of the arteries and is measured as systolic, the-

9

top number in blood pressure reading. When the heart relaxes between beats, the pressure on the artery wall eases, measured as diastolic blood pressure (Casey & Benson, 2006:3).

1.9.3 Mild hypertension

According to the Department of Health (2008:62), mild hypertension is where there is no risk involved. It is where the systolic (upper) in blood pressure reading is 140-159 mmHg and diastolic (lower) blood pressure reading is 90-99 mmHg (Department of Health, 2008:62).

1.9.4 Moderate hypertension

It is where the systolic (top) in blood pressure reading is 160-179 mmHg and diastolic in blood pressure reading is 100-109 mmHg (Department of Health, 2008:62).

1.9.5 Severe hypertension

It is where the systolic (upper) in blood pressure reading is 180mmHg or more and the diastolic (lower) in blood pressure reading is 110mmHg or more (Department of Health, 2008:62).

1.9.6 Malignant hypertension

This is a condition whereby there is a sudden rise in blood pressure to dangerous levels, often with the diastolic reading escalating to 120-130 mm/Hg (Casey & Benson, 2006:7).

1.9.7 Lifestyle

According to an article by Adler (2008:n.p.), lifestyle is defined as a way people live, typified by the behaviour that makes sense to both others and oneself in a given time and place. It includes social connection, consumption, activity and dress. He further stated that the behaviour and practice within lifestyle are a combination of habit and; predictable ways of doing things that give meaning to action. Kruger et al. (2005:494), stated that culture shapes eating habits. Only participants from the black population with the same eating habits were used in the study with the same cultural background.

1.9.8 Medication

It is in the dosage form whereby drugs are administered. It can be in a form of capsules, tablets or mixtures according to Dreyer (2005:1).

1.9.9 Cardiovascular complications

The vascular effects of raised blood pressure promote atherotrombotic disease, with consequences for cardiac, cerebral and renal function (Loscalzo, 2005:195). Loscalzo (2005:9) further states that the high levels of cholesterol are linked to the development of cardio-vascular disease. Atherosclerosis is an arterial disease manifested by a loss of elasticity and hardening of the vessel wall (Tonkin, 2003:88).

1.10 TIME FRAME

Research designs are chosen to assign when and, how often, data will be collected (Polit & Beck 2012:184).The collecting of data for the study was done over a period of six weeks from the 1st of December 2010 until 15th of January 2011.

1.11 CHAPTER OUTLINE

Chapter 1: Rationale. This chapter displays the theoretical, empirical and practical formation of the study.

Chapter 2: Literature Review. This chapter and it usually also contains the theoretical framework that has informed the study.

Chapter 3: Research Methodology. This chapter documents the design and methodology followed during the fieldwork.

Chapter 4: Research Analysis and findings. This chapter documents the results of the fieldwork.

Chapter 5: Conclusions and recommendations. This chapter represents the end product of the undertaking.

CHAPTER 2:   LITERATURE REVIEW

2.1   INTRODUCTION

The medical name for high blood pressure is hypertension (Buckman & Westcott, 2006:6). Hypertension refers to a systolic (top) blood pressure reading higher than 140 mm Hg and a diastolic (bottom) blood pressure reading that is higher than 90mmHg, after several readings to make a diagnosis that the patient is hypertensive (Khan & Beevers,2005:8,1105-1109). The blood pressure consists of two numbers. The top number signifies the force of contraction of the heart's main section, the left ventricle, and the lower number corresponds with the resistance to blood flow in the arteries (Sinatra, Roberts, James & Zucker, 2007:9). The term high blood pressure covers any blood pressure above 120/80 mm Hg, while hypertension refers only to pressures of 140/90 mmHg and above (Casey & Benson, 2006:14-15).

High blood pressure is known as the "silent killer" due to the large damage caused to the blood vessels (Tortora & Derrickson, 2006:798). Hypertension is given this name because of a person not having any noticeable symptoms; a person can have high blood pressure for years without knowing it (Kowalski, 2007:3).

Blood pressure is the amount of force applied by the blood on the inside of the arteries as the blood is pumped throughout the circulatory system. Each time the heart muscle contracts, blood is pressed against the walls of the arteries and is measured as systolic blood pressure (top number). When the heart muscle relaxes between beats, the pressure on the artery wall eases measured as diastolic blood pressure (bottom number) (Kowalski, 2007:3).

Perry (2002:13) states that high blood pressure usually has no warning signs and therefore people do not feel sick. Kowalski (2007:24) on the other hand clarifies this by stating that regular headache, dizziness and nose bleeds are not symptoms. These symptoms can occur with severe hypertension. According to Buckman and Westcott (2006:6) many people think high blood pressure is a mild condition, but if left untreated it can lead to a number of serious medical problems, such as heart attack, heart failure, stroke and kidney damage.

The heart has to work harder to the effect of the forceful pulsation of blood caused by hypertension and causing continuing damage to the arterial walls (Casey & Benson, 2006:10). Buckman and Westcott (2006:10) state that great force is needed to pump blood out of the heart and around the body. The walls react by thickening and losing their elasticity

and strength. Due to this effect, less blood can pass through, depriving surrounding tissues of oxygen and nutrients. Therefore, it can cause the heart to become enlarged and the arteries scarred and less elastic.

Akinboboye et al. (2002:17,381-382), confirm that hypertension is by far the most common cardio-vascular disease followed by rheumatic heart disease and cardiomiopathy, nonrheumatic heart diseases, coronary artery disease, pericardial vascular disease and pulmonary heart disease.

2.2   MEASURING OF BLOOD PRESSURE

2.2.1   Equipment

For the patient

Automatic or semi-automatic device with digital display of readings.

For the practitioner

Mercury sphygmomanometer or validated device

Instructions for the patient

- Avoid smoking cigarettes or drinking caffeine for 30 minutes before the measurement.
- Sit comfortably with the forearm supported at heart level on a firm surface, with both feet on the ground; avoid talking while measurement is taken. (Smeltzer, Bare, Hinkle & Cheerer, 2010:899).

Instructions for the practitioner

- Select the size of the cuff based on the size of the patient. The cuff size should have a bladder width of at least 40% of the limb circumference which is a length of at least 80% of limb circumference. The average adult cuff is 12 to 14 cm wide and 30cm long. Using a cuff that is too large results in a lower blood pressure measurement compared to one taken with a properly sized cuff.
- Routinely calibrate the sphygmomanometer.
- Wrap the cuff firmly around the arm. Centre the cuff bladder directly over the brachial artery.
- Position the patient's arm at the level of the heart.
- Palpate the systolic pressure before ausculating. This technique helps to detect the presence an ausculating gap more readily.
- Ask the patient to sit quietly while the blood pressure is measured, because the blood pressure can increase when the patient is engaged in a conversation.

13

- Initially record the blood pressure results of both arms and take subsequent measurements from the arm and with higher blood pressure. Normally the blood pressure should vary by no more than 5mmHg between arms.

- Record the site where the blood pressure was measured and the position of the patient (e.g. right arm).

- Inform the patient of his/her blood pressure value and what it means. Emphasize the need for periodic reassessment and encourage the patient who measures blood pressure at home to keep written record of readings.

Interpretations

Assessment is based on the average for at least two readings. (If two readings differ by more than 5mmHg), additional readings are taken and an average reading is calculated from the results (Smeltzer et al., 2010:899).

2.2.2   Early signs and symptoms of hypertension

- ringing in the ears
- dizziness
- early morning headaches
- frequent nose bleeding
- blurred vision
- flushing redness in the face

(Serfontein, 2003:198).

2.2.3   Classification of hypertension

Table 2.1: Classification of hypertension

Category	Systolic (mmHg)	Diastolic (mmHg)
Normal	Less than 120	Less than 80
Prehypertension	120-139 or	80-89
Stage 1 Hypertension	140-159	90-99
Stage 2 Hypertension	Higher than 160 or	Higher than 100

(Tortora & Derrickson, 2006:798).

14

Mild hypertension

It is when the systolic reading (upper reading) is between 140-159 mmHg and diastolic (lower reading) is between 90-99mmHg. Department of Health (2008:62).

Severe hypertension

It is when the systolic (upper reading) is 180mmHg or more and the diastolic (lower reading) is 110 mmHg or more according to the Department of Health (2008:62).

Malignant hypertension

It is a most common form of high blood pressure. Malignant hypertension is noticeable by an unusually sudden rise in blood pressure to dangerous levels, often with a diastolic reading reaching 120-130mmHg (Kowalski, 2007:7). Kowalski (2007:7) further claimed that malignant hypertension is a medical emergency that places people at an immediate risk for heart attack, stroke, heart failure, permanent kidney failure and bleeding in the brain.

2.3   TYPES AND CAUSES OF HYPERTENSION

2.3.1   Primary hypertension

It contributes to among 90% to 95% of all hypertension cases. Primary hypertension is a persistently high blood pressure that cannot be recognized by any identifiable cause (Tortora & Derrickson, 2006:798).

2.3.2   Secondary hypertension

5% to 10% of cases represent secondary hypertension. Secondary hypertension is caused by kidney disease, Cushing syndrome, pregnancies, alcohol intake and certain drugs (Serfontein, 2003:195). Once the disease has been identified and resolved or corrected the high blood pressure will disappear as well.

2.4   GLOBAL BURDEN OF HYPERTENSION

The World Health Organization is predicting an epidemic of hypertension in clinical practice; most patients with hypertension are undiagnosed, untreated, or sub-optimally treated according to Mohan and Campbell (2007:n.p.). Hypertension is responsible for more deaths worldwide than any other cardiovascular risk factor (Gaziano, Steyn, Cohen, Weinstein & Opie, 2005:n.p.). Whelton, He and Louis (2003:1) state that hypertension is an important challenge worldwide due to the high occurrence and the related increase of cardiovascular and renal disease.

About 50 million Americans have hypertension or persistently have high blood pressure (Tortora & Derrickson, 2006:798). The number of people with hypertension is expected to

15

increase due to the aging of the population (Nettina, 2006:454). Only 70% of these people are aware that they have hypertension (Beers, Porter, Jones, Kaplan & Berkwitz, 2006:604). Tortora and Derrickson (2006:798) further stated that it is the most common disorder affecting the heart and blood vessels. Nettina (2006:454) emphasized that only a few of the huge majority diagnosed with hypertension are aware that they have hypertension and are treated for it and fewer have gained sufficient control of their blood pressure. Camm, Lüscher and Serruys (2006:256) claimed that in many countries, up to 30% of adults have hypertension.

According to Sinatra, Roberts and Zucker (2007:7) nearly one third of the 10 million British people are walking around with hypertension and are not even aware of it. The first indication of trouble is a stroke or heart attack.

Loscalzo (2005:3) stated that cardiovascular disease is the leading cause of death in United States with adults, liable for approximately 40% of deaths in men and 41% of deaths in women. The mortality and morbidity rate is projected to increase in China over the next 20 years. Although the burden of infectious disease has fallen, changes in lifestyle and diet and an increase in life expectancy have resulted in a greatly increased burden of cardiovascular disease CVD and other chronic diseases(Gu, Reynolds, Wu, Chen, Duan, Muntner, Huang, Reynolds, Su, Whelton & He, 2010:n.p).

There has been no systemic evaluation of national programs to prevent and control hypertension to help countries in minimizing the burden of disease associated with hypertension (Mohan & Campbell, 2007 n.p.).

Sinatra, et al. (2007:6) emphasized that people with uncontrolled high blood pressure are seven times more likely to have a stroke, three times more likely to develop coronary heart disease and six times more likely to develop congestive heart failure. Nettina (2006:455) claimed that hypertension is one of the widespread chronic diseases for which treatment is available, however, most patients with hypertension are untreated. Recent figures have shown that only 70% of adults with hypertension are aware that they have hypertension, 59% receive treatment and only 34% reach blood pressure control (Nettina, 2006:455).

Hypertension is the most often managed problem in general medical practice in South Africa according Kowalski (2007:9). The Heart and Stroke Foundation South Africa claims that high blood pressure causes the third greatest burden of disease in South Africa. According to Kowalski (2007:9), nearly 3.3 million South Africans with hypertension which is left uncontrolled, contribute to the progression of cardiovascular disease. Kowalski (2007:22)

claimed that nearly 21% of South Africans have hypertension, that is almost 10 million men and women. Van Rensburg (2004:245) states that cardiovascular disease ranks among the top ten causes of death in South Africa.

2.5 COMPLICATIONS OF HYPERTENSION

2.5.1 Atherosclerosis

Atherosclerosis is an arterial disease manifested by a loss of elasticity and hardening of the vessel wall (Tonkin, 2003:88). Nettina (2006:444) further explained that lesions, or plaque, form throughout the arterial wall, reducing the size of the vessel and limiting the blood flow. Over a period of time, atherosclerotic lesions can completely obstruct the lumen by build-up of the plaque material and later contribute to thrombus formation (Nettina, 2006:444). Tonkin (2003:88) is further of the opinion that atherosclerosis and heart disease are the underlying causes of ischemic heart disease that represents the seventh biggest health problem in many countries, due to a variety of contributing factors such as globalization, urbanization, fall in infant mortality rates, locally economic and lifestyle changes.

This disease builds up relatively silently through late adolescence and early adulthood, and clinical outcome is often not evident until after the age of 45 years old (Loscalzo, 2005:3). Loscalzo (2005:30) further claim that atherosclerosis is a basis of great morbidity and mortality in North America and Europe.

According to Perry (2002:42) blood cells (called monocytes and platelets) and fat deposits gather at the damaged areas, forming a hard plaque that further narrows the path through which blood can flow. When the coronary arteries become narrowed by plaque and a blood clot (thromboses) forms over the narrowed artery, a heart attack follows (Casey & Benson, 2006, 10-11). It is also the most serious condition, because it causes coronary artery disease and cerebro-vascular disease. Risk factors include dyslipidemia, diabetes, cigarette smoking, family history, inactive lifestyle, obesity and hypertension (Beers et al., 2006:620).

2.5.2 Stroke

A stroke also called a cerebro-vascular accident is the onset of neurological dysfunction resulting from the disruption of blood supply to the brain. The small blood clot travels through the bloodstream and eventually blocks other vessels or the brain causing a cerebro-vascular accident (Cassey & Benson, 2006:11). Strokes can be ischemic (80%), resulting from thrombosis or embolism or hemorrhagic (20%), resulting from vascular rupture (e.g. subarachnoid or intracerebral haemorrhage) (Beers et al., 2006:1789). There is a high occurrence of stroke incidence in young adults in specific communities (Allen,2009:32,312).

17

Strokes affect 500 000 people a year in the United States of America and represent the third leading cause of death, after heart attacks and cancer (Tortora & Derrickson, 2006:517).

Untreated high blood pressure is the number one cause of stroke (Sinatra et al., 2007:8). Stroke and high blood pressure are major causes of death and disability worldwide. Although wide range stroke surveillance data for Africa are lacking, the available data show that age-standardized mortality, case fatality and occurrence of disabling stroke in Africa are the same as or higher than those measured in most high-income regions. In Africa more than 90% of patients with haemorrhagic stroke and more than half with ischemic stroke are found to have high blood pressure(Mensah,2008:n.p.).

After HIV/AIDS, heart attack, stroke and vascular disease have killed more South Africans than any other disease (Kowalski, 2007:22).

Signs of a stroke

- sudden numbness or weakness of the face, arms, or leg, especially on one side of the body
- sudden mental confusion
- sudden difficulty to speak or understanding speech
- sudden trouble in seeing in one or both eyes
- sudden trouble walking, dizziness, loss of balance or coordination
- A sudden, severe headache without any known cause (Perry, 2002:46).

2.5.3   Myocardial infarction (heart attack)

It is whereby the coronary artery narrows so much that blood is unable to get through the heart, or if an artery is blocked by a clot lodged in the narrowed arteries. Part of the heart is starved of blood and dies (Buckman & Westcott, 2006:28). A complete obstruction to blood flow in a coronary artery may cause a myocardial infarction (Tortora & Derrickson, 2006:708). Tortora and Derrickson (2006:708) further explained that an infarction means the death of an area of tissue because of interrupted blood supply.

In the United States about 1, 5 million myocardial infarctions occurs annually. This leads to the death of 400000 to 500000 people with about half of them dying before they reach the hospital (Beers et al., 2006:635).

Signs of heart attack

- uncomfortable tightness or pain in the chest
- pain that radiate from the chest to the shoulders, arms (especially the left arm) or neck

- dizziness, fainting, sweating, nausea or shortness of breath (Perry, 2002:450).

2.5.4   Heart failure

Smeltzer et al. (2010:825), defines heart failure as a condition of ventricular dysfunction. It is a change in the pumping function of the heart accompanied by typical signs and symptoms. Heart failure results when the heart is unable to produce an output of blood necessary for the needs of the body, provided the venous return to the heart is enough (Mani et al., 2009:81). Due to an overload of tissue perfusion, many patients experience pulmonary and peripheral congestion (Smeltzer et al., 2010:825). The effort of pumping out blood at high pressure, places the heart under enormous pressure. With time, in order to cope with the strain, the heart enlarges (Buckman & Westcott, 2006:26). The heart muscle becomes weak due to a variety of causes, such as scarring from heart attacks, stretching and enlargement from hypertension or other disease (Sinatra et al., 2007:6). Patients with heart failure have a poor prognosis unless the cause is correctable. The mortality rate of heart failure for the first year from 1st hospitalization is about 30 years and older. In chronic heart failure, mortality depends on the severity of symptoms and ventricular dysfunction and can range from 10 to 40% per year (Beers et al., 2006:658).

Signs of heart failure
- dyspnoea (breathlessness)
- tachypnoea (breathing rate more than 18 in men and more than 20 in women)
- inspiratory basal crackles or crepitations on auscultation of the lungs
- fatigue
- ankle swelling with pitting oedema
- raised jugular venous pressure
- tachycardia
- An enlarged liver which is often tender. (Department of Health, 2008:56).

2.5.5   Renal failure

Renal failure is classified as either acute or chronic. Acute renal failure is a rapid decrease in renal function over days and weeks, causing an accumulation of nitrogenous products in the blood (Beers et al., 2006:1980). Nettina (2006:771) further claims that acute renal failure is a syndrome of varying causation which outcomes a sudden decline in renal function. Hypertension damages the kidney arterioles causing them to thicken and consequently narrows the lumen. The blood supply to the kidneys is thereby reduced and the kidneys have to produce more **rennin** which causes the blood pressure to raise even more (Tortora

19

& Derrickson, 2006:798). **Rennin** is a hormone that is produced by the kidneys (Buckman & Westcott, 2006:11).

Signs of Kidney disease

- frequent need to urinate, especially at night
- difficulty urinating
- puffiness around the eyes and swelling of the hands and feet
- pain in the lower back
- An unpleasant taste and odour in the mouth (Perry, 2002:47).

2.5.6   Retinopathy

The part of the eyes that is mostly affected by high blood pressure is the retina. It is the nerve layer at the back of the eye that senses light and sends visual images back to the brain (Perry, 2002:47). Tortora and Derrickson (2006:584) explain that the surface of the retina is the only place in the body where blood vessels can be seen directly and examined for pathological changes, such as hypertension and other illnesses. Most studies have shown a correlation between blood pressure and retinopathy (Defronzo, Ferrannini, Keen & Zimmet, 2004:1198).

Extremely high blood pressure can cause hypertensive retinopathy that leads to blurry vision and blindness (Buckman & Westcott, 2006:26).

2.6   CONCEPTUAL FRAMEWORK

A theoretical framework is the overall conceptual underpinning of the study (Polit & Beck 2012:128). Hood & Leddy (2003:179) define a theory as a construction of ideas that explains or organizes some phenomenon, for example a nursing theory describes or explains nursing. A theory does not necessarily describe reality, but contemplate on how it might or ought to be (Cronin & Rawlings-Anderson, 2004:42). Perkins, Simnett & Wright (2002:25), further stated that theories provide a body of knowledge with some guidance which can vary both in quantity or quality. Theories and conceptual models help to stimulate research and the extension of knowledge by providing both direction and movement (Polit & Beck 2012:131). Pender's Health Promotion Model, Hood and Leddy (2003:271) suggests that a healthy lifestyle has two complementary parts, namely health-protecting behaviour and health promoting behaviour.

Health promoting behaviour includes the following:

- weight loss

20

- exercise
- salt reduction
- maintaining dietary intake of potassium
- calcium and magnesium
- cigarette cessation
- alcohol intake reduction
- stress management
- lowering of cholesterol.

The factors that are important in promoting and sustaining positive changes in lifestyle habits are not clear but some of the variables believed to be significant are the following:

- Motivation to change due to the risk involved with bad lifestyle habits.

Knowledge, considered as one of the benefit, of a healthy lifestyle, decrease complications and is a positive reinforcement (Hood & Leddy, 2003:271). Pender describes this model as "competence" or approach orientated.

Cognitive-perceptual   **Modifying**

       Participation in Health

      Factors   **Factors**

promoting Behaviour
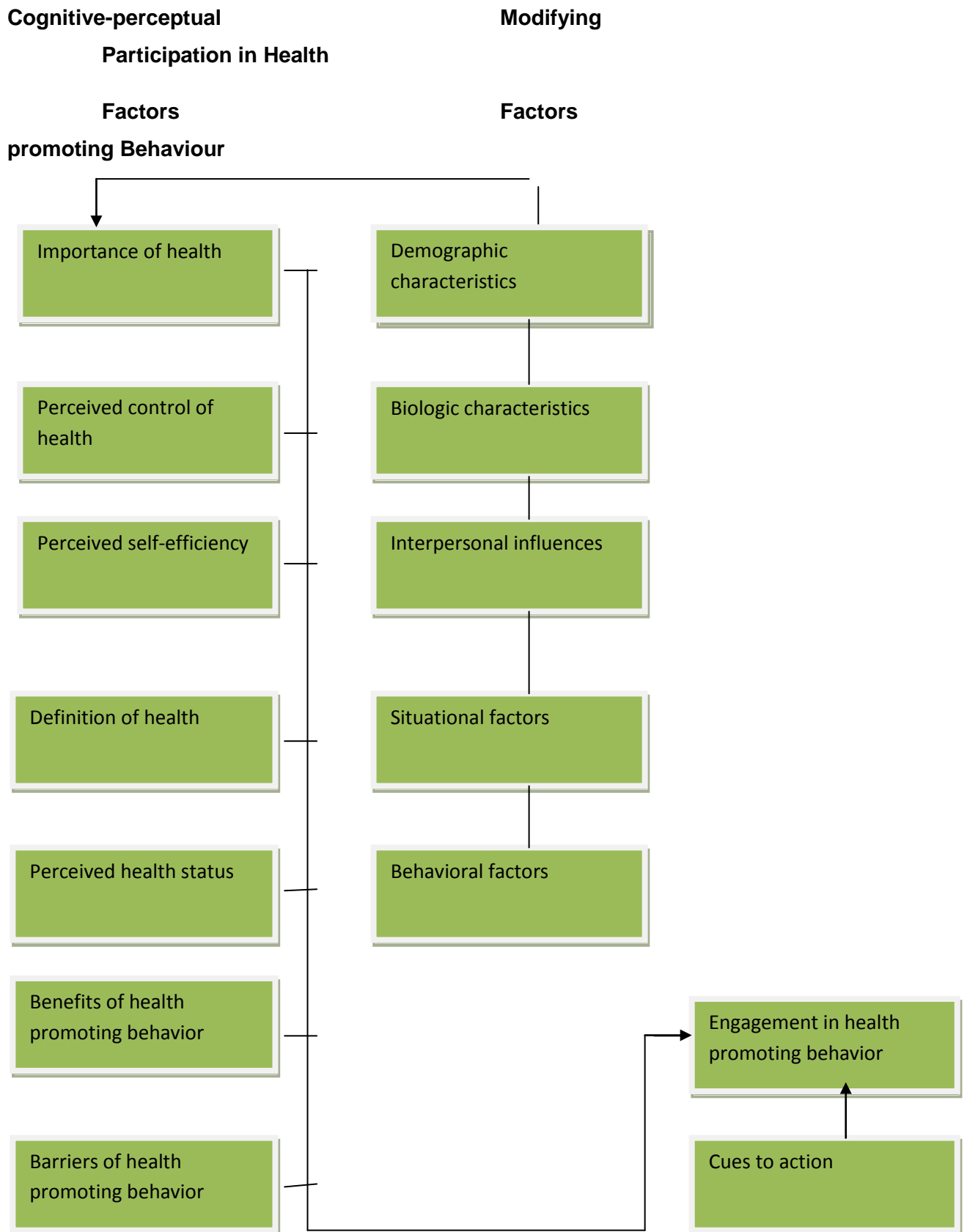
Figure 2.1: Illustration of the Pender's Health Promotion Model. (Source: Basavanthappa, 2008:228).

22

The World Health Organization defines health as not only the absence of disease but the opportunity to create well-being and to maximize human potentials mentioned (Hjelm, 2010:3). Hjelm (2010:2) further stated that health is a concept, and that concepts are ideas that brings together different elements that result in an interrelated completeness. In figure 2.1 the Pender's Health Promotion Model Illustrates the importance of health.

It is important that people take the initiative to take care of their own health. This means that health care providers need to educate people, because of their lack of knowledge of hypertension. It is these groups that end up with stroke and other complications of high blood pressure. High blood pressure, also known as the silent killer poses as a high risk factor to ignorant people. People are unaware of the signs and symptoms until they visit a health facility complaining about other health problems and are then diagnosed with hypertension.

Mani et al. (2009:72), emphasized that the patient must understand that hypertension is a chronic disease. If it is left untreated, hypertension can damage major organs and even cause death. Engagement in health promoting behaviour to one's benefit is important to ensure good health. Therefore, intensive education is needed to educate people regarding their lifestyle habits. Although they may have some knowledge of the complications of hypertension they are not necessarily practising good lifestyle habits. The health promotion model illustrates the function of identifying ideas relevant to research findings in such a way as to assist in the generation of testable hypothesis. The model is linked to behaviour, health and quality of life (Basavanthapa, 2007:386, 228).

2.7   RISK FACTORS

There are certain risk factors that we have no control over such as: genetics, age, gender and race according to Casey & Benson, (2006:14-15).

2.7.1   Genetics

Individuals with close family members who either have hypertension or have suffered strokes or heart attacks at a young age, should be subjected to regular blood pressure monitoring (Perry, 2002:25).

Perry (2002:25) further stated that 30 to 60 percent of all cases of high blood pressure may be inherited. Buckman and Westcott (2006:23) states that if both parents have high blood pressure it is most likely that their children will also suffer from the disease. Camm et al. (2006:280) are of the opinion that biological inheritance contributes to the pathogenesis of hypertension; there is often a family history of high blood pressure in hypertensive patients.

A number of changes in the genes instructed for main blood pressure controlling systems has been identified in humans (Camm et al ., 2006:280).

2.7.2   Age

Blood pressure rises steadily between the ages of 20 and 40. After this, it tends to increase rapidly with aging (Buckman & Westcott, 2006:22). Camm et al.(2006:257) further stated that blood pressure increases with age, except where salt intake is low, physical activity is high and obesity is not present. The rise of blood pressure has been observed in many populations around the world according to (Whelton, et al.,2003:35). When people age, the greater their risk of developing high blood pressure if they live in a developed country (Perry, 2002:230). Houston (2012:113) further stated that as a person ages, the cardiovascular system also ages.

2.7.3   Gender

Women have a slightly lower blood pressure than men during their 20s and 30s, but may develop it through hormonal changes (Buckman & Westcott, 2006:22). The connection between gender and hypertension is modified by age. In young adults, the occurrence and incidence rates of hypertension are higher in men than in women (Whelton et al., 2003:8). Houston (2012:114) also echoed that heart disease routinely targets males more often than females until menopause, when the risk become even.

2.7.4   Race

In adults, studies have shown that hypertension occurs more often in Blacks (32%) than in Whites (23%) (Beers et al., 2006:604). Kowalski (2007:23), also states that race plays a definite role in hypertension. He further states that black people are more affected than any other race group and that high blood pressure occurs at a much earlier age in black people (Kowalski, 2007:23). They also are prone to malignant hypertension, which is a serious medical condition that places people at risk of myocardial infarction, cerebro-vascular accidents, heart failure and permanent kidney damage, according to Casey & Benson (2006:8).

In a Manhattan stroke study in the United States of America, black people were found to be twice more at risk than white people (Allen, 2009:32,312). Buckman & Westcott (2006:22) also echoed that black Africans, African-Caribbean people who live in Europe and African-Americans have a higher risk. This may be somewhat correlated to the way the body handles salt. A large number of patients have primary (essential) hypertension according to Akinboboye, et al.(2003:381-382).

24

2.8   RISK FACTORS THAT CAN BE CONTROLLED

2.8.1   Obesity

Obesity is defined as a severe excess of body fat (Beers et al., 2006:56). It is defined as being heavier than 20 percent of the ideal body weight and identified by overeating (Casey & Benson, 2006:16). Figures show that more than one billion adults worldwide are obese, according to (Kruger et al., 2005:491). Nearly two-thirds of all American men and women are overweight or obese. According to Agus (2012:49) obesity in adults and children, male and female, has doubled over the past forty years, with the highest occurrence since 1980. Obesity is closely linked to hypertension. Countries which are mostly affected are China, Brazil and South Africa. Kruger, et al. (2005:491) and Camm et al. (2006:260), further claimed that obesity and conditions related to obesity are the main determining factors of cardiovascular morbidity in Europe and world-wide. A study done in South Africa (SABC 2, 7 0' clock News, 2010) revealed that South Africa is the third highest country with people that are overweight. The report further stated that in South Africa 62% of people in the Western Cape are overweight.

Obesity is often associated with essential hypertension as stated by Opie (2004:455). The greater the body mass, the more blood is needed to supply oxygen and nutrients to the muscle and other tissues. It also increases the number and length of blood vessels and increases the resistance of blood that has to travel longer distances through those vessels (Opie, 2004:455). Obesity causes the heart to struggle to supply the excess tissue with blood. Obesity and its complications cause as many as 300 000 premature deaths each year, making it second to cigarette smoking as a cause of death. (Beers et al., 2006:56).

Body mass index

It is calculated as the weight in kilograms divided by the height in meters squared (kg/m2). Charts are available to assist with calculations. Classifications are as follows:

- underweight (<20)
- normal (20-24)
- overweight (25-30)
- obese (>30)

(Mash, Blitz, Kitshoff & Naudé, 2010:10).

2.8.2   Sodium and salt intake

Sodium and salt intake remain controversial as risk factors for hypertension, while it is true that some individuals are particularly sensitive to sodium. Sodium is one of the minerals, or

electrolytes that affect blood pressure (Kowalski, 2007:24). Sodium chloride is the chemical name for salt (Buckman & Westcott, 2006:53). Kowalski (2007:24) is also of the opinion that sodium causes the body to retain extra fluid. It means that the heart has to work harder (Casey & Benson, 2006:56). The chloride in sodium increases the re-absorption of sodium in the kidneys, causing sodium to build up in the blood (Serfontein, 2003:207). Camm et al., (2006:257) are of the opinion that most natural foods contain salt; processed food may be high in salt and individuals add more salt to their food to make it tasty.

The more sodium in the blood the more the blood volume increases. Sodium tends to hold unto water; therefore the heart has to work harder to move the increased volume of blood through the blood vessels, causing increased pressure on the arteries (Perry, 2002:97).

2.8.3   Inactivity

Inactive teenagers are more likely to have high blood pressure (Science daily, 2007:n.p). Inactive young adults tend to have higher rates because their heart muscle does not work efficiently and therefore has to work harder to pump blood. Furthermore, physical activity is also a vasodilator and allows the blood to circulate faster (Kowalski, 2007:23-24). A stronger heart pumps blood more efficiently according to Casey & Benson (2006:17). A study done in the Western Cape documented that factors such as air pollution, heavy metals and infectious agents, prevent South Africans from partaking in physical activities (Kruger, et al., 2005:483).

2.8.4   Heavy alcohol intake and smoking of cigarettes

Camm et al. (2006:797) claimed that around 1,1 billion people smoke worldwide and it is expected that by 2025 this number will increase to more than 1,6 billion, with lower income groups being over-represented. Alcohol consumption contributes to 5-25% of essential hypertension (Serfontein, 2003:213). Vasoconstrictive effects, caused by smoking cigarettes are likely to increase blood pressure swings (Opie, 2004:455). Houston (2012:110-111) explains that smoking increases the tendency of blood clotting, raised blood pressure, introduces free radicals and harm the cardiovascular system with no limitation..

According to Biddulph (2003:35), young people between the ages twelve to sixteen who drink alcohol have higher blood pressure than non-drinkers. High blood pressure can lead to health problems, most notably strokes and aneurysms caused by the rupture of blood vessels in the brain. Biddulph (2003:35) further stated that adolescents who drink heavily presumably have the same long-term health risks as adults who drink heavily. Many studies have associated excess alcohol intake to hypertension.

The amount of people who indulge in cigarette smoking has increased by over 40% over the past two decades (Akinboboye, et al., 2003:17,381-382). Smoking is a very intense habit. Farrington (2002:12) explains that inside every tobacco leaf there is a substance called nicotine which is extremely addictive. Nicotine is known to stimulate the adrenals, which results in increased catichol amine (adrenaline) secretion. This is the reason for hypertensive patients to make every effort to quit smoking.

2.8.5   Stress

Stress is another controversial subject. Kowalski (2007:24) states that stress increases the heart rate and blood requirements and can raise blood pressure over a period of time, and precipitate heart attack and stroke. Opie (2004:479) echoed that central stress leads to raised hypothalamus and medullary centre activity and the increase of adrenaline gives rise to a series of events, namely myocardial oxygen uptake, tachycardia, increased contractility and an increased cardiac output. As the stress level decreases, so does the blood pressure.

2.8.6   Hyperlipidaemia (high serum cholesterol)

Hyperlipidaemia refers to a group of metabolic abnormalities resulting in combinations of raised serum cholesterol. (Nettina, 2006:395). Lipids are fats that are absorbed from food or synthesized by the liver. All lipids are hydrophobic and mostly impossible to dissolve in blood (Beers et al., 2006:1295).

Hyperlipidaemia is a major risk factor for coronary artery disease in adults, according to Akinboboye, et al. (2003:17, 381-382). It assists in the manufacturing of bile acids that play a role in digestion and absorption. Inflammation and thickening of the arterial walls encourage a build-up of debris that consists of fats (Casey & Benson, 2006:10, 64). Atherosclerotic plaque formation in the blood causing narrowing and, possible ischemia that may lead to thromboembolus formation, which result in cardiovascular, cerebrovascular, and peripheral vascular disease Nettina (2006:395).

2.9   LIFE STYLE MODIFICATION

Lifestyle methods should be initiated whenever appropriate in all patients, including patients with high/normal blood pressure and those who require treatment (Camm et al ., 2006:282). Adult health is mostly affected by three factors, namely environmental impacts, risk behaviour to the lingering effects of health, or ill health brought into adulthood from childhood. Van Rensburg (2004:239) states that chronic diseases of lifestyle account for 70% of all mortality in the United States of America. The following are national mortality statistics narrated by (Serfontein, 2004:6).

Table   2.2: National mortality statistics

Lifestyle	51%
Environment	20%
Genetic factors	9%
Medical intervention	10%

Lifestyle and environment are the two main factors which play an important role and the two are reversible. Camm et al. (2006:257) claim that blood pressure can be reduced by either lifestyle intervention or by anti-hypertensive medication.

Regardless of advances in treatment, cardiovascular disease (CVD) is projected to be the leading cause of death and disability worldwide by 2020. Among the risk factors for CVD, hypertension is responsible for more deaths than any other factor, including cholesterol, tobacco, body mass index, and physical activity (Gaziano et al., 2005:n.p.)

Monitoring patients with chronic conditions for example, high blood pressure or high cholesterol is a common reason for repeat visits to health care facilities. Achieving optimum hypertension control to prevent hypertension-associated CVD has been a substantial challenge. There are multiple reasons for lack of hypertension control, including health care system features, as well as patient and doctor features (Mohan & Campbell, 2007: n.p.).

Although the burden of infectious disease has shrunk, changes in lifestyle and an increase in life expectancy have resulted in a greatly increased burden of cardiovascular disease and other chronic diseases. Van Rensburg (2004:243) explains that for decades cardiovascular diseases have been a major cause of morbidity and mortality among white South Africans, but it is also increasingly emerging as an important health concern in other racial groups.

2.9.1   Weight loss

When trying to lose weight it is important to put fewer calories into the mouth. It is necessary to watch what a person eats. Buckman and Westcott (2006:50-51) state that it must be emphasized that losing weight will help to lower blood pressure. Casey and Benson (2006:174) echoed that controlling weight is an important factor in preventing and treating blood pressure.

Calorie-enriched food, are the following: potatoes, fish, oatmeal, oranges, apples, whole-wheat pasta, grapes, air-popped popcorn, bran cereal, vegetable soup (Perry, 2002:82). Drinking a glass of water half an hour before a meal can help to minimize the appetite (Perry, 2002:84). Cut down on fat; in particular fatty meat and; full-fat dairy products such as pork, pies, sausages, burgers and cheese (Buckman & Westcott, 2006:52).

Intervention should focus on education and in addressing environmental and social factors to promote and support behavioural changes.

Increase physical activity by adding 45-80 minutes of moderate to vigorous activity for most of the days.

Sustainability of programs is crucial to ensure a positive change in diet, activity and obesity levels over time. Reasonable weight goals that are individualized, realistic; and maintainable contribute to general well-being.

2.9.2 Exercise

An intensive exercise program is known to reduce heart rate and blood pressure according to Whelton et al. (2003:332). It is important to keep up the exercise program even if the blood pressure lowers. The patient must be encouraged to do moderate regular exercise, for example 30 minutes of walking 3-5 times a week. (Mani et al., 2009:72). Activities can vary to add interest to the exercise, for example a walk three days a week and swimming, cycling, playing tennis or some gardening (Buckman & Westcott, 2006:66).

2.9.3 Reduce salt intake

Processed foods such as burgers, sausages, salted snacks, canned vegetables and meats, stock cubes and ready-made meals contain a large amount of salt. It is therefore necessary to avoid these foods (Buckman & Westcott, 2006:52). Smeltzer et al. (2010:894), emphasized that it is necessary to explain to the patient that it takes 2 to 3 months for the taste buds to get used to changes in salt intake.

Federal guidelines recommend the reducing of sodium intake to less than 2 300 milligrams (mg) per day for all Americans (that is about the amount of one tablespoon of table salt) and less than 1 500 mg for people with hypertension (Casey & Benson, 2006:17). Houston (2012:90) further stated that not everyone is sodium sensitive, but it is good to limit one's daily intake to 1 500 mg a day.

29

2.9.4   Maintain dietary intake of potassium, calcium and magnesium

Whelton et al. (2003:371), Casey and Benson (2006:176) and Perry (2002:102) all agree that higher potassium intake seems to have cardiovascular protective effects. A high intake of potassium can offer protection against developing high blood pressure, and a low intake can increase blood pressure. Taking potassium supplements can lower the blood pressure by creating a healthy sodium balance in the cells. Omega-3 fatty acids put forth cardio protective effects via multiple mechanisms (i.e. decrease production of cytokines and mitogens, stimulate endothelial-derived nitric oxide and are anti-thrombotic) advise that they could account for the cardio protective effect observed in trials done (Camm et al. 2006:797).

Patients who are on diuretics and ACE inhibitors should be careful with their potassium intake, because they are at risk of developing heart problems. Perry (2002:103) emphasizes that   food which contains potassium, calcium and magnesium are fresh fruit, dairy products, vegetables and nuts. Foods high in potassium and low in sodium include bananas, potatoes, beans, cantaloupes and yoghurt (Casey & Benson, 2006:176).

2.9.5   Cigarette smoking strategies

Camm et al. (2006:797), claimed that to quit smoking should be a primary objective of medical treatment for people who smoke, especially as most smokers who require treatment are dependent on tobacco. Effective intervention requires 3 core components which include counselling, drug therapy (in patients without contra-indications), and consistent identification of and intervention with smokers because smoking often causes intense withdrawal symptoms, which is primarily a craving for cigarettes (Beers et al., 2006:2734). Suggestions that may be helpful to quit smoking are to:

- keep the benefits of quitting in mind
- take it one step at a time
- ask the doctor about nicotine patches and other aids
- enlist the support of family and friends
- avoid situations in which you routinely have a cigarette. Change the routine to break the habit (Buckman & Westcott, 2006:59).

2.9.6   Minimize alcohol intake

Alcohol is absorbed into the blood from the small bowel. It is accumulated in blood because absorption is more rapid than oxidation and elimination. About 5 to 10% of ingested alcohol is excreted unchanged in urine, sweat and respiration, the remainder is oxidized to CO2 and water at a rate of 5 to 10ml/h. Alcohol depresses the central nervous system (Beers et al., 2006:1685).

The Current World Health Organization-International Society of Hypertension guidelines recommend that hypertensive patients who drink alcohol should limit their intake to between 20g to 30g for men and 10g to 20g for women, which is the maximum of approximately two standard drinks per day for men and 1.5 drinks per day for women (Whelton, et al., 2003:179). People must remain at sensible drinking levels and avoid binge drinking to maintain lower blood pressure and the reduced risk of having a stroke or heart attack (Buckman & Westcott, 2006:55).

2.9.7 Manage stress

In these busy times some people seem to have no time to relax (Buckman & Westcott, 2006:61) advise that people should engage in active hobbies such as gardening, dancing, walking along the beach or to sweat out tension with good aerobic exercise. These exercises might help in taking minds off from worrying situations. Stress definitely plays a role in high blood pressure (Casey & Benson, 2006:17).

Maccaro (2003:289-290) stipulates the following measures to minimize stress:

- Simplify your life. Take inventory of how you spend your time, money and energy, and determine whether you really want or need everything you currently invest in. Can you let go of anything without sacrificing personal or family happiness? Cut unnecessary stressful activities out of your life. Say no the next time you are to take on a new responsibility if you are already overextended from doing too much.

- Get enough sleep. Most people don't. If you have trouble falling asleep, an evening routine can help you. Don't drink caffeine or exercise late in the day, keep to a regular bedtime, adjusting it with no more than an hour on weekends.

- Eat well. Besides choosing healthy foods, make mealtimes a pleasant social encounter. Celebrate family time by making menu planning, table setting and cooking together, family activities.

- Exercise. It triggers chemical reactions in our bodies, it enhances our moods, it makes us more fit to handle physical challenges, and it doesn't have to be structured. Look for opportunities to move- park further from your destination for a longer walk, take the stairs instead of the elevator and toss a ball with your family in the backyard.

- Have fun. Keep a good balance between work and play and between solitary and group activities. Sometimes we need time alone to gather our thoughts, sometimes we need people around to hug, listen to or share with us.

- Maintain a support system. Make sure your schedule allows for time with loved ones. Think of recreational activities you can do with friends or family that don't cost much. If

31

you struggle with a disease or circumstances such as single parenthood, join a support group.

- Meditate and pray. Find ways to focus energy on a meaning and purpose beyond your everyday life.

- Keep your sense of humour. Laughter releases tension. Look for the funny side of life.

- Be assertive. Don't bottle up negative emotions and experiences. When you have a difficult message to deliver, describe the situation, express your feelings, specify your wants and talk directly to the person involved. Write it down first or practice verbally if that might help.

- Be creative. Indulge in enjoyable hobbies, whether it is painting, gardening, dancing, writing in a journal or singing in a church choir.

- Give something of yourself. Finding a way to help someone in need is the best way to remind ourselves to be grateful for what we might take for granted.

- Pamper yourself. It doesn't cost much to relax in a warm bubble bath, a foot bath while reading the mail or a series of family back rubs.

2.9.8 Lowering of cholesterol

Lowering of blood LDL-cholesterol is the main purpose of dietary treatment of people who are at high cardiovascular risk, aiming at less saturated and trans fatty acid intake, and, to a smaller degree, food cholesterol intake (Camm et al., 2006:259).

Ideal cholesterol levels:

- triglyceride levels: 170-200 mg/dl

- cholesterol: 140-165 mg/dl

- LDL: 30-50 mg/dl

- HDL: 80-90mg/dl

- higher than 244 mg/dl means increased risk of heart attack.

Avoid or limit red meat, fried foods, full-fat dairy foods, sugary and refined foods. Add the following to your diet: garlic, high-fibre foods, fruits and vegetables, soy foods, olive oil, yoghurt and beans. Have a glass of red wine with dinner to reduce stress (Maccaro, 2003:157).

2.10 DRUG TREATMENT

Schellack (2004:5) explains that drugs are chemical substances that influence physiological or mental processes in the body. When used with caution, drugs will display their beneficial biological effects in the presence of physical or mental illness. Treatment is defined as the use of any antihypertensive medication (Erem, Harchasanoglu, Kocak, Deger & Topbas,

2008:47-58). The patient needs to understand the disease process and how lifestyle changes and medication can control hypertension (Smeltzer et al., 2010:894).

An optimal hypertension study has shown that people over the age of 65 with high blood pressure respond better to hypertension treatment than younger people to hypertension. (Kowalski, 2007:38). Safe, effective and inexpensive treatment options are available for the management of hypertension. Control rates for people with hypertension are below 30% in most countries according to Jones & Hall, (2007 n.p.).

The good blood pressure lowering value of diuretics and calcium channel antagonists in hypertensive black patients are connected to their characteristic volume expansion, salt sensitivity and low rennin profile (Khan & Beevers, 2005 n.p.). Khan and Beevers (2005 n.p.) further claim that hypertension is linked to significant morbidity and mortality, some of which can be reduced with effective blood pressure lowering. The management of hypertensive patients from ethnic minorities should identify their different responses to drug treatment, the predisposing factors and the cardiovascular consequences of hypertension.

Mild hypertension

It is a condition where there are no risk factors. If there is a poor response to lifestyle modification measures after 3 months, drug therapy must be initiated.

Severe hypertension

Drug treatment must immediately start Initiate treatment at step 1 and 2.

Malignant Hypertension

In systolic blood pressure above 240mmHg and diastolic blood pressure above 140mmHg without symptoms of target organ damage, initiate treatment at step 3.

2.10.1   Drug details

Give average doses of the drugs listed in the steps below until Step 5 is reached.

Step 1

Use hydrochlorothiazide (HCTZ) 12, 5 mg daily.

Contra-indications: pregnancy, severe liver failure and renal failure.

	Average dose	Maximum dose
HCTZ	12, 5 mg daily	25 mg daily

Step 2

Add an ACE-Inhibitor e.g. Perindopril, Enalapril

	Average dose	Maximum dose
Perindopril	4 mg daily	8mg daily
Enalapril	10 mg daily	10mg 2x daily or 20 mg daily

Contra- indications: pregnancy, aortic valve stenosis, angio-oedema with previous use of ACE-inhibitors.

Note: Should women become pregnant while receiving an ACE-inhibitor, the treatment must be stopped immediately.

It is preferable not to use it in women of child-bearing age, unless no suitable alternative is available.

Step 3

Add a long-acting dihydropyridine calcium antagonist e.g. Amlodipine (Norvasc,) Nifedipine SR (Adalat XL)

	Average dose	Maximum dose
Amlodipine	5 mg daily	10 mg daily
Nifedipine SR	30 mg daily	60 mg daily

Calcium antagonist contra-indication: untreated heart failure

Note: Patients who are not controlled on Step 3 medication should be reassessed, and a possible cause looked for. For example:

- poor compliance
- stress or alcoholism
- secondary factors causing hypertension including renal disease and anaemia.

Refer if you suspect a secondary cause.

Step 4

Add Atenolol 1 tab (50 mg) daily

	Average dose	Maximum dose
Atenolol	50 mg daily	50 mg daily

Contra- indications: asthma, COAD, bradycardia, heart failure, peripheral vascular disease.

Step 5

Give maximum doses of the drugs used from the above steps e.g.

HCTZ 25 mg daily

plus

Enalapril 20 mg daily

plus

Amlodipine 10 mg daily

plus

Atenolol 50 mg daily (Mani et al., 2009:73).

2.10.2   Choice of antihypertensive drug class

Drugs	Indications
Diuretics	Old age
	Black race
	Heart failure
	Obesity

The thiazide diuretics, example Hydrochlorothiazide is considered to be the first line antihypertensive drug, however, it is not the primary reason for the utilization in the treatment of hypertension, but rather due to its effect on vascular smooth muscle. (Schellack 2004:155).

B-Blockers	Youth
	White race
	Angina pectoris
	Atrial Fibrillation (to control ventricular rate)
	Essential tremor
	Hyperkinetic circulation
	Migraines
	Paroxysmal supraventricular tachycardia
	Post MI (cardio protective effect)

Schellack (2004:155) explained that The B-blockers reduce the cardiac output. They also inhibit rennin secretion, which in return inhibits the formation of angiotensin ii, and also the secretion of aldosterone by the adrenal cortex.

Long-acting Ca channel blockers   Old age

	Black race
	Angina pectoris
	Arrhythmias (e.g. Arterial fibrillation paroxysmal
	Supraventricular tachycardia)
	Isolated systolic hypertension in elderly patients
	(Dihydrodropyridines)
	High CAD risk (nondihydropyridines)
ACE: inhibitors	Youth
	White race
	Left ventricular failure due to systolic dysfunction
	Type 1 diabetes with nephropathy

Severe proteinuria in chronic renal disorders or diabetic glomeulosclerosis

Impotence due to other drugs

These drugs counteract or inhibit the effects of angiotensin ii (Schellack 2004:155).

Angiotensin II receptor	Youth
Blockers	White race
	Conditions for which ACE inhibitors are
	indicated but not tolerated because of cough
	Type 2 diabetes with nephropathy.

(Beers et al., 2006:608).

2.11   Conclusion

In this study the emphasis is on the prevention of the complications of hypertension, identifying the risk factors, lifestyle modification and drug treatment. In relation to the Pender Health Promotion Model whereby Pender suggests that a healthy lifestyle has two complementary parts, namely health protecting behaviour and health promoting behaviour. It is important to understand and follow the instructions clearly for drug treatment to be effective. Before leaving the doctor's surgery or health care facility the patients must make sure that they know what the drug has been prescribed for and what side effects they can expect (Buckman & Westcott, 2006:40).

Effective control of hypertension prevents most complications and prolongs life (Beers et al., 2006:608). This knowledge is important for patients in order to make informed decisions about their lifestyle, their medication usage and the outcome and management of their health condition in general. This knowledge is also important for the health care provider to see where the short comings and myths regarding hypertension lie, in order to address this by very specifically directed health promotion programs.

CHAPTER 3:   RESEARCH METHODOLGY

3.1   INTRODUCTION

A research method is used to arrange a study and to assemble and analyze information in a systemic fashion (Polit & Beck, 2012:741). Chapter 3 includes a description of the specific techniques that were applied, the specific measuring instruments utilised and the specific events of activities that were conducted in making the measurements (De Vos et al., 2005:118). In this chapter the researcher described the methodology followed in this research study.

3.2   RESEARCH QUESTION

A research question is a brief, probing statement that is phrased in the present tense and includes one or more variables (Burns & Grove, 2007:115). A clear researchable question is the key to the researcher's data collection and analysis. The research question for this study is:

Do the young adult patients, visiting Kayamandi Clinic, have the knowledge of hypertension and its management in order to prevent complications of the disease?

3.3   GOAL

The goal of the present study was to explore the knowledge young adult patients have of hypertension.

3.4   THE OBJECTIVES

The objectives of this study were to determine the knowledge young adult patients have of:
- Hypertension
- The management of hypertension
- The complications of hypertension

3.5   RESEARCH DESIGN

This study followed a descriptive, exploratory design with a quantitative approach. A research design is the overall plan for addressing a research question, including requirements to establish the study integrity (Polit & Beck, 2012:741). Polit and Beck (2012:49) further explain that the research design also show how often data will be collected. De Vos et al. (2005:132) define the research design as a plan that is focused on the end product, prepare a research problem as a kickoff point, and focus on the logic of the research.

38

A descriptive research according to Burns and Grove (2007:24) is an exploration and description of phenomena in real life situations. Polit and Beck (2012:226) further state that the purpose of a descriptive study is to observe, describe, and document aspects of a situation as it naturally happens and sometimes to serve as a kick-start for hypothesis generation or theory development. The research question determines the research design or approach. In this case a broad overview was necessary of the knowledge of young adults at Kayamandi Clinic on the topic of hypertension. This then serves as a platform for further in-depth studies on this phenomenon. The study was carried out at Kayamandi Clinic in Stellenbosch. Questionnaires were distributed to the participants and were answered anonymously with no proof of identification written on the questionnaire. The questionnaires were collected after completion thereof on the same day by the researcher. The questionnaires were straightforward, simple and unambiguous and the purpose was to determine the knowledge young adults have of hypertension.

3.6 STUDY POPULATION

A population is a complete group of people who hold some common characteristics that is of value to the researcher (Brink et al., 2006:206). Polit and Beck (2012:273) further explained that a population is the whole total of cases in which the researcher is interested.

At Kayamandi Clinic, up to 600 patients were on antihypertensive treatment per month, of which 214 represent young adult patients between 18 to 40 years, 186 between 40 and 60 years and 200 over 60 years of age.

3.7 STUDY SAMPLE

It is a division of the population that represents the population as a whole (Brink et al., 2006:207). The study sample was used in the following method:

A purposive sampling was used. In a purposive or judgemental sampling the researcher's knowledge about the population is to select sample members (Polit & Beck, 2012:279). It was on purpose to choose the participants with hypertension who attended the clinic from Mondays to Fridays. The study sample consisted of n=210 participants between 18 and 40 years who were targeted for this study over a 4-6 weeks period. Young adult males and females were included. The participants that were included were patients that attended the clinic on a daily basis from Monday to Friday. The idea of including both male and female participants is because hypertension affects both genders.

Table 3.1 shows the number of patients attending Kayamandi Clinic from January to December 2009.

Table 3.1: Patients attending Kayamandi Clinic – Jan – Dec 2009

	Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Total patients per month	240	173	207	151	172	316	162	154	326	340	315	222

Table 3.7.1 represents the young adults between 18 and 40 years who attended the Kayamandi Clinic between January and December 2009. 79, 8% of the questionnaires were returned.

3.8   INSTRUMENTS

3.8.1   The questionnaire

An instrument or tool, according to Brink et al. (2006:53), is a guide to establish which route to follow to gather data. A self-administered questionnaire was used to collect data for this study. The questionnaires were handed out to the participants who completed it on their own. The researcher and the interpreter were available in case there were any difficulties or problems that the participants might encounter.

3.8.2   The design of the questionnaire

A yes/no scale was used to collect data. The questionnaire was designed in such a way that the participants could understand all the questions. The layout of the questionnaire was easy and the questions were straightforward and simple. The questionnaires were written in English, Xhosa and Afrikaans. After the translation of the questionnaires, a second person scrutinized it for the correctness of the Xhosa translation.

The questionnaire had the potential to determine the participants' knowledge of hypertension, as well as the participants' knowledge of factors that may influence lifestyle changes and complications of the condition. The researcher consulted literature, as well as a statistician and a research methodologist, regarding the final construction of the questionnaire.

The questionnaires were handed directly to the participants with clear instructions of how to complete it. The importance of completing the questionnaires was emphasized. According to Cluett & Bluff (2007:105), if a participant understands the importance of the study and how

40

the data will be analyzed and used, they will participate more willingly. A total of 210 questionnaires were distributed and 172 were completed correctly. 38 (18%) of the questionnaires were spoil.

3.8.3   Types of questions

The questionnaire consisted of 62 questions. Close-ended questions with yes or no answers were provided. A close-ended question, Polit & Beck (2012:298) is whereby the participants make a choice between two response alternatives, such as yes/no. Dichotomous questions are especially suitable for gathering factual information (Polit & Beck, 2012:298). The questionnaire is constructed in sections. Section A is a build-up of   the sosio-graphic layout which is age, race group, qualification, and home language and disease questions. Section B pertains to the knowledge and attitude concerning hypertension. It included conditions of diseases, lifestyle and complications of hypertension.

3.8.4   Data collection

The target population were patients attending Kayamandi Clinic to collect their chronic medication on a daily basis at the clinic. The participants were given a questionnaire by the researcher who was assisted by an interpreter. An interpreter was necessary to handle issues that might arise with the completion of the questionnaire because the researcher is not Xhosa-speaking.

3.8.4.1   Cronbach Alpha

Polit and Beck (2012:724) explain that the Cronbach's alpha test as a widely used reliability index that estimates the internal consistency of a composite measure composed of several subparts also called the coefficient alpha.

3.8.4.2   Spearman rho

It is a correlation index for ordinal-level data (Polit & Beck, 2012:392). Polit and Beck (2012:743) further state that a correlation coefficient show the magnitude of a relationship between variables measured on ordinal scale.

3.9   ETHICAL CONSIDERATION

Informed consent was obtained from each   participant. Permission from the University of Stellenbosch was obtained via the Health Research Ethics Committee (HREC). Permission was also obtained from the director: Department of Health, Western Cape Province and the authorities of Kayamandi Clinic. The four principles of the healthcare ethics were adhere to namely, Autonomy-respect people's right to exercise their freedom. Beneficence-do good

and no harm. Non-maleficence-avoid doing harm. Justice-treat all people fairly. All data were considered as confidential. The participants were treated with dignity and respect. Participation was voluntary and participants could withdraw from the study at any stage. The participants benefitted from the study that means hypertension and it's complications were identified and managed with the help of the participants.

3.10   PILOT STUDY

A pilot study consist of a small number of participants drawn from the same population as the main study.   A pilot study was done before the main study commenced, in order to improve the questionnaires. This is in agreement with research done by Burns and Grove (2007:49). During the pilot study the researcher identifies and addresses some problems by gathering information for improvement of the project, according to Brink et al. (2006:54). The instrument was adapted where necessary after the pilot study. Twenty- one participants (10%), were used in the pilot study. The participants used in the pilot study were excluded from the main study. The pilot study was conducted at Cloetesville Community Health Centre, the nearest other institution where chronic diseases are treated in the Stellenbosch District. This ensures participants from the same population group, culture and community.

3.11   DATA ANALYSIS AND INTERPRETATION

A statistician from the University of Stellenbosch was consulted regarding the data analysis and the interpretation of the data. Data were articulated in the form of frequencies, histograms, and tables and scatter plots.   MS Excel was used to capture the data. The statistician used the STATISTICA data analysis software system (Stat Soft Inc: 2008). Statistical associations were determined. The normal descriptive statistical analysis was completed.

No individual was identified. All data were reported in the form of statistics, tables, and histograms.

Copies of the research results will be given to the University of Stellenbosch. The findings of the research will also be forwarded to the Department of Health.

3.12   CONCLUSION

The various steps for research methodology adopted for this study were sketched out. The research design target population and the research process were discussed. The research objectives, research instrument, data analysis, pilot study and ethical consideration for this study were highlighted.

CHAPTER 4:   DATA ANALYSIS, INTERPRETATION AND DISCUSSION.

4.1   INTRODUCTION

Chapter 4 represents, interprets and discusses the results of the analysed study data. It provides the results of the study. The study was primarily quantitative and descriptive. As found in the findings, the focus of the study was on descriptive statistics, including histograms, frequency tables and scatter plots. A frequency distribution table was created from the histogram charts.   In the statistical test a Spearman RHO test was done to determine the outcome of the study. A significance level of 5% was used (with a p-value of ≤0.05) in order to determine the statistical significance between variables.

4.2   PRESENTATION OF DISCUSSION OF THE STUDY FINDINGS.

4.2.1   Section A: Socio-graphic

Question 1:Age

Table 4.1: Frequency table – age range

Age in years between 18-40 years old	Frequency	%
18	3	2%
20	2	1%
22	3	2%
24	6	3%
26	9	5%
28	20	12%
30	21	12%
32	22	13%
34	17	10%
36	27	15%
38	22	13%
40	20	12%
Total	172	100%

Table 4.1:   The age group ranged between 18 to 40 years old. The age group with the highest occurrence was those of the participants who were 36 years old and the lowest were 20 years old. The study showed that the participants whose age group range from 18 years to 26 years of age were in the lowest range, whist the participants with hypertension with the highest score are from 28 years of age to 40 years of age which means that the last-mentioned age-group need a lot of education about the condition of hypertension, complications of hypertension, as well as the management of hypertension. Young adulthood is the period between 17 and 40 years old (Hutchison, 2012:273). The mortality rate of heart failure for the first year from 1st hospitalization is about 30 years and older. In chronic heart failure, mortality depends on the severity of symptoms and ventricular dysfunction and can range from 10 to 40% per year (Beers et al., 2006:658).

Question 2: race

Table 4.2: Shows the results obtained for the race group

Race group	Frequency	%
African	166	97%
Coloured	6	3%
Total	172	100

Table 4.2 shows that n= (166) 97% were African people and n= (6) 3% were Coloured people. The numbers representing the two race groups in the table above are because of the study which was done in a community where the population of African people is dominant. Race is definitely an indicator as hypertension occurs commonly amongst the black ethnic group. In adults, studies have shown that malignant hypertension occurs more often in Blacks (32%) than in Whites (23%). (Beers et al., 2006:604). Malignant hypertension is the most common form of high blood pressure. It is noticeable by an unusually sudden rise in blood pressure to dangerous levels, often with a diastolic reading reaching 120-130mmHg (Kowalski, 2007:7). Kowalski (2007:7) further claims that malignant hypertension is a medical emergency that places people at an immediate risk for heart attack, stroke, heart failure, permanent kidney failure and bleeding in the brain. Studies show that younger people are affected by hypertension leading to a stroke.

44

Question 3: Level of education

Table 4.3: Shows the results obtained for the level of education

Qualifications	Frequency	%
Grade 1	4	2%
Grade 2	3	2%
Grade 3	4	2%
Grade 4	3	2%
Grade 5	10	6%
Grade 6	16	9%
Grade 7	20	11%
Grade 8	23	13%
Grade 9	19	11%
Grade 10	29	16%
Grade 11	22	12%
Grade 12	22	12%
Tertiary	1	1%
Total	**172**	**100%**

In table 4.3 the occurrence is as follows: Grade 1   n=1 (2%). Grade 2 n=3 (2%). Grade 3 n=4   (2%). Grade n=3 (2%). Grade 5 n=10 (6%). Grade 6 n=16 (9%). Grade 7 n=20 (11%). Grade 8 n=23 (13%). Grade 9 n=19 (11%). Grade 10 n=29 (16%). Grade 11 n=22 (12%). Grade 12 n=22 (12) and Tertiary n=1 (1%). The lowest outcome of participants who joined in the study were participants on tertiary level n=1 (1%) and the highest outcome of participants who joined in the study was Grade 10 n=29 (16%). The results in table 4.3 show that the participants in the lower grade are not well educated, which means that extensive health education and promotion is needed regarding high blood pressure, lifestyle and the complications of hypertension. The patient needs to understand the disease process and how lifestyle changes and medication can control hypertension.

45

The Spearman test was used to establish the correlation between knowledge and medication. It was found that the p-value was <0.01.This means that the participants had an insight to medication. The correlation between knowledge and lifestyle showed that the p-value was0.04. This means that there is no correlation between knowledge of questions on lifestyle. The participants are practicing bad lifestyle habits that are a major health risk. According to an article by Adler (2008:n.p.), lifestyle is defined as a way people live, typified by the behaviour that makes sense to both others and oneself in a given time and place. It includes social connection, consumption, activity and dress. He further states that the behaviour and practice within lifestyle are a combination of habit and, predictable ways of doing things that give meaning to action. Kruger et al., (2005:494) state that culture shapes eating habits. Kruger et al.,(2005:495) are further of the opinion that some African countries associate certain food with a certain status. The correlation between knowledge and complications of which the he p-value is <0.01, means that the participants have knowledge about the complications of hypertension.

Question 4: Home language

Table 4.4: Home language

Home language	Frequency	%
Afrikaans	6	3%
English	0	0%
Xhosa	163	96%
Zulu	1	0%
Other	2	1%
Total	172	100%

Table 4.4 shows that Xhosa is the predominant language in the community. Xhosa n=163 (96%), followed by Afrikaans n=6 (3%),Zulu n=1 (0%) and other n=2 (1%).

The home language is predominantly Xhosa, as most of the participants attending the Kayamandi Clinic are Xhosa-speaking people. The participants were well informed and understood what was expected from them regarding the completion of the questionnaire. The interpreter was also Xhosa-speaking with a nursing background.

46

Question 5: Diseases
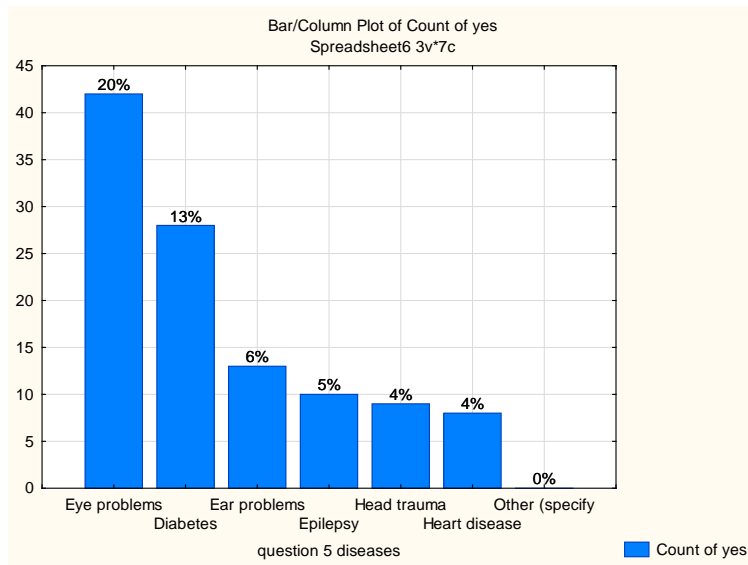
Figure   4.1: The histogram shows the plot of count of yes

Table 4.5: Frequency table for yes counts

Diseases	Frequency	%
Eye problems	42	20%
Diabetes	27	13%
Ear problems	13	6%
Epilepsy	10	5%
Head trauma	8	4%
Heart disease	8	4%
Other	0	0%
Total	106	52%

in Table 4.5 the disease with the highest occurrence was eye problems with n=42 (20%) and the disease with the lowest occurrence was other illnesses not mentioned with n=0 (0%). The n (172) participants with hypertension also have other illness beside the hypertension. n=42 (20%) suffers with eye problems which is one of the complications of hypertension. The part of the eyes that is mostly affected by high blood pressure is the retina. It is the nerve layer at the back of the eye that senses light and sends visual images back to the brain (Perry, 2002:47). Tortora & Derrickson, (2006:584) explain that the surface of the retina is the only place in the body where blood vessels can be seen directly and examined for pathological changes, such as hypertension and other illnesses. The findings show that

47

diabetes is the second highest occurrence n=27 (13%) of the participants with hypertension. Hypertension is twice as common in diabetics as in non-diabetics and essential hypertension is characterized by different degrees of insulin resistance and hyperinsulinemia (Loscalzo 2005:201). Loscalzo (2005:201) further states that a common underlying factor in diabetes and hypertension is insulin resistance. In a study done in the United States of America show that 12% of Americans have both diabetes and hypertension. (Defronzo et al.,2004:1473). Defronzo et al., (2004:1473) further claim that of the increasing occurrence of type 2 diabetes, as well as hypertension is likely related due to the global rise in obesity.

4.2.2 Section B 23

Section B 23 portrays participants knowledge of medication and attitude, of the participants who joined in the study with regard to the diseases. The questions that refer to knowledge and attitude regarding medication start from question 23 to 34. The Spearman test revealed that he p-value was 0,19. It showed that the p-value was >0,01, which revealed that there was a correlation between knowledge and medication.

Question 23: High blood pressure is a disease for old people

Table 4.6: Shows the answers to question 23 by indicating yes/no

	Frequency	%
Yes	49	28%
No	123	72%
Total	172	100%

In table 4.6 n=123 (72%) answered no to the question while n=49 (28%) answered yes to the question that high blood pressure is a disease for old people. The implication of the result to this study is that high blood pressure can affect young and old people. As people age, the risk of developing high blood pressure is greater, only if you live in a developed country (Perry, 2002:230).

Question 24: Young people do not get blood pressure.

Table 4.7: Shows the answers to question 24 by indicating yes/no

	Frequency	%
Yes	93	54%
No	79	56%
Total	172	100%

In table 4.7 n=93 (54%) answered yes to question 24 and n=79 (56%) answered no to question 24. The result shows that the perception is that young people do not get high blood pressure. It means that the majority of the participants did not know that young people do get high blood pressure. A study done in the United States has shown that one in five young adults has high blood pressure. About 50 million Americans have hypertension, or have high blood pressure persistently (Tortora & Derrickson,(2006:798). Kowalski (2007:22) claimed that nearly 21% of South Africans have hypertension, that is almost10 million men and women. Van Rensburg (2004:245) states that blood pressure rises steadily between the ages of 20 and 40. After this it tends to increase rapidly with aging (Buckman & Westcott, 2006:22). There is a high occurrence of stroke incidence in young adults in among specific communities, according to Allen (2009:32, 312).

Question 25: When I feel good I do not have to take my blood pressure medication

Table 4.8: Shows the answers to question 25 by indicating yes/no

	Frequency	**%**
Yes	53	31%
No	119	69%
Total	172	100%

In table 4.8 n=119 (69%) answered no to question 25 and n=53 (31%) answered yes to question 25. Even if people feel good they must take their blood pressure medication. Patients need to understand the disease process, as well as the fact that medication can control high blood pressure Smeltzer et al., (2010:894). This means we need to educate this small group, because it is this group that ends up with stroke and other complications of high blood pressure. Smeltzer et al. (2010:894) further echoed that it is the nurse's duty to control the patient's blood pressure rather than curing it. The patients with weight problems must be referred to a dietician to introduce them to a healthy plan for improving nutrient intake or weight control.

Question 26: If I miss a dosage of my high blood pressure tablets, I can double the dose.

Table 4.9: Shows the answers to question 26 by indicating yes/no

	Frequency	**%**
Yes	27	16%
No	145	84%
Total	172	100%

In table 4.9 n=145 (84%) answered no to question 26 n=27 (16%) answered yes to question 26. The majority answered no to this question. The question was answered with a positive connotation, because although people skip their high blood pressure medication they cannot double the dosage. Antihypertensive medication has a life period of twelve hours and some a twenty four hour life period therefore, medication must be taken as prescribed. Drugs are usually given as repeated doses rather than single injections due to the plasma concentration increase up to a steady-state concentration (Rang, Dale, Ritter & Moore, 2003:115). Drugs changes physiological and biochemical processes in the body, but cannot create new body functions. Drug treatment is therefore limited to the quantitative influencing of the changed physiology associated with illness. At the correct dosages drugs may be expected to use their therapeutic effects on the body with relative safety. (Schellack, 2004:10)

Question 27: If my blood pressure is under control there is no need to take antihypertensive medication

Table 4.10: Shows the answers to question 27 by indicating yes/no

	Frequency	**%**
Yes	62	36%
No	110	64%
	172	100%

In table 4.10 n=110 (64%) answered no to question 27 and n=62 (36%) answered yes to question 27. The majority answered no to this question. Even if blood pressure is under control, it is necessary to take antihypertensive medication. Therefore, participants are aware that they need to take their high blood pressure medication. Smeltzer et al.

(2010:894) state that the patient needs to understand the disease process and how lifestyle changes and medication can control hypertension.

Question 28: I take my blood pressure tablets even if I feel well

Table 4.11: Shows the answers to question 28 by indicating yes/no

	Frequency	%
Yes	30	17%
No	142	83%
	172	100%

In table 4.11 n=142 (83%) answered no to question 28 and n=30 (17%) answered yes to question28. The majority answered no to question 28. Only n=30 (17%) knew that they must take their blood pressure medication even if they feel well. Antihypertensive medication must be taken every day as prescribed by the health practitioner. Interruption in taking antihypertensive medication can lead to rise in blood pressure with serious complications such as strokes, heart attacks, renal failure and heart failure. Rang et al. (2003:299) echo that the use of drugs to control mild hypertension without producing side-effects is therefore an important clinical need. Drugs according to Tortora & Derrrickson (2006:799) have different mechanisms of action which are effective in lowering blood pressure.

Question 29: I will have to take my blood pressure medication my whole life

Table 4.12: Shows the answers to question 29 by indicating yes/no.

	Frequency	%
Yes	141	82%
No	31	18%
Total	172	100%

In table 4.12 n=141 (82%) answered yes to question 29 and n=31 (18%) answered no to question 29. The majority answered yes to question 29. The participants are aware that they must take their high blood pressure medications for the rest of their life. Most of the lifestyle causes of hypertension are well known, such as inactivity, smoking and overindulging in alcohol, overeating and stress, therefore Mohan & Campbell (2007:n.p.) stated that clinical trials provide clear evidence that reducing blood pressure with antihypertensive drugs significantly decreases cardiovascular disease morbidity and mortality.

Question 30: I take my blood pressure tablets as prescribed

Table 4.13: Shows the answers to question 30 by indicating yes/no.

	Frequency	**%**
Yes	150	87%
No	22	13%
Total	172	100%

In table 4.13 n=150 (87%) answered yes to question 30 and n=22 (13%) answered no to question 30. The majority are aware that they must take their medication as prescribed. This means that we will be able to reduce the cost of hospitalization due to complications of high blood pressure. Safe, effective and low cost choices are available everywhere for the management of hypertension. Jones & Hall (2007:n.p.) confirmed that control rates for persons with hypertension are below 30% in most countries.

Question 31: I sometimes forget to take my blood pressure tablets.

Table 4.14: Shows the answers to question 31 by indicating yes/no.

	Frequency	**%**
Yes	52	30%
No	122	70%
Total	172	100%

In table 4.14 and n=122 (70%) answered no to question 31 and n=52 (30%) answered yes to question 31. The majority are aware of the importance of taking their blood pressure medication**.**

Question 32: Stress causes high blood pressure

Table 4.15: Shows the answers to question 32 by indicating yes/no

	Frequency	**%**
Yes	138	80%
No	34	20%
Total	172	100%

52

In table 4.15 n=138 (80%) answered yes to question 32 and n=34 (20%) answered no to question 32. The majority are aware that stress is not good for health. Opie (2004:479) echoed that central stress leads to raised hypothalamus and modularly centre activity and the increase of adrenaline gives rise to a series of events, namely myocardial oxygen uptake, tachycardia, increased contractility, and increased cardiac output**.**

Question 33: High work expectations cause high blood pressure

Table 4.16: Shows the answers to question 33 by indicating yes/no

	Frequency	**%**
Yes	122	71%
No	50	29%
Total	172	100%

In table 4.16 n=122 (71%) answered yes to question 33 and n=50 (29%) answered no to question 33. As in question 33, high expectation at work can lead to stress. The majority agreed that high work expectations can lead to stress and can have a negative effect on the blood pressure by raising it.

Question 34: Young people never stress

Table 4.17: Shows the answers to question 34 by indicating yes/no

	Frequency	**%**
Yes	74	43%
No	98	57%
Total	172	100%

In table 4.17 n=98 (57%) answered no and n=74 (43%) answered yes to question 34. The majority are not in agreement that young people can also stress. Question 32 and question 34 are not in relation, because they are contradicting each other. In the light of the above data, the patient must understand that non-drug treatment is very important in treating this condition and includes advice to the patient on doing daily exercises for ten to thirty minutes, restricting salt intake, encouraging a healthy eating plan, as well as stress management and no smoking or consuming of alcohol (Tortora and Derrickson, 2006:798). High stress levels can cause anxiety, insomnia, changes in mood and physiology, such as raised heart rate

53

and blood pressure (Houston, 2012:111). Mani et al. (2009:72) echoed that the patient must understand that hypertension is a chronic disease. If it is left untreated, hypertension can damage major organs and even cause death.

4.2.3   Section B. The question from question 35 to question 52 reflects on the lifestyle.

The Spearman test was used to establish the correlation between knowledge of lifestyle and complications of hypertension. The p-value was 0.09. This means that there is no correlation between the knowledge of lifestyle. The participants are practicing bad lifestyle habits. This group of people needs to understand the risk involved in their behaviour.

Question 35: I drink Coke, Fanta or other fizzy drinks.

Table 4.18: Shows the answer to question 35 by indicating yes/no

	Frequency	%
Yes	93	56%
No	79	46%
Total	172	100%

In table 4.18 n=93 (56%) answered yes to question 35 and n=79 (46%) answered no to question 36. The majority of the participants are drinking Coke, Fanta and fizzy drinks that is not good for their health. Researchers estimate that two thirds of the increase in sugar in our modern diet comes from drinks, including natural fruit juices. Cola contains roughly 45 teaspoons of sugar (Holford, 2010:201-202).

Question 36: I can eat the skin and meat of chicken.

Table 4.19: Shows the answer to question 36 by indicating yes/no

	Frequency	%
Yes	65	38%
No	107	62%
Total	172	100%

In table 4.19 n=65 (38%) answered yes to question 36 and n=107 (62%) answered no to question 36. The majority are aware that it is unhealthy to eat the skin of chicken. The most important lipids (fat) in the body and diet are the triglycerides, also known as triacyglycerols,

which may be either solid fats or liquid oils. The body's capacity to store triglycerides in adipose tissue is unlimited Tortora & Derrickson, (2006:45). Tortora & Derrickson (2006:45) further explain that excess dietary carbohydrates, proteins, fats, and oils all have the same result. They are deposited in adipose tissue as triglycerides. Obesity is one of the major problems in South Africa as reported on a news report in August 2010. Obesity is defined as a bodyweight of more than 20% above a desirable standard due to an excessive accumulation of adipose tissue. Even moderate obesity is dangerous to health. Tortora & Derrickson (2006:986) claim that obesity is a risk factor in cardiovascular disease, hypertension, pulmonary disease, non-insulin-dependent diabetes mellitus, arthritis and certain cancers.

Question 37: I can eat the white meat of chicken.

Table 4.20: Shows the answer to question 37 by indicating yes/no

	Frequency	%
Yes	121	70%
No	51	30%
Total	172	100%

In table 4.20 n=121 (70%) answered yes to question 37 and n=51 (30%) answered no to question 37. White meat is healthier to eat than the skin of the chicken. The majority of participants are aware of it and agreed to this question.

Question 38: I eat red meat more than twice a week.

Table 4.21: Shows the answer to question 38 by indicating yes/no

	Frequency	%
Yes	66	38%
No	106	62%
Total	172	100%

In table 4.21 n=106 (62%) answered no to question 38 and n=66 (38%) answered yes to question 38. The majority of participants do not to eat red meat more than twice a week, by doing so they eat healthily. Buckman & Westcott (2006:52) stressed the importance of cutting down on fat, in particular fatty meat and full-fat dairy products such as cheese.

Question 39: I do not have to cut off the fat of the meat.

Table 4.22: Shows the answer to question 39 by indicating yes/no

	Frequency	**%**
Yes	63	36%
No	109	64%
Total	172	100%

In table 4.22 n=109 (64%) answered no to question 39 and n=63 (36%) answered no to question 39. The majority are doing the opposite of what is expected from them. Eating fat is indeed a bad lifestyle habit, causing obesity and later poses as a health risk. Lipids are fats that are absorbed from food or synthesized by the liver. All lipids are hydrophobic (water fearing) and mostly impossible to dissolve in blood (Beers et al., 2006:1295). Hydrophobic is the triglycerides or cholesterol esters covered in a more hydrophilic lipid coat of polar substances (Rang et al., 2003:307). Cholesterol is an important element of every cell in the body. It is a building block within our cells and tissues and is used for the production of hormones and other important natural substances (Canlas, 2002:38).

Question 40: I use salt to cook my food

Table 4.23: Shows the answer to question 40 by indicating yes/no

	Frequency	**%**
Yes	70	41%
No	102	59%
Total	172	100%

In table 4.23 n=102 (59%) answered no to question 40 and n=70 (41%) answered yes to question 40. The majority are not in agreement to use salt to cook their food as too much salt usage lead to high blood pressure. Salt sensitivity is noticed by measuring a blood pressure increase when table salt or sodium chloride is added or a decrease when salt is restricted (Houston, 2012:266).

Question 41: I put extra salt on my food.

Table 4.24: Shows the answer to question 41 by indicating yes/no

	Frequency	%
Yes	34	20%
No	138	80%
Total	172	100%

In table 4.24 138 (80%) answered noto question 41 and 34 (20%) answered no to question 41. The majority are not using extra salt with their food. Therefore, they are contributing to a healthy lifestyle. The chloride in sodium increases the re-absorption of sodium in the kidneys, causing sodium to build up in the blood (Serfontein, 2003:207). The more sodium in the blood, the more the blood volume increases and consequently, the blood pressure increases. Sodium tends to hold onto water, causing the heart to work harder to move the increased volume of blood through the blood vessels, leading to increased pressure in the arteries (Perry, 2002:97).

Question 42: I do exercises more than 30 minutes per day.

Table 4.25: Shows the answer to question 42 by indicating yes/no

	Frequency	%
Yes	94	55%
No	78	45%
Total	172	100%

In table 4.25 n=94 (55%) answered yes to question 42 and n=78 (45%) answered no to question 42. The majority are exercising more than 30 minutes per day. Exercise is good for the health and contributes to a healthy lifestyle. It is an ideal form of stress relief by getting blood flowing through the body. The human body is therefore taking up more oxygen to the brain, the muscle and tissues, as well as the body (Andrew, 2007:52). Andrew (2007:52) explains that during exercise the body's physiological need changes in certain distinctive ways. The heart beats faster, whilst the blood is circulating at a rate of 25 or even 30 litres a minute. The blood is then directed towards an active muscle, which needs it the most. Lack of physical activity leads to obesity, hypertension, elevated cholesterol, glucose inflammation, and oxidative stress, which increase the risk of coronary heart disease (Houston, 2012:110)

57

Question 43: I walk fast for less than 30 minutes per day.

Table 4.26: Shows the answer to question 43 by indicating yes/no

	Frequency	**%**
Yes	79	46%
No	93	54%
Total	172	100%

In table 4.26 n=93 (54%) answered yes to question 43 and n=79 (46%) answered no to question 43. The majority are walking less than 30 minutes per day that contributes to a bad lifestyle habit. Inactive young adults tend to have higher rates because their heart muscle does not work efficiently and have to work harder to pump blood. Furthermore, physical activity is also a vasodilator and allows the blood to circulate faster (Kowalski, 2007:23-24). A stronger heart pumps blood more efficiently according to Casey & Benson (2006:17).

Question 44: I walk fast for more than 30 minutes per day.

Table 4.27: Shows the answer to question 44 by indicating yes/no

	Frequency	**%**
Yes	91	53%
No	81	47%
Total	172	100%

In table 4.27 n=91 (53%) answered yes to question 44 and n=81 (47%) answered no to question 44. As in question 43 this had a negative connotation to lifestyle. Question 44 reflects the opposite. The majority of participants indicated that they are walking fast for more than 30 minutes a day which shows a good lifestyle habit.

Question 45: I eat fruit more than 4 times per week

Table 4.28: Shows the answer to question 45 by indicating yes/no

	Frequency	**%**
Yes	132	77%
No	40	23%
Total	172	100%

In table 4.28 n=132 (77%) answered yes to question 45 and n=40 (23%) answered no to question 45. Eating fruit is a good lifestyle habit. The majority of the participants agreed that they eat fruit more than 4 times a week. Whelton et al. (2003:371), Casey & Benson, (2006:176) and Perry (2002:102) all agree that higher potassium intake seems to have cardiovascular protective effects. A high intake of potassium can offer protection against developing high blood pressure, and a low intake can increase blood pressure. Taking potassium supplements can lower the blood pressure by creating a health sodium balance in the cells.

Question 46: I eat vegetables more than 4 times a week.

Table 4.29: Shows the answer to question 46 by indicating yes/no

	Frequency	**%**
Yes	92	53%
No	80	47%
Total	172	100%

In table 4.29 n=92 (53%) answered yes to question 46 and n=80 (47%) answered no to question 46. Eating vegetables is a good lifestyle habit. The majority agreed that they are eating vegetables more than 4 times a week. Foods high in potassium and low in sodium, include bananas, potatoes, beans, cantaloupes and yoghurt (Casey & Benson, 2006:176).

Question 47: I only drink alcohol over weekends.

Table 4.30: Shows the answer to question 47 by indicating yes/no

	Frequency	**%**
Yes	15	9%
No	157	91%
Total	172	100%

In table 4.30 n=157 (91%) answered noto question 47 and n=15 (9%) answered yes to question 47. People who don't drink alcohol in moderation and overindulge in alcohol intake are not practising good lifestyle habits. The majority are in agreement that they don't only drink over weekends. People must remain at sensible drinking levels and avoiding binge

drinking to maintain lower blood pressure and reduce the risk of having a stroke or heart attack (Buckman & Westcott, 2006:55).

Question 48: I drink alcohol more than 2 days per week.

Table 4.31: Shows the answer to question 48 by indicating yes/no

	Frequency	%
Yes	10	6%
No	162	94%
Total	172	100%

In table 4.31 n=162 (94%) answered noto question 48 and n=10 (6%) answered yes to question 48. The majority are not in agreement with question 48. According to Biddulph (2003:35), youth between the ages of twelve to sixteen who drink alcohol have higher blood pressure than non-drinkers. High blood pressure can lead to health problems, most notably strokes and aneurysms caused by the rupture of blood vessels in the brain. Biddulph further state that adolescents who drink heavily assume the same long-term health risks as adults who drink heavily. Many studies have associated excess alcohol intake to hypertension (Biddulph, 2003:35).

Question 49: Drinking alcohol is good for high blood pressure.

Table 4.32: Shows the answer to question 49 by indicating yes/no

	Frequency	%
Yes	12	7%
No	160	93%
Total	172	100%

In table 4.32 n=160 (93%) answered noto question 49 and n=12 (7%) answered yes to question 49. The majority agreed that drinking is not good for high blood pressure. Therefore, the participants are aware that alcohol and high blood pressure is not a good combination. Alcohol consumption contributes to 5-25% of essential hypertension (Serfontein, 2003:213).

Question 50: I smoke 1-9 cigarettes a day.

60

Table 4.33: Shows the answer to question 50 by indicating yes/no

	Frequency	%
Yes	38	22%
No	134	78%
Total	172	100%

In table 4.33 n=134 (78%) answered no to question 50 and n=38 (22%) answered yes to question 50. Serfontein (2003:213) stated that nicotine is known to stimulate the adrenals, which results in increased catichol amine (adrenaline) secretion and that is why hypertensive patients should make every effort to quit smoking.

Question 51: I smoke more than 20 cigarettes a day.

Table 4.34: Shows the answer to question 51 by indicating yes/no

	Frequency	%
Yes	13	8%
No	159	92%
Total	172	100%

In table 4.34 n=159 (92%) answered no to question 51 and n=13 (8%) answered yes to question 51. The majority of the participants do not smoke more than 20 cigarettes a day.

Question 52: Smoking is good for high blood pressure.

Table 4.35: Shows the answer to question 52 by indicating yes/no

	Frequency	%
Yes	37	22%
No	135	78%
Total	172	100%

In table 4.35 n=135 (78%) answered no to question 52 and n=37 (22%) answered yes to question 52. The majority of the participants are aware that smoking is not good for high blood pressure. Question 51 and question 52 was designed in such a way to see whether the participants really indulge in smoking.

4.2.4 Section B. This section from question 53 to question 62, includes complications of high blood pressure, as well as lifestyle.

A Spearman RHO test was done to determine the correlation between complications of hypertension and lifestyle. The p-value was 0.23. The p-value was more than 0.01. The findings show that the participants have knowledge of the complications of hypertension as the majority scored high on what the complications of hypertension are.

Question 53: Chronic high blood pressure leads to sugar/diabetes.

Table 4.36: Shows the answer to question 53 by indicating yes/no

	Frequency	%
Yes	145	84%
No	27	16
Total	172	100%

In table 4.36 n=145 (84%) answered yes to question 53 and 27 (16%) answered no to question 53. The majority of the participants are aware that chronic high blood pressure leads to diabetes. Blood pressure is the product of cardiac output. Multiplied by peripheral resistance, hypertension can result to an increase in cardiac output. Resistance to insulin may be a common factor linking hypertension, type 2 diabetes mellitus, hypertriglyceridema, obesity and glucose tolerance in peripheral resistance (Smeltzer et al., 2010:890-891). De fronzo et al., (2004:1198) claim that hypertension is a universal feature in diabetic patients and the presence and severity of diabetic retinopathy has been suggested from cross-sectional studies.

Question 54: High blood pressure causes stroke.

Table 4.37: Shows the answer to question 54 by indicating yes/no

	Frequency	%
Yes	144	84%
No	28	16%
Total	172	100%

In table 4.37 n=144 (84%) answered yes to question 54 and n=28 (16%) answered no to question 54. The majority of the participants are aware that high blood pressure causes a

stroke. According to Rang et al. (2003:494) a stroke is linked with intracerebral thrombosis or haemorrhage, resulting in rapid death of neurons, followed by a more gradual degeneration of cells in penumbra (partial obscurity) to excitoxicity and inflammation. Untreated high blood pressure is the number one cause of stroke (Sinatra et al., 2007:8). Stroke and high blood pressure are major causes of death and disability worldwide. Although wide range stroke surveillance data for Africa are lacking, the available data show that age-standardized mortality, case fatality and occurrence of disabling stroke in Africa are the same as or higher than those measured in most high-income regions. In Africa more than 90% of patients with haemorrhagic stroke and more than half with ischemic stroke are found to have high blood pressure(Mensah,2008:n.p.).

Question 55: High blood pressure causes eye problems that lead to blindness.

Table 4.38: Shows the answer to question 55 by indicating yes/no

	Frequency	**%**
Yes	134	78%
No	38	22%
Total	172	100%

In table 4.38 n=134 (78%) answered yes to question 55 and n=38 (22%) answered no to question 55. The majority of the participants are aware of the fact that high blood pressure causes eye problems that lead to blindness. Perry (2002:47) claimed that the part of the eyes that is mostly affected by high blood pressure is the retina. It is the nerve layer at the back of the eye that senses light and send visual images back to the brain. According to Tortora & Derrickson (2006:584), the surface of the retina is the only place in the body where blood vessels can be seen directly and examined for pathological changes, such as hypertension and other illnesses. Extremely high blood pressure can cause hypertensive retinopathy that leads to blurry vision and blindness (Buckman & Westcott, 2006:26).

Question 56: High blood pressure causes heart diseases like heart attacks and heart failure.

Table 4.39: Shows the answer to question 56 by indicating yes/no

	Frequency	**%**
Yes	127	74%
No	45	26%
Total	172	100%

In table 4.39 n=127 (74%) answered yes to question 56 and n=45 (26%) answered no to question 56. The majority of the participants are aware that high blood pressure causes heart disease like heart attacks and heart failure. According to Rang et al. (2003:271) the heart attacks happen after a coronary artery has been blocked by thrombus, causing ischaemic damage to the heart. Rang et al. (2003:314) further stated that thrombosis is a pathological condition resulting from unsuitable start of haemostatic mechanism. A thrombosis may break away and travel as an embolism, causing ischaemia and infarction. It is whereby the coronary artery narrows so much that blood is unable to get through the heart, or if an artery is blocked by a clot lodged in the narrowed arteries. Part of the heart is starved of blood and dies (Buckman & Westcott, 2006:28). A complete obstruction to blood flow in a coronary artery may cause a myocardial infarction (Tortora & Derrickson 2006:708). In the United States about 1,5 million myocardial infarctions occur annually. It results in the death of 400000 to 500000 people with about half of them dying before they reach the hospital (Beers et al., 2006:635).

Question 57: High blood pressure causes kidney failure.

Table 4.40: Shows the answer to question 57 by indicating yes/no

	Frequency	%
Yes	126	73%
No	46	27%
Total	172	100%

In table 4.40 n=126 (73%) answered yes to question 57 and n=46 (27%) answered no to question 57. The majority of the participants are aware that high blood pressure causes kidney failure. According to Buckman & Westcott (2006:6) many people think that high blood pressure is a mild condition, but if left untreated, it can lead to a number of serious medical problems, such as heart attack, heart failure, stroke and kidney damage. Whelton et al.(2003:1) state that hypertension is an important challenge worldwide due to the high occurrence and the related increase of cardiovascular and renal disease. Hypertension damages the kidney arterioles, causing them to thicken, which narrows the lumen. The blood supply to the kidneys is thereby reduced and the kidneys have to produce more **rennin** which causes the blood pressure to raise even more (Tortora & Derrickson, 2006:798). **Rennin** is a hormone that is produce by the kidneys (Buckman & Westcott, 2006:11).

Question 58: High blood pressure reduces blood flow to legs and feet.

Table 4.41: Shows the answer to question 58 by indicating yes/no

	Frequency	%
Yes	153	89%
No	19	11%
Total	172	100%

In table 4.41 n=153 (89%) answered yes to question 58 and 19 (11%) answered no to question 58. The majority of the participants are aware that high blood pressure reduces the blood flow to legs and feet. Due to overload of tissue perfusion, many patients experience pulmonary and peripheral congestion (Smeltzer et al., 2010:825).

Question 59: I must visit the clinic or hospital if I have any of the following symptoms: headache, double vision and heart palpitations.

Table 4.42: Shows the answer to question 59 by indicating yes/no

	Frequency	%
Yes	152	88%
No	20	12%
Total	172	100%

In table 4.42 n=152 (88%) answered yes to question 59 and n=20 (12%) answered no to question 59. The majority of the participants are aware that if they have any symptoms such as headache, double vision and heart palpitations they must visit the clinic. Perry, (2002:13), states that high blood pressure usually has no symptoms and therefore people do not feel sick

Question 60: I visit the clinic only if I feel unwell.

Table 4.43: Shows the answer to question 60 by indicating yes/no

	Frequency	%
Yes	144	84%
No	32	16%
Total	172	100%

In table 4.43 n=144 (84%) answered yes to question 60 and n= 32 (16%) answered no to question 60. The majority of the participants do not visit the clinic regularly and are therefore creating a health problem for themselves. The idea is to visit the clinic regularly to sustain good health and detect any health problem. Monitoring patients with chronic conditions for example, high blood pressure or high cholesterol is a common reason for repeat visits to health care facilities. Achieving optimum hypertension control to prevent hypertension-associated cardiovascular disease has been a substantial challenge. There are multiple reasons for lack of hypertension control, including health care system features, as well as patient and doctor features (Mohan & Campbell, 2007:n.p.).

Question 61: High blood pressure is a lifelong chronic disease.

Table 4.44: Shows the answer to question 61 by indicating yes/no

	Frequency	%
Yes	120	70%
No	52	30%
Total	172	100%

In table 4.44 n=120 (70%) answered yes to question 61 and n=52 (30%) answered no to question 61. The majority of the participants are aware that high blood pressure is a lifelong chronic disease. Nettina (2006:455) claim that hypertension is one the widespread chronic diseases for which treatment is available; however, most patients with hypertension are untreated. Recent figures have shown that only 70% of adults with hypertension are aware that they have hypertension, 59% receive treatment, and only 34% reach blood pressure control. (Nettina 2006:455).

Question 62: Lifestyle changes such as smoking cigarettes, drinking alcohol, unhealthy diet, lack of exercise and stress cause high blood pressure.

Table 4.45: Shows the answer to question 62 by indicating yes/no

	Frequency	%
Yes	136	79%
No	36	21%
Total	172	100%

In table 4.45 n=136 (79%) answered yes to question 62 and n=36 (21%) answered no to question 62. The majority of the participants are aware that bad lifestyle habits such as smoking cigarettes, drinking alcohol excessively, unhealthy diet, lack of exercise and stress causes high blood pressure. The results showed that the patients had insight in the knowledge of hypertension and its complications, but lack knowledge of the management of hypertension. They need more clinical management regarding lifestyle and lifestyle changes.

Obesity is often associated with essential hypertension as stated by Opie, (2004:455). The greater the body mass, the more blood is needed to supply oxygen and nutrients to the muscle and other tissues. It also increases the number and length of blood vessels and increases the resistance of blood that has to travel longer distances through those vessels Opie, (2004:455). Obesity causes the heart to struggle to supply the excess tissue with blood. Obesity and its complications cause as many as 300 000 premature deaths each year, making it second to cigarette smoking as a cause of death. (Beers et al., 2006:56).

Kowalski (2007:24) is also of the opinion that sodium causes the body to retain extra fluid. It means that the heart has to work harder (Casey & Benson 2006:56). The chloride in sodium increases the re-absorption of sodium in the kidneys, causing sodium to build up in the blood (Serfontein, 2003:207).

Inactive teenagers are more likely to have high blood pressure (Science daily 2007 n.p). Inactive young adults tend to have higher rates because their heart muscle does not work efficiently and it has to work harder to pump blood. Furthermore, physical activity is also a vasodilator and allows the blood to circulate faster (Kowalski, 2007:23-24). A stronger heart pumps blood more efficiently according to (Casey & Benson, 2006:17).

According to Biddulph (2003:35), young people between the ages twelve to sixteen who drink alcohol have higher blood pressure than non-drinkers. High blood pressure can lead to health problems, most notably strokes and aneurysms caused by the rupture of blood vessels in the brain. Biddulph (2003:35) further stated that adolescents who drink heavily presumably have the same long-term health risks as adults who drink heavily. Many studies have associated excess alcohol intake to hypertension.

The number of people who indulge in cigarette smoking have increased by over 40% over the past two decades (Akinboboye, et al., 2003:17,381-382). Smoking is a very intense habit. Farrington (2002:12) explains that inside every tobacco leaf there is a substance called nicotine which is extremely addictive. Nicotine is known to stimulate the adrenals,

which results in increased catichol amine (adrenaline) secretion. This is the reason for hypertensive patients to make every effort to quit smoking.

Opie (2004:479) echoed that central stress leads to raised hypothalamus and medullary centre activity and the increase of adrenaline gives rise to a series of events, namely myocardial oxygen uptake, tachycardia, increased contractility, and increased cardiac output. As the stress level decreases, so does the blood pressure.

High serum cholesterol is a major risk factor for coronary artery disease in adults, according to Akinboboye et al. (2003:17,381-382). It assists in the manufacturing of bile acids that play a role in digestion and absorption. Inflammation and thickening of the arterial walls encourage a build-up of debris that consists of fats (Casey & Benson, 2006:10,64). Atherosclerotic plaque formation in the blood can cause narrowing and possible ischemia that may lead to thromboembolus formation, which can result in cardiovascular, cerebrovascular and peripheral vascular disease (Nettina 2006:395).

4.3   Conclusion

According to Gu et al. (2010:n.p.) hypertension is one of the changeable risk factors for cardiovascular disease and renal disease in Western and Asian populations. A survey that was conducted in China, reflects the occurrence and absolute numbers of hypertension have increased dramatically during the past several decades. This clinically based cross sectional study of hypertensive patients aged between 18 to 40 years was conducted at the Kayamandi Clinic. The study group comprised n=210 participants selected by purposive sampling. Data was collected using a structured questionnaire and a self-report technique. The findings showed that a large number of the participants was well informed on the complications and treatment of hypertension but lack on their knowledge of lifestyle. Therefore, they need intensive education on modifying their lifestyle behaviour.

CHAPTER   5:   DISCUSSIONS AND RECOMMENDATIONS

5.1   INTRODUCTION

The conclusion drawn to in this study was that most of the participants are not practising good lifestyle habits. This research revealed that the majority of patients were leading sedentary lifestyles and consuming unhealthy diets. Lifestyle related risk factors in particular excess body weight, low levels of physical activity, excess consumption of salt and fat were evident in hypertensive patients. The study found no significant relationship between physical activity or other dietary habits such as consumption of salt, fat or fruit and hypertension.

The results have highlighted the extent, nature and patterns of physical activity, and the dietary habits of hypertensive patients. In this chapter the focus will be on the aims and objectives of the study, as well recommendations and limitations of the study.

5.2   GOAL OF THE STUDY

The goal of the present study is to explore the knowledge young adult patients have of hypertension. The findings in the study showed that participants with tertiary level education are the least n=1 (1%) and on the other side participants with Grade 10 n=29 (16%). The results in table 4.3 show that a small percentage of the participants are not well educated, which means that extensive health education and promotion is needed regarding high blood pressure, lifestyle and the complications of hypertension. The Spearman test was used to establish the correlation between knowledge of medication and management of hypertension.. It was found that the p-value was <0.01. The correlation between knowledge of hypertension and lifestyle showed the p-value of 0.04. This means that the participants lack the knowledge of lifestyle modification. The correlation between knowledge and complications of hypertension have a p-value of<0.01. This means that the participants are well aware of the complications of hypertension.

5.3   The objective of this study was to determine the knowledge young adult patients have of:

- Hypertension
- The complication of hypertension
- The management of hypertension

5.4   SUMMARY OF FINDINGS

5.4.1   Knowledge and attitude

In section A, table 4.3 indicates that the highest number of participants had the level of education grade 10 and the lowest number of participants had tertiary education. Participants need in depth educational information to understand the process of hypertension and the risk factors such as obesity, inactivity, smoking, overindulging in alcohol, high levels of salt intake, fatty foods and stress. The World Health Organization is predicting an epidemic of hypertension in clinical practice; most patients with hypertension are undiagnosed, untreated, or suboptimally treated according to Mohan & Campbell (2007: n.p.). Hypertension is responsible for more deaths worldwide than any other cardiovascular risk factor (Gaziano, Steyn, Cohen, Weinstein & Opie, 2005:n.p.). Whelton, He & Louis (2003:1) state that hypertension is an important challenge worldwide due to the high occurrence and the related increase of cardiovascular and renal disease.

The findings in section 4, question 23 state that   high blood pressure is a disease for old people, n=123 (72%). A significant higher percentage of the participants agreed that high blood pressure is not a disease   for old people where on the other hand n=49 (28%) of the participants agreed that high blood pressure is a disease for old people, which means that a small percentage of the participants have a misconception of hypertension and   need education on hypertension.   Smeltzer et al. (2010:894) emphasize that patients need to understand the disease process as well as medication which can control high blood pressure. This means health care providers need to educate this small group, because of their lack of knowledge. It is these groups that end up with stroke and other complications of high blood pressure. High blood pressure, also known as the silent killer poses as a high risk factor to ignorant people. People are unaware of the signs and symptoms until they visit a health facility complaining of other health problems and are then diagnosed with hypertension.

The findings in table 4.8 show that   participants   n=145 (84%) are aware that if they skip their blood pressure medication they must not double the dosage of their medication whilst only n=27 (16%) were not aware that if they skip their blood pressure medication they must not double the dosage of their medication.   Medication must be taken as prescribed. Therefore in table 4.9 the minority of the participants n=62 (36%) did not agree with question 27 which states if my blood pressure is under control there is no need to take high blood pressure medication. They are aware that they need to take their high blood medication. Smeltzer et al. (2010 894) echo that the patient needs to understand the disease process and how lifestyle changes and medication can control hypertension. In table 4.10

71

the majority n=142 (83%) indicate that they do not take their high blood medication when they feel well which can lead to major health problems such as stroke, heart failure, heart attacks, renal failure and other health complications.

The findings in table 4.11 of the study show that the participants are aware that they must take their high blood pressure medication for the rest of their lives. Mohan & Campbell (2007:np) state that most of the lifestyle causes of hypertension are well known, such as inactivity, smoking and overindulging in alcohol, overeating and stress, therefore clinical trials provide clear evidence that reducing blood pressure with antihypertensive drugs significantly decreases cardio-vascular disease, morbidity and mortality. Therefore, the majority are aware that they must take their medication as prescribed. This means we will be able to reduce the cost of hospitalisation to the complications of high blood pressure.

In essence, considering the above data, the patient must understand that non-drug treatment is very important in treating this condition and includes advice to the patient on doing daily exercises for ten to thirty minutes, restricting salt intake, encouraging a healthy eating plan, as well as stress management and no smoking or consuming of alcohol (Tortora and Derrickson, 2006:798). Mani et al. (2009:72) emphasize that   the patient must understand that hypertension is a chronic disease. If it is left untreated, hypertension can damage major organs and even cause death.

The findings in question 33 show that high work expectation can lead to stress. The majority n=122 (71%) agreed that high expectations at work can be damaging to good health, and can have a negative effect on the blood pressure. The findings in question 34 show that n=98 (57%) agreed that young people hardly ever become stressed.

An estimation by researchers, suggests t that two thirds of the increase in our sugar intake in our modern diet come from drinks including natural fruit juices. Cola has approximately 45 teaspoons of sugar in it. Holford (2010: 201-202). The majority n=93 (56%) of the participants are drinking Coke, Fanta and fizzy drinks regularly and it is not good for their health.

The findings show that the majority n=107 (62%) of the participants are aware of the fact that it is unhealthy to eat the skin of chicken. The most important lipids (fat) in the body and diet are the triglycerides, also known as triacyglycerols, which may be either solid fats or liquid oils. The body's capacity to store triglycerides in adipose tissue is unlimited Tortora & Derrickson, (2006:45). Tortora & Derrickson (2006:45) further explain that excess dietary carbohydrates, proteins, fats, and oils all have the same result. They are deposited in

72

adipose tissue as triglycerides. Obesity is one of the major health problems in South Africa as reported on a news report on the 7 0' clock news, 24th August 2010. Obesity is defined as a bodyweight more than 20% above a desirable standard due to an excessive accumulation of adipose tissue. Even moderate obesity is dangerous to health. It is a risk factor in cardiovascular disease, hypertension, pulmonary disease, non-insulin-dependent diabetes mellitus, arthritis and certain cancers Tortora & Derrickson (2006:986). The white meat of the chicken is healthier to eat than the skin of the chicken.

People are advised to cut down on fat, in particular fatty meat such as pork, pies, sausages, burgers, full-fat dairy products and cheese (Buckman & Westcott, 2006:52).

Table 4.21 of the study showed that the majority n=109 (64%) are doing the opposite of what is expected from them. They are not practising a healthy lifestyle. This group of people need to be educated regarding bad eating habits. Eating fat is indeed a bad lifestyle habit, causing obesity and later poses as a health risk. Lipids are fats that are absorbed from food or synthesized by the liver. All lipids are hydrophobic (water fearing) and mostly impossible to dissolve in blood (Beers et al., 2006:1295).

5.5 RECOMMENDATIONS

5.5.1 Lifestyle

The World Health Organization has described lifestyle as a general way of living based on conditions in the wider sense and individual patterns of behaviour as determined by socio-cultural factors and individuality Hood & Leddy, (2003:270-271).

Lifestyle was identified as a big problem among the participants. The Pender Health Promotion Model illustrates the importance between health and health promotion. The model represents the explanatory theory that the engagement in health promoting behaviours is determined by cognitive perceptual factors. A person must take responsibility for his or her own health. They must know what health is all about. This is where the World Health Organization brings to light that health is not only the absence of disease but the opportunity to create well-being and to maximize the human potential to be healthy

The implication of the results of this study is that high blood pressure can affect young and old people. Perry (2002:230) state that as people age, the greater the risk of developing high blood pressure, become, if you live in a developed country.

73

5.5.2   Management of lifestyle

Many programs for weight loss, lifestyle modification and blood pressure control are available for patients in the communities. It is of utmost importance that everybody is included in the programmes.

Programs must be implemented in such a way so that people will have a full understanding of what it entails.

The findings in the study in table 4.43 show that the majority of the participants n=144 (84%) do not visit the clinic regularly and are therefore creating a health problem for themselves. The idea is to visit the clinic regularly to sustain good health and to detect any underlying health problems. Monitoring patients with chronic conditions like, high blood pressure or high cholesterol is a common reason for repeat visits to health care facilities. (Mohan & Campbell, 2007:n.p.).

 Achieving optimum hypertension control to prevent hypertension-associated cardiovascular disease has been a substantial challenge. There are multiple reasons for lack of hypertension control, including health care system features, as well as patient and doctor features (Mohan & Campbell, 2007:n.p.).

5.5.3   Weight loss

Buckman & Westcott (2006:50-51) state that when people try to lose weight it is important to put fewer calories into their mouth. It is necessary to watch what a person eats. Buckman & Westcott (2006:50-51), state that it must be emphasized that losing weight will help to lower blood pressure. Casey & Benson (2006:174), echo that controlling weight is an important factor in preventing and treating blood pressure.

Intervention should focus on education and address environmental and social factors to promote and support behavioural changes.

Physical activity should be increased by adding 45-80 minutes of moderate to vigorous activity for most of the days.

Sustainability of programs is crucial to ensure positive change in diet, activity and obesity levels over time. Reasonable weight goals that are individualized, realistic, and maintainable and contribute to general well-being, should be striven after.

5.5.4   Exercise

An intensive exercise program is known to reduce heart rate and blood pressure according to Whelton et al., (2003:332). It is important to keep up the exercise program even if the

74

blood pressure lowers. Encourage the patient to do moderate regular exercise by brisk walking 3-5 times a week for 30 minutes (Mani et al.,2009:72). Activities can vary to add interest to the exercise, for example a walk three days a week and swimming, cycling, playing tennis or doing some gardening (Buckman & Westcott, 2006:66).

5.5.5   Reduce salt intake

Processed foods such as burgers, sausages, salted snacks, canned vegetables and meats, stock cubes and readymade meals contain a large amount of salt. Therefore, it is necessary to avoid these foods (Buckman & Westcott, 2006:52). Smeltzer.,et al. (2010:894) emphasize that it is necessary to explain to the patient that it takes 2 to 3 months for the taste buds to get used to changes in salt intake.

5.5.6   Maintain dietary intake of potassium, calcium and magnesium

Whelton et al., (2003:371), Casey & Benson (2006:176) and Perry (2002:102), all agree that higher potassium intake seems to have cardiovascular protective effects. A high intake of potassium can offer protection against developing high blood pressure and a low intake can increase blood pressure. Taking potassium supplements can lower the blood pressure by creating a healthy sodium balance in the cells.

Patients who are on diuretics and ACE inhibitors should be careful with their potassium intake, because they are at risk of developing heart problems. Perry (2002:103) emphasizes that food which contain potassium, calcium and magnesium are fresh fruit, dairy products, vegetables and nuts. Foods high in potassium and low in sodium include bananas, potatoes, beans, cantaloupes and yoghurt (Casey & Benson, 2006:176).

5.5.7   Cigarette smoking

Effective intervention requires 3 core components which include counselling, drug therapy (in patients without contra-indications), and consistent identification of and intervention with smokers because smoking often causes intense withdrawal symptoms, primarily a craving for cigarettes (Beers et al., 2006:2734). The following are suggestions in quitting smoking:

- keep in mind the benefits of quitting smoking
- take it one step at a time
- ask the doctor about nicotine patches and other aids
- enlist the support of family and friends
- avoid situations where you routinely have a cigarette, change the routine to break the habit. (Buckman & Westcott, 2006:59)

75

5.5.8 Minimize alcohol intake

Alcohol is absorbed into the blood from the small bowel. It accumulates in blood because absorption is more rapid than oxidation and elimination. About 5 to 10% of ingested alcohol is excreted unchanged in urine, sweat, and respiration, the remainder is oxidized to CO_2 and water at a rate of 5 to 10ml/h. Alcohol depresses the central nervous system (Beers et al., 2006:1685). Houston (2012:111) further stated that excessive intake of alcohol increases blood pressure, blood fats, calorie intake, obesity, inflammation, and the risk of coronary heart disease and stroke.

The current World Health Organization-International Society of Hypertension guidelines recommend that hypertensive patients who drink alcohol should limit their intake to 20g and 30g for men and 10g to 20g for women, which is the maximum of approximately two standard drinks per day for men and 1.5 drinks per day for women (Whelton et al., 2003:179). People must remain at sensible drinking levels and avoid binge drinking to maintain a lower blood pressure and reduce the risk of having a stroke or heart attack (Buckman & Westcott, 2006:55).

5.5.8 Manage stress

In these busy times some people seem to have no time to relax. Buckman & Westcott (2006:61) advise that people should engage in active hobbies such as gardening, dancing, walking along the beach or to sweat out tension with good aerobic exercise. Exercises might help in taking minds off worrying situations. Stress definitely plays a role in high blood pressure (Casey & Benson, 2006:17).

5.5.10 Cholesterol lowering

Higher levels of cholesterol are related to the development of cardiovascular disease (Loscalzo, 2005:9).Lipids are fats that are absorbed from food or synthesized by the liver. All lipids are hydrophobic and mostly impossible to dissolve in blood (Beers et al., 2006:1295).It is a major risk factor for coronary artery disease in adults, according to Akinboboye, et al. (2003:17,381-382). It assists in the manufacturing of bile acids that play a role in digestion and absorption. Inflammation and thickening of the arterial walls encourage a build up of debris that consists of fats (Casey & Benson, 2006:10, 64).

Over 244 mg/dl means an increased risk of heart attack.

Avoid or limit red meat, fried foods, and full-fat dairy foods, sugary and refined foods. Add to your diet the following: garlic, high-fibre foods, fruits and vegetables, soy foods, olive oil,

yoghurt and beans. Have a glass of red wine with dinner to reduce stress (Maccaro, 2003:157).

5.5.11   Drug Treatment

Treatment for hypertension, is defined as the use of any antihypertensive medication (Erem, Harchasanoglu, Kocak, Deger & Topbas 2008:47-58). The patient needs to understand the disease process and how lifestyle changes and medication can control hypertension (Smeltzer et al., 2010:894).

A hypertension optimal study has shown that people over the age of 65 with high blood pressure respond better than younger people to hypertension treatment Kowalski, (2007:38). Jones & Hall (2007: n.p.) revealed that safe, effective and inexpensive treatment options are available for the management of hypertension. Control rates for people with hypertension are below 30% in most countries.

The good blood pressure lowering value of diuretics and calcium channel antagonists in hypertensive black patients is connected to its characteristic volume expansion, salt sensitivity and low rennin profile (Khan & Beever, 2005: n.p.). Khan & Beevers (2005:n.p.) further claim that hypertension is linked to significant morbidity and mortality, some of which can be reduced with effective blood pressure lowering. The management of hypertension from ethnic minorities should identify their different responses to drug treatment, the predisposing factors, and the cardiovascular consequences of hypertension.

5.6   LIMITATIONS

The main study was done at Kayamandi Clinic therefore only a small group of the population was included. Only 1 clinic out of the 9 clinics in the sub district was involved in the study.

The study was done over a period of 6 weeks due to the fact that most of the participants were working and some of them sent friends or family members to collect their medication.

Young adults between 18 years and 20 years were busy with examinations during November and December, followed by the holiday season so they could not be reached.

Although the questionnaire was designed in three languages some of the participants found it difficult to complete. An interpreter was necessary   to brief them on the questionnaire.

5.7   CONCLUSION

The study revealed that some of the participants who took part in the study do not have healthy lifestyle habits.   This can contribute to major risk factors towards developing hypertension. Therefore, intensive education is needed to educate people regarding their lifestyle habits. Although they had some knowledge of the complications of hypertension they are not practicing good lifestyle habits.

REFERENCE LIST

Adler, A. 2008. Lifestyle. (Online). Available: http://www.wikipaedia/, the free encyclopaedia (2008, June).

Agus, D.B & Loberg, K. 2012. The end of illness. London. Simon & Schuster UK Ltd.

Akinboboye, O., Idris, O., Akinboboye, O & Akinkugbe O. 2002. Trends in coronary disease and risk factors in Sub-Saharan Africans. Journal of Human Hypertension. 17, 381-387.

Allen, N. 2009. Racial/ Ethnic Differences in Stroke in Young Adults.(Online). Available: . http:// www.karger.com/med

Andrew, A. 2007. Empowering Your Health. U.S.A. Thomas Nelson Inc.

Babbie, E. 2007. The Practice of Social Research. 11th Edition. United States of America. Thomson Learning Inc.

Basavanthappa, B.T. 2007. Nursing Theories. New. Delhi. Jaypee Brothers Publishers.

Basavanthappa. B.T. 2008. Community Health Nursing. New Delhi. Jaypee Brothers Medical Publishers (P) Ltd.

Beers, M.H., Porter, R.S.,Jones,T.V.,Kaplan, J.L & Berkwitz, M. 2006. The Merck Manual of Diagnosis and Therapy.18th Edition. New York. Merck Research Laboratories.

Brink, H., van der Walt, C & van Rensburg, G. 2006. Fundamentals of Research Methodology for Health Care Professionals. 2ND Edition. Cape Town. Juta & Co.

Biddulph, S.G. 2003. The informed parent**.** Alcohol, what's a parent to believe? Minnesota. Hazelden Publishers.

Buckman, R & Westcott, P. 2006. What you really need to know about high blood pressure. London. Quantum Publishers.

Burns, N & Grove S, 2007. Understanding Nursing Research. Building an evidence-based practice. 4th Edition. United States of America.   Saunders Elsevier Publishers.

Camm, A.J., Lüscher, T.F & Serruys, P.W. 2006. The ESC Textbook of Cardiovascular Medicine. United Kingdom. Blackwell Publishing Ltd.

Canlas, L.P. 2002. Hypertension: The Silent Killer. U.S.A. Infinity Publishers.

79

Casey, A & Benson, H. 2006. The Harvard Medical School Guide. Lowering your blood pressure. United States of America. The McGraw Hill Companies.

Cluett, E.R & Bluff, R. 2007. Principles and Practice of Research in Midwifery. 2nd Edition. Edinburgh.Churchill Livingstone/Elsevier.

Cronin, P & Rawlings-Anderson, K. 2004. Knowledge for Contemporary Nursing Practice. United Kingdom.Elsevier Science Limited.

Defronzo, R.A.., Ferrannini, E., Keen, H & Zimmet, P. 2004. International Textbook of Diabetes Mellitus. 3rd Edition. England. John Wiley & Sons Ltd.

Department of Health. 2008. Primary Health Care. Standard Treatment Guidelines and Essential Medicines List. 4th Edition. South Africa. The National Department of Health.

De Vos, A.S., Strydom, H., Fouché, C B & Delport, CSL. 2005. Research at Grass roots. For the social and human service profession. 3rd edition. Pretoria. Van Schaik.

Dreyer, M. S. 2005. Pharmacology for nurses and other health workers. Sixth impression. Cape Town. Kagiso.

Erem, C., Hacihasanoglu, A., Kocak, M., Deger, O & Topbas, M. 2008. Prevalence of prehypertension and associated risk factors among Turkish adults: Trabzon Hypertension Study. Journal of Public Health. Volume 31. Issue 1.Pp 47-58.

Farrington, K. 2002 This is nicotine. United Kingdom. Sanctuary Publishers. Gaziano, T., Steyn, K, Cohen, D J, Weistein, M.C& Opie, L.H. 2005. Heart Disease in Africa. (Online). Available:http://www.cost-effectiveness/ Analysis in South Africa, html.

Gu, Reynolds, Wu, Chen, Duan, Muntner, Huang, Reynolds, Su, Whelton & He. 2010. Prevalence, Awareness, Treatment, and control of hypertension in China. 5 September 2010. Volume 39. Issue 7-Page 1303-1310.

Hjem, J.R. 2O10. The Dimensions of Health. Conceptual Model. United States of America. Jones & Bartlett Publishers, LLC.

Holford, 2010. The Low-GL DIET. Lose Fat Fast. The Revolutionary Fat burner System. United Kingdom. Piatkus Books.

Hood J. & Leddy, S.K. 2003. 5th Edition. Conceptual bases of professional nursing. United Kingdom. Lippincott Williams & Wilkins.

Houston, M.C. 2012. What your Doctor may not tell you about Heart Disease. New York. Grand Central Life & Style.

Hutchison, E.D. 2011. Dimension of Human behaviour. The changing life course. United States of America. SAGE Publications, Inc.

Jones, D.W & Hall, J.E. 2007. World Hypertension Day. (Online). Available:Hyper.ahajounal.org/cgi/content/full/49/5/a39.

Khan, J.M and Beevers. 2005. Management of hypertension in ethnic minorities. (Online). Available:D: / www.management of hypertension in ethnic minorities.html.

Kowalski, R.F.2007. Take The Pressure Off Your Heart. South Africa. New Holland Publishers.

Kruger, S.H., Puoane, T., Senekal, M & Van der Merwe M.T. 2005. Obesity in South Africa: challenges for government and health professionals. (Email). Available:vgehsk@puk.ac.za.

Loscalzo, J.2005. Molecular mechanisms of atherosclerosis. Taylor & Francis. United Kingdom.

Maccaro, J. 2003. The Family Guide To Natural Health. Cape Town. New Holland Publishing.

Mani, Pein, Truscott, Strätling & Prangley, 2009. 4th Edition. Primary Clinical Care Manual. Cape Town.Jacana Education.

Mash, Blitz, Kitshoff & Naudé, 2010. 1st Edition. South African Clinical Nurse Practitioner's Manual. Cape Town. Van Schaik Publishers.

Mensah, G.A. 2008. The Epidemiology of stroke and high blood pressure in Africa. (Online.) Available: Heart 2oo8;94:697-705 doi;10,11/hrt.2007.127753. (Accepted 8 January 2008).

Mohan S & Campbell N.R.C. 2007. Hypertension Management. Time to shift gears and scale up national efforts. hyper ahajournals.org/agi/content/ful/53/3/450.

Nelson, A.2007. Empowering Your Health. U.S.A. Thomas Nelson Inc.

Nettina, S.M. 2006. Lippincott Manual of Nursing Practice. 8th Edition. United States of America. Lippincott William & Wilkens.

Oparil, S & Weber, M. 2005. Hypertension. A companion to Brenner and Rector's THE KIDNEY. United States of America. Elsevier.

Opie, L.H. 2004. Fourth Edition. Heart Physiology. From Cell to Circulation. U.S.A. Maple Press.

Perkins, E.R. Simnett, I & Wright, L. 2002. Evidence-based Health Promotion. England. John Wiley & Sons Ltd.

Perry, S. 2002. Taking charge of High blood pressure: start today strategies for combating the silent killer. New York. Reader's Digest.

Polit, D.F & Beck, C.T. 2012. 9TH Edition. Nursing Research. Generating and Assesing Evidence for Nursing Practice. U.S.A. Wolters Kluwer Health/Lippincott Williams & Wilkens.

Rang, H.P. Dale, M.M. Ritter, J.M. & Moore, P.K. 2003. Pharmacology for Health Professionals. Elsevier. Australia.

Schellack, G. 2004. Pharmacology in clinical nursing practice. Application made easy. Lansdowne. South Africa. Juta & Co Ltd.

Science Daily. Physical activity reduces hypertension in young adults. (S.a.)(Online). Available:http://www.sciencedaily.com(Accessed 21 March 2007).

Serfontein, W. 2003. Feel Better Live Longer. Beating life style diseases before the start. Cape Town.Tafelberg Publishers.

Sinatra, S.T., Roberts, J.C & Zucker, M. 2007. Reverse Heart Disease Now. Stop Deadly Cardiovascular Plaque before it's too late. The newest cardiology breakthrough to halt arterial disease and high blood pressure, prevent heart attack, and reverse heart failure. New Jersey. John Wiley & Sons Inc.

Smeltzer, S.C., Bare, B.G., Hinkle J.L & Cheever, Kerry H. 2010. Brunner & Suddath's textbook of Medical and Surgical nursing. 12th Edition. Wolter Kluwer/Lippencott Williams & Wilkens. Philadelphia.

South African Broadcasting Corporation. News. 7 O' Clock. 24 August 2010.

Thomas, S.P. & Pollio, Howard R. 2002. Listening to Patients. A Phenomenological Approach to Nursing Research. United States of America. Springer Publishers.

Tonkin , A. 2003. Atherosclerosis and heart disease. England. Taylor and Francis group plc.

Tortora, G.J & Derrickson, B. 2006. Principles of Anatomy and Physiology.11TH Edition. United States of America. John Wiley & Sons,Inc.

Van Rensburg, H.C.J. 2004. Health and healthcare in South Africa. Cape Town. Van Schaik.

Welman, Kruger & Mitcell. 2005. Research Methodology. 3rd Edition. Southern Africa. Oxford University Press.

Whelton,He & Louis, 2003 Whelton, P., He, J &Louis, G. 2003. Lifestyle Modification for the Prevention and Treatment of Hypertension. Marcel Dekker, Inc. United States of America.

Williams, J.R. 2008. *Declaration of Helsinki*. www.wma.net. Witwatersrand Medical School. (19 March 2009).

ANNEXURES

Annexure A: Participant information leaflet and consent form

TITLE OF THE RESEARCH PROJECT: The knowledge of young adults on hypertension

REFERENCE NUMBER:

PRINCIPAL INVESTIGATOR:NM Mondzinger

ADDRESS:16 Geelhoutway

Belhar

7493

CONTACT NUMBER:0761690673

You are being invited to take part in a research project. Please take some time to read the information presented here, which will explain the details of this project. Please ask the study staff or doctor any questions about any part of this project that you do not fully understand. It is very important that you are fully satisfied that you clearly understand what this research entails and how you could be involved. Also, your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

This study has been approved by the **Health Research Ethics Committee (HREC) at Stellenbosch University** and will be conducted according to the ethical guidelines and principles of the international Declaration of Helsinki, South African Guidelines for Good Clinical Practice and the Medical Research Council (MRC) Ethical Guidelines for Research.

What is this research study all about?

> *Where will the study be conducted; are there other sites; total number of participants to be recruited at your site and altogether.*

> *Explain in participant friendly language what your project aims to do and why you are doing it?*

> *Explain all procedures.*

> *Explain any randomization process that may occur.*

> *Explain the use of any medication, if applicable.*

Why have you been invited to participate?

> *Explain this question clearly.*

What will your responsibilities be?

> *Explain this question clearly.*

Will you benefit from taking part in this research?

> **Explain all benefits objectively. If there are no personal benefits then indicate who is likely to benefit from this research e.g. future patients.**

Are there any risks involved in your taking part in this research?

> **Identify any risks objectively.**

If you do not agree to take part, what alternatives do you have?

> *Clearly indicate in broad terms what alternative treatment is available and where it can be accessed, if applicable.*

Who will have access to your medical records?

> ➢ *Explain that the information collected will be treated as confidential and protected. If it is used in a publication or thesis, the identity of the participant will remain anonymous. Clearly indicate who will have access to the information.*

What will happen in the unlikely event of some form of injury occurring as a direct result of your taking part in this research study?

> ➢ *Clarify issues related to insurance cover if applicable. If any pharmaceutical agents are involved will compensation be according to ABPI guidelines? (Association of British Pharmaceutical Industry compensation guidelines for research related injury which is regarded as the international gold standard). If yes, please include the details here. If no, then explain what compensation will be available and under what conditions.*

Will you be paid to take part in this study and are there any costs involved?

No you will not be paid to take part in the study but your transport and meal costs will be covered for each study visit. There will be no costs involved for you, if you do take part.

Is there anything else that you should know or do?

> ➢ You should inform your family practitioner or usual doctor that you are taking part in a research study. (*Include if applicable*)
>
> ➢ You should also inform your medical insurance company that you are participating in a research study. (*Include if applicable*)
>
> ➢ You can contact Dr ……………..………..….. at tel ……………………… if you have any further queries or encounter any problems.
>
> ➢ You can contact the **Health Research Ethics Committee** at 021-938 9207 if you have any concerns or complaints that have not been adequately addressed by your study doctor.
>
> ➢ You will receive a copy of this information and consent form for your own records.

Declaration by participant

86

By signing below, I ………………………………..…………. agree to take part in a research study entitled *(insert title of study)*.

I declare that:

- I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.

- I have had a chance to ask questions and all my questions have been adequately answered.

- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.

- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.

- I may be asked to leave the study before it has finished, if the study doctor or researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Signed at (*place*) ....…......……………….. on (*date*) …………...………….. 2009.

....
Signature of participant   **Signature of witness**

Declaration by investigator

I *(name)* …………………………………………..……… declare that:

- I explained the information in this document to …………………………………..

- I encouraged him/her to ask questions and took adequate time to answer them.

- I am satisfied that he/she adequately understands all aspects of the research, as discussed above

- I did/did not use a interpreter. (*If an interpreter is used then the interpreter must sign the declaration below.*

87

Signed at (*place*) ....…......……………. on (*date*) …………...………... 2009.

....
Signature of investigator   **Signature of witness**

Declaration by interpreter

I *(name)* …………………….……….………..……… declare that:

- I assisted the investigator (*name*) ……………………………………. to explain the information in this document to (*name of participant*) …………….……………………………….. using the language medium of Afrikaans/Xhosa.

- We encouraged him/her to ask questions and took adequate time to answer them.

- I conveyed a factually correct version of what was related to me.

- I am satisfied that the participant fully understands the content of this informed consent document and has had all his/her question satisfactorily answered.

Signed at (*place*) ....…......……………. on (*date*) …………...………………..

....
Signature of interpreter   **Signature of witness**

Annexure B: Questionnaires

Questionnaire

Study Aim

The purpose of this study is to determine the communication between patient and the nurse. There are no wrong or right answers for this questionnaire and your information is of importance for this success of this study. All information will be treated anonymous and private. Results of this study will be disseminated in the form of graphs, statistics, and graphs. To complete this 3-page questionnaire, will take 30 minutes. All you need to do is to mark with a cross (x) your preferred response.

Mark off with a cross (x) your most appropriate response.

Section A: Sosio-graphic

Indicate your answer with a tick (x) in the appropriate column

1. Age

2. Race group

5	African	
6	Coloured	
7	Indian	
8	white	
9	Other specify	

3. Level of education

4. Home Language

11	Afrikaans	
12	English	
13	Xhosa	
14	Zulu	
15	Other	

5. Do you suffer from any disease such as:

16	Diabetes	
17	Heart disease	
18	Eye problems	
19	Ear problems	
20	Head trauma	
21	Epilepsy	
22	Other (specify):	

Section B: Knowledge and attitude

For each of the statements below, indicate the extent of your agreement or disagreement by placing a tick in the appropriate box.

The response scale is as follows:

1. Yes   2. No

	Condition	Yes	No
23	High blood pressure is a disease for old people		
24	Young people do not get high blood pressure		
25	When I feel good I do not have to take my high blood pressure tablets		

26	If I miss a dosage of my high blood pressure tablets, I can double the dose		
27	If my blood pressure is under control there is no need to take any high blood pressure medication		
28	I take my blood pressure tablets even if I feel well		
29	I will have to take my blood pressure medication my whole life		
30	I take my blood pressure tablets as prescribed		
31	I sometimes forget to take my blood pressure tablets		
32	Stress causes high blood pressure		
33	High work expectations cause high blood pressure		
34	Young people never stress		
	Lifestyle		
35	I drink coke, fanta or other fizzy drinks		
36	I can eat the skin and meat of chicken		
37	I can eat the white meat of chicken		
38	I eat red meat more than twice a week		
39	I do not have to cut off the fat of the meat		
40	I use salt to cook my food		
41	I put extra salt on my food		
42	I do exercises more than twice a week		
43	I walk fast less than 30 minutes per day		
44	I walk fast more than 30 minutes per day		
45	I eat fruit more than 4 times per week		
46	I eat vegetables more than 4 times a week		
47	I only drink alcohol over weekends		
48	I drink alcohol more than 2 days per week		
49	Drinking alcohol is good for high blood pressure		
50	I smoke 1-9 cigarettes a day		
51	I smoke more than 20 cigarettes a day		

91

52	Smoking is good for high blood pressure		
	Complications		
53	Chronic high blood pressure leads to sugar/diabetes		
54	High blood pressure causes stroke		
55	High blood pressure causes eye problems that lead to blindness		
56	High blood pressure causes heart diseases like heart attacks and heart failure		
57	High blood pressure causes kidney failure		
58	High blood pressure reduces blood flow to the legs and feet		
59	I must visit the clinic or hospital if I have any of the symptoms: headache, double vision, and heart palpitations		
60	I visit the clinic only if I feel unwell		
61	High blood pressure is a lifelong chronic disease		
62	Lifestyle changes such as smoking cigarettes, drinking alcohol/wine, unhealthy diet, lack of exercise and stress cause high blood pressure		

Thank you

Umbuzo

Injingo yezizifundo zophando kukuqonda ulwazi malunga nezigulare ze hypertension. Akukho medullae ichanekileyo okanye engalungange kwaye ulwazi lwezigulane oluti lufunyanwe kwimpenduto luyakuge inwa ngokukuuselekileyo lunga nikwa nabani nah. Ukuphendule lemibuzo akuzutha tha ngaphezu kwemizuzueyi-15.Ukuphendula uyakubonisa (*) Kweyona mpendulo echanekileyo

Chaza impulo ngokuboniso unxi (X)kwibhokisi elungiselwe oko.

Icondelo A: Incukuncha zakho

1. Iminyaka.

2.Uhlanga

6	Black	
7	Owebala	
8	Indiya	
9	Umlungu	
10	Ezinye	

3. Ibanga

93

4. Ulwimi lwasekhaya

11	iAfrikaans	
12	English	
13	Isixhosa	
14	Isizulu	
15	Ezinye	

5. Ingaba ukhathazwa sesinye sezizifo zilandelayo

16	Isifo seswekile	
17	Isifo sentliziyo	
18	Yamehlo	
19	Indlebe	
20	Ukuxhuzula	
22	Ezinye	

Section B: Ulwazi ne indlela oyethu nganyo

Kwingxelo nganye chaza ukuba kutheni uvumelana okanye ungavumelani ngokubeka unxi waxho kwibhokisi elungiselwe oko Isikali singoluhlobo

Umzekelo

1. Ewe   2. Hayi

	Izifo.	Ewe	Hayi
23	High blood pressure sisigulo sabantu abadala.		
24	Abantu abancinci abayifumani I high blood pressure.		
25	Xa ndingeva nto andinakuzisela ipilisi ze high blood.		
26	Ukuba andizitathanga ipilisi ndingazidabulishana.		
27	Xa ihigh blood ilawuleka andingkuzosela ipilise zayo.		
28	Ndiyaziela ipilisi ze high blood naxa ndziva ndiphilile.		
29	Kufuneka ndizitye ipilisi zi high blood ubom bam bonke.		
30	Ndizisela njalo ipilisi ze high blood.		
31	Ndinamaxesiya okulibala ukusela ipilisi ze high blood.		
32	I –stress ibangela i- high blood pressure /ihigh blood pressure ibangela i-stress.		
33	Ukufaka abantu phantsi koxinezelo lomsebenzi kungabanga i-high blood.		
34	Ulutsha alufane lube nestress.		
	Indlela yokuphila.		
35	Ndisela I coke, fanta nezinye iziselo ezihlwahlwazayo.		
36	Nditya ifele nenyama yenkuku		
37	Ndingaya inyama emhlophe yenkuku.		
38	Nditya inyama ebomvu kahlanu ngeveki.		
39	Akufuneki ndisuse ifele enyameni		
40	Ndisebenzisa ityuwa xa ndipheka ukutya kwam		
41	Ndingalela ityuwa enini ekutyeni kwam		

95

42	Ndenza imithambo ngaphezu kwentsuku ezimbini ngeveki		
43	Indhamba ngokungxama ngapahantsi kwemizuzu engamashumi amathathu ngemini.		
44	Ndhamba ngokungxama ngephezu kwemizuzu elinamashumi amathathu mgemini		
45	Ndiya iziqhamo amaxa amane ngeyeki		
46	Nditya imifuno amaxa amane ngeveki.		
47	Ndisela ngempela veki kuphela		
48	Nditshaya ii-sigarethi ezi 1-9 ngemi.		
49	Utywala bulungile kumtu onehigh blood		
50	Njika otshaya isigarethi		
51	Njika indlela otshaya ngayo isigarethi.		
52	Ukutshaya icuba kulungile xa une high blood pressure.		
	Ingxaki ezino kubakho.		
53	I high blood pressure Ikhokelaela kwisugar/diabetes.		
54	I high blood pressure ibanga I stroke.		
55	Yenza ingxaki yamehlo ekhokelela ebumfameni.		
56	High blood ibanga Isifo setliziyo.		
57	High blood yenza Isifo sezintso.		
58	I high blood inciphisa igazi eliya emilenzi naseziyaweni		
59	Kufuneka ndiye ekliniki okanye esibedlele xa ndinezimpawu: intloko ebuhlungu,		

96

60	Ndiya ekliniki xa ndingaziva ndiphilele.		
61	I high blood pressure sisifo sobom bonke.		
62	Ukutshaya, ukusela utywala, ukutya okunganakha mzimba, ukungezi imithambo nestree zenza ihigh blood pressure.		

Enkosi kakulu

97

Vraelys

Interaksie tussen die pasiënt met hypertensie en die verpleegkundige. D doel van die studie is om vaste stel wat die kennis van die pasiënt ten opsigte van hipertensie is. Daar is geen reg of verkeerde antwoord in die vraelys nie. Die inligting van die pasiënt is belangrik tot die sukses van die studie.Alle inligting sal met vertroulikheid behandel word en die navorser onderneem om geen inligting bekend te maak wat in die vraelys voorkom nie.

Om die vraelys te voltooi, sal net 30 minute duur. Dit word van die individuverlangom 'n kruis te maak by die mees geskikte stelling waarmee saamgestem of nie saamgestem word nie,deur 'n kruis in die regte kolom te plaas.

Afdeling A: Sosio-grafies

1. Jou Ouderdom

2. Rasse groep

5	Swart	
6	Kleurling	
7	Indiër	
8	Wit	
9	Ander (spesifiseer)	

3. Vlak van opleiding

4. Huistaal

11	Afrikaans	
12	Engels	
13	Xhosa	
14	Zulu	
15	Ander	

5. ly u aan een van die volgende of het u al tevore hieraan gely

16	Diabetes	
17	Hartsiekte	
18	Oogprobleme	
19	Oor probleme	
20	Hoofbesering	
21	Epilepsie	
22	Ander	

Afdeling B: Kennis en houding

Vir elk van die volgende stellings hieronder dui met 'n kruisie (x) aan in die kolom na gelang van saamstem of nie saamstem nie.

Die reaksie skaal is soos volg:

1. Ja   2. Nee

99

	Toestand	Ja	Nee
23	Jong pasiënte is van mening dat hoë bloeddruk net met ouer persone geassosieer word		
24	Jong mense kry nie hoë bloeddruk nie		
25	As ek goed voel, hoef ek nie my hoëbloeddruk pille te neem		
26	As ek vergeet het om my bloeddruk pille te neem, dan neem ek 'n dubbele dosis		
27	As my bloeddruk onder beheer is, hoef ek nie anti-hipertensiewe middels te gebruiknie		
28	Ek neem my bloeddruk pille selfs as ek goed voel		
29	Ek moet my bloeddruk pille lewenslank neem		
30	Ek neem my bloeddruk pille altyd soos voorgeskryf		
31	Ek vergeet somtyds om my bloeddruk pille te neem		
32	Stresveroorsaak hoë bloeddruk		
33	Hoë lewensverwagtinge veroorsaak hoë bloeddruk		
34	Jongmense is nooit gespanne nie		
	Lewenstyl		
35	Ek drink fanta, coke en ander gaskoeldranke		
36	Ek eet die vel en vleis van hoender		
37	Ek kan die wit vleis van hoender eet		
38	Ek hoef nie die vet van vleis af te sny nie		
39	Ek eet rooivleis meer as twee keer per week		
40	Ek gebruik sout as ek my voedsel gaarmaak		
41	Ek strooi ekstra sout oor my kos		

42	Ek doen meer as 2 keer oefeninge per week		
43	Ek stap vinnig vir minder as 30 minute per dag		
44	Ek stap vinnig vir meer as 30 minute per dag		
45	Ek eet meer as 4 keer per week vrugte		
46	Ek eet meer as 4 keer per week groente		
47	Ek drink net alkohol/wyn naweke		
48	Ek drink elke dag wyn/alkohol		
49	Alkohol/wyn is goed vir hoë bloeddruk		
50	Ek rook 1- 9 sigarette per dag		
51	Ek rook meer as 20 sigarette per dag		
52	Rook is goed vir hoë bloeddruk		
	Komplikasies		
53	Kroniese hoë bloeddruk lei tot diabetes/suikersiekte		
54	Hoë bloeddruk veroorsaak beroerte		
55	Hoë bloeddruk veroorsaak oë probleme wat lei tot blindheid		
56	Hoë bloeddruk veroorsaak hartsiektes soos hartaanvalle en hartversaking		
57	Hoë bloeddruk veroorsaak nierversaking		
58	Hoë bloeddruk verminder die bloedvloei na die bene en voete		
59	Ek besoek die kliniek/hospital as ek enige van die volgende simptome ervaar: hoofpyn, dubbele visie en hartkloppings		
60	Ek besoek die kliniek net as ek nie gesond voel nie		
61	Hoë bloeddruk is 'n lewenslange kroniese siektetoestand		
62	Lewensstyl veranderinge soos sigaret rook, alkohol gebruik, ongesonde eetgewoontes, geen oefening en spanning/stress veroorsaak hoë bloeddruk		

101

Baie dankie

DEPARTMENT
of HEALTH
Provincial Government of the Western Cape

COMPONENT

claudabr@pgwc.gov.za
tel: +27 21 483 9907; fax: +27 21 483 9895
1st Floor, Southern Life Centre, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za

REFERENCE: 18/19/RP125/2010
ENQUIRIES: Dr N Peer

Ms Naomi Mondzinger

16 Geelhoutway

Belhar

7493

Fax: (021) 889 5279

For attention: Ms Naomi Mondzinger

The knowledge of young adults about hypertension

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research. Please contact the following members of staff to assist you with access to the facilities:

Cloetesville Day Hospital   Sis Slade   (021) 887 0310
Kayamandi Clinic

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final report within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (healthres@pgwc.gov.za).
3. The reference number above should be quoted in all future correspondence.
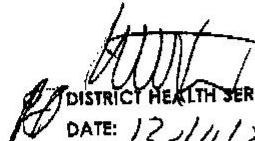
We look forward to hearing from you.

Yours sincerely

DR J CUPIDO
DEPUTY-DIRECTOR GENERAL

The Afrikaans or Xhosa version of this document is available on request.   page 1 of 2

Annexure C

DISTRICT HEALTH SERVICES AND PROGRAMMES

DATE: 12/11/2 07 0

CC: DR L PHILLIPS   DIRECTOR: CAPE WINELANDS DISTRICT

The Afrikaans or Xhosa version of this document is available on request.   page 2 of 2

104

Annexure D: Ethical approval

UNIVERSITEIT·STELLENBOSCH·UNIVERSITY
jou kennisvennoot · your knowledge partner

24 August 2011   **MAILED**

Miss N Mondzinger
Department of Nursing
2nd Floor
Teaching Block

Dear Miss Mondzinger

Knowledge of Young Adults on Hypertension.

ETHICS REFERENCE NO: N10/06/217

RE : PROGRESS REPORT

At a review panel of the Health Research Ethics Committee that was held on 24 August 2011, the progress report for the abovementioned project has been approved and the study has been granted an extension for a period of one year from this date.

Please remember to submit progress reports in good time for annual renewal in the standard HREC format.

Approval Date: 24 August 2011   Expiry Date: 24 August 2012

Yours faithfully

MRS MERTRUDE DAVIDS
RESEARCH DEVELOPMENT AND SUPPORT
Tel: 021 938 9207 / E-mail: mertrude@sun.ac.za
Fax: 021 931 3352

24 August 2011 14:15   Page 1 of 1

Fakulteit Gesondheidswetenskappe · Faculty of Health Sciences

Verbind tot Optimale Gesondheid · Committed to Optimal Health
Afdeling Navorsingsontwikkeling en -steun · Division of Research Development and Support
Posbus/PO Box 19063 · Tygerberg 7505 · Suid-Afrika/South Africa
Tel.: +27 21 938 9075 · Faks/Fax +27 21 931 3352

105