The relationship between knowledge and reported self-care practices of hypertensive clients at Bindura Provincial Hospital, Zimbabwe

C. S. Katsinde[1]* and T. J. Katsinde[2]
[1]*Department of Health Science, Bindura University of Science Education, P. Bag 1020 Bindura, Zimbabwe.
[2]Department of Education, Bindura University of Science Education, P. Bag 1020, Bindura, Zimbabwe.
Corresponding author: *ckatsinde@yahoo.co.uk

Accepted 12 May 2006

Abstract

High blood pressure is a chronic disease, which is of major concern in medical surgical nursing as it is on the increase worldwide. Modifiable risk factors associated with it include smoking, sedentary life, obesity, increased sodium, cholesterol and alcohol intake and stress. The purpose of this study was to describe and examine the relationship between knowledge and self-care practices. Orem's self care model was used in this study. A systematic random sample of 80 hypertensive men and women between the ages 35 and 74 years was selected at the out-patient department. Data was collected using a questionnaire. Results showed a positive significant correlation of knowledge on reported self-care practices ($r = .30$ $p < .01$). Medical surgical nursing practice should adopt protocols that incorporate knowledge of high blood pressure to promote self-care practices. Individualized approach should be used to identify individualized learning needs, so as to address unique needs of the clients.

Keywords: blood pressure, hypertension, knowledge and self-care practices.

Introduction

Blood pressure is defined as the pressure exerted on the walls of the arteries that is affected by the cardiac output distention of arteries and volume, velocity and viscosity of blood (Smeltzer and Bare, 1996). Systolic pressure, which is the peak pressure, occurs when ventricles contract and diastolic pressure is the lowest, which occurs when ventricles are relaxing. Diastolic pressure is of major concern as it denotes the resting state of the heart. The higher the diastolic pressure the more the heart is compromised (Tavern, 1983). On the other hand systolic pressure is a major indication of vascular constriction. Normal adult diastolic values range from 60-90 mmHg, and average 80 mmHg whilst systolic pressure range from 100- 140 mmHg, and averages 120 mmHg.

Blood pressure rises through childhood and adolescence and reaches the plateau of normal adult levels in the third decade (Edward et al, 1995). However, mean blood pressure continues to increase with age but varies individually (Matenga, 1997, Edward, et al, 1995).

According to Yong et al (1993) various studies show that blood pressure levels at an earlier age is an important predictor of blood pressure level at a later age. The incidence of high blood pressure thus increases with age (Johansen, 1993, Simmon et al, 1986). Between 50% and 60% of clients over 50 years old have high blood pressure, with more women being affected than men (Black and Jacobs, 1993).

Preventive measures and control of high blood pressure should be a priority because high blood pressure is common and treatable, and if uncontrolled it has serious consequences. Thus knowledge about high blood pressure, its treatment and consequences of its uncontrolled nature are crucial in prevention and control.

Self-care knowledge, is needed to regulate factors that affect the individual's own functioning. Self care knowledge on high blood pressure requires the patient to have awareness of behaviours to be changed and those to be introduced or maintained.

Self-care knowledge plays an important role in the performance of activities that help to control blood pressure levels. This suggests that in chronic high blood pressure, self-care knowledge may be a pre-requisite for control of high blood pressure as clients can only engage in self-care practices if they have the knowledge that participation in specific self-care activities makes a difference in the disease progression.

In Zimbabwe, consultations for hypertension attendants represent the biggest caseload for chronic diseases. Cardiovascular diseases account for 3-4% of all admissions in this country. In 1996 cardiovascular diseases were among the top ten causes of hospital mortality, ranking number four with a total of 1081 deaths in the population aged five years and over (MOH/CW, 1999).

Given the serious renal, cardiac and central nervous system complications, high blood pressure level is regarded as one of the major public health problems in the region (Matenga et al 1997). Since it affects younger people, stroke alone in Zimbabwe may impose even greater economic burden on families and society (Matenga et al 1986). However, studies suggest that people with high blood pressure who practice self-care, are less likely to develop complications. Those who fail to practise self-care frequently experience complications that are preventable (Kitai and Irwig, 1997,Samuelson et al, 1987). It has not been clearly established, especially in local studies, whether clients with high blood pressure fail to practise self-care because they lack the knowledge or not. Hence the need for this study.

Conceptual Framework

This study utilized Orem's (1991) Self-care model for nursing. The theory has three related concepts: self-care, self - care deficit and nursing systems. Self-care is care performed by oneself, enabling for consistent, controlled, effective and purposeful action. Self-care deficit occurs when self-care agency cannot meet self-care demands. Nursing system is the organization of care in helping individuals to meet their self-care needs. Relevant to nursing practice are basic conditioning factors that have an influence on the person's ability to perform self-care.

With high blood pressure levels the focus of nursing is upon a person's need for self- care. Based on a careful assessment of a person's health care needs and resources for these self-care demands, the nurse can evaluate deficiencies that exist and intervene appropriately.

Research Methodology

This study utilised a non-experimental descriptive correlational study design. A sample of 80 clients with high blood pressure levels were selected using systematic random sampling in the out-patient department at Bindura hospital .The sample consisted of male and female hypertensive clients. The hypertensive clients had been diagnosed with hypertension for at least 6 months to 5 years. They were aged between 35 and 74 years with no complications like diabetes, stroke or cardiac failure.

A questionnaire comprising three sections was self-administered. The questionnaire focused on demographic data, high blood pressure knowledge and reported self-care practices.

The demographic data questionnaire measured the demographic variables. These variables were respondents' personal characteristics: age, sex, marital status, religion, educational level, income, occupation, residence, duration of the high blood pressure and the family's history of high blood pressure.

High blood pressure knowledge was defined as information gained through interaction of the patient with the health personnel, friends and media. The questions on high blood pressure knowledge sought information about signs and symptoms, risk factors, complications and medication. Scoring was based on a minimum score of 0 and a maximum score of 28 .A score less than 14 was classified as poor knowledge, 14 18 classified as satisfactory knowledge, 19-28 good knowledge.

Reported self-care practices were defined as activities reported to be done regularly by clients with high blood pressure in order to maintain levels within normal ranges. Operationally reported self-care practices were based on diet, physical activity, medication and behaviour changes. Scoring was based on a minimum score of 0 and a maximum score of 38. A score of 0-18 was considered as poor, 19-25 low and 26-38 satisfactory.

Descriptive statistics in the form of frequencies, percentages and mean were used to present data on knowledge of the disease and its management, and self-care practices. Pearson's correlation coefficient and simple linear regression were used to demonstrate the strength of the relationship and the effect of knowledge on reported self-care practices.

Results

The sample consisted of 80 respondents. Many respondents (33.8%) were in the age group 35-44 years. The majority of respondents (76.2%)were women. Most respondents (61.2%)were married. Sixty (60.0%) attained an educational level of grade 7 and below. More than 50% were housewives and the majority (86.3%)were Christians. Sixty five percent had no source of income although most (66.2%)were town dwellers (Table1).

Table 1: Sample demographics (N=80)

Characteristic	Number of respondents	Percentage(%)
Age		
35-44	27	33.8
44-54	22	27.5
55-64	17	21.2
65-74	14	17.5
Sex		
Male	19	23.8
Female	61	76.2
Marital Status		
Single	4	5.0
Married	49	61.2
Divorced/separated	4	5.0
Widowed	23	28.8
Educational level		
Grade 7and below	48	60.0
Form 1-4	27	33.8
Form 5-6	4	5.0
Graduate	1	1.3
Occupation		
Professional	10	12.5
Skilled worker	9	11.5
Unskilled worker	6	7.5
Self-employed	4	5.0
House-wife	41	51.3
Unemployed	10	12.5
Religion		
Christianity	69	86.3
Traditionalists	3	3.8
None	8	10.0
Income		
None	52	65.0
Less than $2000	3	3.8
$3000 to $4999	2	2.5
$5000 to $9999	8	10.0
More than $10000	15	10.7
Residence		
Urban	53	66.2
Rural	23	28.8
Farm	2	2.5
Mine	2	2.5

Sources, type of information and time of giving information

Respondents were asked to indicate the type of information, sources of information and the time the information was received (Table 2). The majority of respondents (62.5%) indicated that they received information on high blood pressure. Most of the respondents (52.5%) received information from nurses. Many of the respondents (37.5%) received the information before diagnosis. There isn't much difference in the type of information received but information on diet and dangers of high blood pressure was high (22.5% for each).

Table 2: Sources of information, time received and type

Characteristic	Number of respondents	Percentage(%)
Information received		
Yes	50	62.5
No	30	37.5
Source		
Nurse	42	52.5
Doctor	13	16.3
Friends	9	11.2
Media	16	20.0
Time		
Before diagnosis	30	37.5
At diagnosis	27	33.7
At every review	0	0.0
When blood pressure is high	23	28.8
Type		
Disease condition	12	15.0
Dangers of HBP	18	22.5
Signs and symptoms	15	18.8
Complications	17	21.2
Diet	18	22.5

Knowledge: signs and symptoms and action taken

The majority of respondents (90%) knew that severe headache was a symptom of raised blood pressure. Most of them (90%) suffered from headache. On action taken many of them (62.5%) stated that they took some rest (Table 3).

Table 3: Signs, symptoms and action taken

Characteristic	Number of respondents	Percentage(%)
Symptoms known		
Dizziness	34	42.5
Blurred vision	19	23.8
General body pains	28	35.0
General body weakness	29	36.2
Palpitations	29	36.2
Severe headache	72	90.0
Symptom suffered		
Severe headache	72	90.0
Dizziness	32	40.0
Blurred vision	16	20.0
General body pains	25	31.2
General body weakness	27	33.8
Palpitations	28	35.0
Action taken		
Rest	50	62.5
Medical advice	34	42.5
Use pain reliever	14	17.5

Knowledge: Contributory factors, complications and medication

Concerning dangers of high blood pressure, results revealed that the majority (92.5%) knew that stress contributed to raised blood pressure. On knowledge of complications of high blood pressure most respondents (83.8%) noted stroke as a major one. With regard to taking medication all respondents were on medication to control high blood pressure. The majority of respondents (93.8%) were able to name the medication they were taking and most (98.8%) knew how often they had to take their medication (Table 4).

Table 4: Contributory factors, complications and medication

Characteristic	Number of respondents	Percentage
Contributory factors		
Smoking	5	6.2
Alcohol	5	6.2
Obesity	23	28.8
Stress	74	92.5
Sedentary life	7	8.8
Complications		
Stroke	67	83.8
Heart failure	17	21.2
Renal failure	6	7.5
Coronary artery disease	2	2.5
Heart attack	13	16.2
Medication		
Taking medication	80	100.0
Taken regularly	71	88.8
Never change dose without consultation	11	13.8
Never miss a dose	21	26.2
Never share medication	8	10.0
Naming medication correctly	75	93.8
Correct frequency of taking medication	79	98.8

Knowledge: smoking, alcohol consumption and diet

Regarding knowledge about smoking, alcohol consumption and diet to be taken by a hypertensive patient, the majority (82.5%) did not know the relationship between smoking and high blood pressure. Most respondents (80.0%) did not have information about alcohol consumption. In terms of diet restrictions most (80.0%) mentioned low salt intake (Table 5).

Table 5: Smoking, alcohol consumption and diet (n=80)

Characteristic	Number of respondents	Percentage(%)
Smoking		
Non-smokers	66	82.5
Stop smoking	15	17.5
Alcohol		
Non- drinkers	59	73.8
Don't know	5	6.2
Stop alcohol/ 1-2 pints beer	16	20.0
Low salt	64	80.0
Low fat	49	61.2
Plenty of vegetable	3	3.8
Reduce starchy foods	12	15.0

Total knowledge scores

Scoring for the total knowledge was based on a minimum score of zero, and a maximum score of 28 with a mean of 14. Total knowledge scores for the study sample ranged from 7 to 28.The majority of the respondents (82.5%) had a score below the mean of 14 indicating poor knowledge of high blood pressure, while only 2.5% scored between 19 and 23 indicating good knowledge (Table 6).

Table 6: Total knowledge of high blood pressure out of a total score of 28 (N=80)

SCORE	Number of respondents	Percentage(%)
9	1	1.2
11	2	2.5
13	1	1.2
15	4	5.0
16	7	8.8
17	5	6.2
18	6	7.5
19	9	11.3
20	10	12.5
21	6	7.5
22	7	8.8
23	7	8.8
24	8	10.0
25	1	1.2
26	3	3.8
27	2	2.5
30	1	1.2

Total reported self-care practices

Scoring for total reported self-care practices was based on a minimum score of zero and a maximum of 38. Total reported self-care practices score for the study ranged from 9 to 30. The majority (60.0%) scored between 19 and 25 points indicating low levels of practices (Table 7).

Table 7: Reported self-care practices (N=80)

SCORE	Number of respondents	Percentage(%)
9	1	1.2
11	2	2.5
13	1	1.2
15	4	5.0
16	7	8.8
17	5	6.2
18	6	7.5
19	9	11.3
20	10	12.5
21	6	7.5
22	7	8.8
23	7	8.8
24	8	10.0
25	1	1.2
26	3	3.8
27	2	2.5
30	1	1.2

Relationship of knowledge of high blood pressure and reported self-care practices

Using a Pearson's correlation matrix, knowledge of high blood pressure showed a positive significance with reported self-care practices (r=. 30 p<. 01). Therefore as knowledge increases, reported self care practices increase.

Discussion

The majority of respondents suffering from high blood pressure were females. The findings concur with the findings of Mufunda et al (1999) who found that the prevalence of high blood pressure was higher in females than males. Most respondents were married. This is similar to a study carried out in South Africa by Seedat et al (1982) who found out that hypertension increased in married urban males. A possible explanation for this is the physical and psychological stress associated with urban life.

The majority of respondents had Grade 7 as their highest educational level, were housewives and unemployed. Most had little or no income. These characteristics indicate that the majority of the respondents suffering from hypertension were in the lower socio-economic status. This shows that the low socio-economic group is generally at risk for hypertension. According to Kauffman and Barky (1993) " higher educational levels lead to enhanced coping strategies and augmented resources for successful coping." Income levels influences high blood pressure management in terms of the ability to pay fees for regular check ups, purchase of drugs and diet.

Most respondents had a family history of high blood pressure: parents, grandparents or siblings also suffered from hypertension. This agrees with an observation made by Perry et al (1994) that people may genetically be susceptible to high blood pressure.

The majority of respondents received information about high blood pressure mainly from the nurses, which indicates that nurses play an important role in health education. The results are comparable to those by Furlong (1996), which show that nurses did most of the teaching and patients asked their nurse rather than any other medical personnel. The results indicate that patients received most of the information at the time of diagnosis and hardly any with subsequent visits. According to Stewart and Caranasos in Esposito (1995) giving clients simple, clear instructions repeatedly promotes compliance with medication regimens. Continued education of patients about their illness gives them a better understanding. According to Becker and Maiman (1990) there is a strong relationship between patient's level of information and adherence to treatment regimen, and lack of knowledge is one of the patient's problems in managing high blood pressure (Bruner, 1986). The educational approach is well suited to remedying the problems of insufficient or erroneous

information and detrimental health attitudes and beliefs such as the under evaluation of the severity of illness or the efficacy of modern medical therapy (Gillum and Barky, 1974).

In terms of total scores of high blood pressure knowledge the majority of respondents showed poor knowledge. This shows that generally hypertensive patients in this study had inadequate knowledge. This is an area of concern as only knowledgeable patients usually engage in self-care practices. According to Furlong (1996), non-compliance to treatment regimen is possibly attributable to lack of knowledge or lack of understanding of the illness or of the medications prescribed to treat it. Compliance is an essential component in the success of preventive and therapeutic efforts along with the efficacy of the suggested course of action (Cameron, 1996).

The majority of respondents had three meals a day. They usually had breakfast consisting of tea with milk, bread with either peanut butter or margarine. For lunch the majority had sadza and vegetables and for supper it was also similar to what they had during lunch with some having meat as additional. The results indicate that most of the respondents mainly had carbohydrate foods. The diet was fairly basic and did not have fattening effects, hence the insignificant problem of obesity. It was also identified that most of the patients ate traditional preserved foods like salted dried vegetables, dried meat, dried fish or roasted peanuts. This indicates that hypertensive patients consumed a lot of salt. This indicates that patients with knowledge of high blood pressure have excessive salt intake because of their socio-economic status, which makes it difficult to choose special food. But as a practice the majority of patients indicated that they used some additives to improve low salt. This is good practice for hypertensive patients as it encourages use of very little salt in food, thus helping to control blood pressure.

The majority of the respondents indicated that they took medicine as prescribed by the doctor. Most indicated that they never borrowed medication from other hypertensive patients. This is the right practice as borrowing medicine has problems of dosage and the expiry of the drug. But of concern was that many respondents did not have adequate knowledge of their illness and its management. Reasons for non-compliance, such as being tired or feeling better suggest that they were not aware that hypertensive illness requires taking drugs for life. The study also revealed that unavailability of funds to get to hospital or pay for consultation fee were among reasons for not having medication always. This is similar to a study by Guiffrida and Targerson (1997) who found out that compliance will be lower when there is a financial charge than when health care is free.

The majority of respondents indicated they do a lot of work at home daily and most women were involved in household work. Sibanda (1977) described physical activity as important physiologically and psychologically in decreasing blood lipids, hypertension and stress in an individual. Activity has been said to decrease peripheral vascular resistance and increase cardiac output (Arrol and Beaglehol, 1993). Awareness that activity is good for hypertensive patients is important as it benefits them. In this study it seems activities were performed regularly because they had to be done, and not because they were considered beneficial for hypertensives. Since household duties and activities done at home are regularised, there are likely to have been providing adequate activity to reduce weight gain and keep clients fit. The problem may arise with necessary but strenuous activities for peasant farmers such as ploughing and weeding.

The majority of respondents did not smoke. This is a good practice for hypertensive patients as smoking may contribute to high blood pressure. Smoking is a powerful risk factor for cardiovascular disease and avoidance of tobacco is important. These results show that smoking is not a problem in this sample, probably because most of them were females who shun smoking in Zimbabwean society.

The majority of the respondents did not take alcoholic beverages. This is an indication that alcohol consumption among hypertensive patients in this sample was not a problem. This might be because most of the respondents were women who usually do not drink. However knowledge about alcohol consumption may have resulted in abandoning alcohol consumption by some hypertensives hence a positive behavioural change. But of concern is the small number who took alcohol. The majority of these took more than five pints a day, which is more than the recommended 1 or 2 pints of beer (Matenga, 1997). It is important that hypertensive patients be educated on the benefits of reducing or stopping alcohol consumption.

The results showed a significant positive ($r = .30$ $p < 0.01$) Pearson correlation of knowledge of high blood pressure and reported self-care practices. This means that as knowledge of high blood pressure increases reported self-care practices increase. These results show that knowledge of high blood pressure has an effect on reported self-care practices thus supporting that knowledge has a direct effect on reported self-care practices. Lack of knowledge results in poor self-care practices resulting in poor compliance to treatment regimen. Without compliance therapeutic goals cannot be achieved resulting in poorer patient outcomes.

Conclusion

There is need for medical surgical nurses to provide adequate information on high blood pressure and its treatment including selfcare practices and possible complications when high blood pressure is not controlled. Lack of knowledge affects practices that in turn affect blood pressure control. Nurses should stress that defaulting treatments leads to clients requiring higher doses of medication, which costs more, as there will now be irreversible changes physiologically. This therefore calls for the medical surgical nurse to be knowledgeable about high blood pressure to be able to instil self-care knowledge as the nurse provides most of the information to clients.

The nurse should strengthen the knowledge of the patients, especially signs and symptoms, risk factors and complications of high blood pressure, thereby facilitating the acquisition of skills by the patient participating in his/her care. This can be achieved through individualized patient teaching sessions before or after doctor has reviewed the patient. In-patient teaching: nurses should discuss with clients how, given the staple diet, they could make changes, for example preserving vegetables without salt. Patients should be encouraged to wash off excess salt in foods like kapenta, dried meat and dried fish. Knowledge of non-strenuous regular activities that can be done at home should be strengthened and daily exercises regularized. Health workers should create rapport with clients to enable them to open up, and freely talk about their difficulties with self-care activities. There should be individualized patient assessment that enables identification of individualized learning needs.

References

Arrol, B. and Beablehol 1993. Exercise for hypertension. Lancet 341, 1248-1249.

Becker, M.H. and Maiman, L.A. 1990. Strategies for enhancing patient compliance. Journal of Community Health 6 (2): 113-132.

Cameron, C. 1996. Patient Compliance: recognition of factor involved and suggestions for promoting compliance with therapeutic regimens JAN 24 (2): 244-250)

Esposito. 1995. The effects of medication education on adherence to medication regimens in an elderly population. JAN 21:935-943.

Furlong, S. 1996. Do programs of medicine self-administration enhance patient knowledge, compliance and satisfaction? J.A.N Vol. 23: 1254-1262.

Guiffrida, A. and Targerson, D.J. 1997. Should we pay the patient? Review of financial incentives to enhance patient compliance. BMJ 315: 703-706

Guillam, R.F and Barky, A.J. 1974. Diagnosis and Management of Patient Non Compliance.J.A.M.A. 228 (12): 1563 1567.

Kauffman, J. and Barky, N. 1993. Hypertension in Africa: An overview of prevalence rates and causal factors. Ethnicity and Disease 3: 583-610.

Kitai, I.C. and Irwig, L.M. Hypertension in urban blacks outpatients: who gets treated and for how long? S.A.M.J.. 55: 211-244.

Matemga, J.A. 1997. Blood Pressure Measurement and Assessment of the Hypertensive Patient. Central African Journal of Medicine. 43 (12): 363 365.

Matenga.J.A, Kitai I and Levy, L. 1986. Strokes in Black People in Harare, Zimbabwe: results of computed tomography and associated risk factors. British Medical Journal 292: 1649-1651.

Mufundaetal 1999. Correlates of blood pressure in an urban Zimbabwean population and comparison to other populations of African origin. Journal of Human Hypertension 14 (2): 65-73.

Perry, I.J., Whincup, P. H. and Shaper, A.S. 1994. Environmental factors in the development of essential hypertension. British Medical Bulletin 50 (2): 240 259

Samuelson 1987. Cardiovascular morbidity in relation to a change in blood pressure and serum cholesterol levels in treated hypertension: results from the primary prevention trial in Gothernburg. JAMA, 258, 1768-1776.

Seedat, Y.K., Seedat, M.A. and Hackland, D.B.T. 1982. Biosocial factors and hypertension in urban and rural Zulus, SAMJ 61: 999-1002.

Sibanda, M. 1997 The effects of exercise on hypertension and hypoglycemia. (Unpublished Dissertation)

Williams, S. and Ramos, M.C..1993 Mitral valve prolapse and its effect; A programme of inquiry within Orem's Self-care Deficit Theory of Nursing. JAN 18: 742- 751.

Zimbabwe Annual Reports 1995/1996. Health Information Unit, Department of Epidemiology and Disease Control, Health Statistic Section Central Statistics Office, MOHCW, Harare