



Factors Influencing Hypertension Prevalence in Patients Attending Hypertensive Clinic in Siaya County Referral Hospital, Kenya

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Abstract

This study focused on the factors influencing hypertension prevalence among patients attending a hypertensive clinic in Siaya County Referral Hospital. Cross-Sectional descriptive study design was employed and the researcher collected both qualitative and quantitative first-hand information from the key informants and hypertensive patients respectively. The study targeted 340 hypertensive patients attending the hypertensive clinic in the county hospital, Krejcie and Morgan sampling frame was used to arrive at a sample of 181 patients who were then obtained through simple random sampling. The study used key informant interview guides and questionnaires to collect the data. Quantitative data were analyzed descriptively using measures of central tendency, frequencies and percentages and inferentially through Spearman Correlation. Qualitative data were analysed through content analysis. The study found out that demographic characteristics and attitude on hypertension had an insignificant negative influence on hypertension prevalence. Knowledge and social-economic characteristics had significantly negative influence on the prevalence of hypertension. The study recommends that the government and the various agencies like the NGOs and mass media should intensify campaigns that are aimed at increasing the knowledge, awareness, education and information concerning hypertension and its effects. Finally, there is a need for both the county and the national government to come up with health support programs, including subsidized medicare, increasing free medical camps and provision of affordable health insurance covers that would cater for patients of low socio-economic status to enable them access medical care.

Keywords:

*Demographic and health information
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1. Introduction

Hypertension, also known as high blood pressure has been said to have two distinct identities that include primary and secondary hypertension (Abdullahi & Amzat, 2011). Primary also referred to as essential hypertension has no specific known underlying cause and accounts for about 95% of all cases of hypertension, whereas secondary hypertension results from other medical conditions such as chronic kidney diseases, renal artery stenosis or adrenal tumours (Rosendorff et al., 2007). Some scholarly work and other governments'

reports have indicated that the prevalence of hypertension has been increasing at a rapid rate globally. According to the World Health Statistics 2012 report, one in three adults (the most affected population) worldwide has raised blood pressure.

People who have elevated blood pressure (hypertension) worldwide is 970 million (WHO, 2012). In the developed world, about 330 million people have hypertension, about 640 million in the developing world. The World Health Organization (WHO) rates hypertension as one of the most important causes of premature death worldwide, and the problem is growing. In 2025, it is estimated that there will be 1.56 billion adults living with high blood pressure.

Studies have shown that blood pressure levels have been reducing in almost all high-income countries. In contrast, the prevalence of hypertension has been increasing drastically in most African countries. The indicated that the rate of hypertension cases in Sweden for example reduced by 5.7% between 2013 and 2015 while that in Africa's poorest country, Lesotho, it increased by 14% (World Health Organization, 2015).

The increasing prevalence of hypertension in these developing countries across the globe (developing countries in Asia and Africa) is due to old age, growth in population and changing habits in lifestyle because of urbanization, unhealthy diet, harmful use of alcohol, physical inactivity, excessive weight and exposure to persistent stress. Several studies in the African region, for example, have found high prevalence levels but low levels of awareness, treatment, and control especially in urban areas Dzudie et al. (2012).

Knowledge and attitude of hypertension in Africa are lagging behind many world regions. Significant numbers of individuals with hypertension in Africa are unaware of their condition and, among those with diagnosed hypertension, treatment is frequently inadequate. The problem of defining a strategy for hypertension control confronts some societies. Hypertension is fully treatable, but social and economic conditions in many African countries make blood pressure control programs difficult (Grotto, Huerta, & Sharabi, 2008).

A report published in the Standard Nation on April 7th, 2015 by APHRC researcher, Dr. Catherine Kyobutungi shows that one out of eleven adults in major towns in Kenya is battling with high blood pressure. Apart from this, in Nairobi slums, one in eight adults is battling high blood pressure and only half of them have been screened or received treatment in the past year.

According to BMC Public health (2014) hypertension prevalence in Kenya increases with age and tends to be higher in women in the older age categories. Catherine (2015) in her studies on the largest slum in Kenya (Kibera slum) reports that studies on the prevalence of hypertension in Kenya are sparse and until recently few had been undertaken among slum residents. A study by Joshi et al. (2014) in Old Town Mombasa noted an adjusted prevalence of 32%. Two studies in Kenya have reported on hypertension among poor urban slum residents, and one of these studies was among a non-probability sample of Kibera slum residents and reported an unadjusted hypertension prevalence of 13%.

Out of every ten Kenyans, four have high blood pressure as reported by Kenya country office of (WHO, 2014). Studies have identified some factors influencing the prevalence of hypertension among different groups of people (Hankinson, 2008). The family history of hypertension has also been identified as a significant risk factor associated with hypertension for men and women. Some factors by Hankinson (2008) explain the prevalence of hypertension which differs by sex. There are several other socio-economic factors that have been considered as a factor having a significant level of influence to hypertension.

For instance, being employed is a significant protective factor (or a selection factor) for men but not for women. For men only, being underweight is associated with lower risk (OR = 0.27) of being hypertensive, and being overweight is a significant risk factor. For women only, the odds of being hypertensive are 38% lower for occasional drinkers as compared to non-drinkers.

Other factors such as diabetes, heart disease, and family history of hypertension are also directly associated with awareness and treatment of hypertension Sengwana and Puoane (2004). Some lifestyles appear to be important in the prevalence of the condition. Sengwana and Puoane (2004) also noted that obesity is directly related to hypertension for both men and women.

1.1. Statement of the Problem

People with elevated high blood pressure worldwide are about 970 million WHO, (2012). The World Health Organization (WHO) rates hypertension as one of the most important causes of premature death worldwide, and the problem is growing. In 2025, it is estimated that there will be 1.56 billion adults living with high blood pressure worldwide.

An estimation of 40% of the Kenyan adult population has hypertension. This was reported by World Health Organization & International Society of Hypertension (2003) country office. Factors influencing hypertension in hypertensive patients has not received due attention in Kenya although hypertension is a modifiable risk factor for CVD.

This is because health care resources are overwhelmed by other priorities including HIV/AIDS, tuberculosis and malaria. Other studies done did not focus on factors influencing hypertension in patients attending a clinic. For example, Mueke (2012) did a study on the factors influencing adherence to hypertension medication: a case study of hypertension patients at (Mama Lucy Kibaki Referral Hospital

Embakasi, Nairobi). Further, the study was limited to Nairobi only, opening avenues for such a study. Other studies in Kenya include Wekesa's study on awareness among hypertensive patients about hypertension, which established that most Kenyan hypertensive patients are not aware about hypertension; there was a low level of awareness on the treatment of hypertension in adult patients attending Ruiru sub-county hospital in Kenya (Wekesa, 2015). These studies focused on hypertensive patients in the urban and informal settlement, but this study focused on hypertensive patients in a rural hospital setting.

1.2. General Objective

The general objective of this study is to examine the determinants of hypertension prevalence in patients attending the hypertensive clinic at Siaya County Referral Hospital, Kenya.

1.3. Specific Objectives

- i. To establish the influence of demographic and health information on hypertension among hypertensive patients in Siaya County Referral Hospital.
- ii. To examine the influence of attitude regarding hypertension among hypertensive patients in Siaya County Referral Hospital.
- iii. To find out the influence of knowledge on hypertension among hypertensive patients in Siaya County Referral Hospital.
- iv. To examine the effect of socio-economic factors on hypertension among hypertensive patients in Siaya County Referral Hospital.

2. Empirical Literature

2.1. Demographic and Health Information Influencing Hypertension

Among the factors that influence the rates and magnitudes of high blood pressure cases include the individual population characteristics. According to Otundo (2014) people with old age have much more risks of being diagnosed with hypertension than those with a relatively young age. The women gender are at higher risk than the male gender, the less educated people risk much more hypertension diagnosis than the educated, those with fewer sources of income and with relatively large families are at much more risk than their counterparts too.

In his study, Takele (2014) argues that many factors have been identified as risk factors for hypertension. Socio-demographic factors include advanced age, gender, parental history of hypertension, diabetes mellitus, body mass index and behavioural factors like sleep duration, smoking and alcohol consumption and are significant predictors of hypertension. Therefore, gender has a role to play in determining the rates of hypertension. In his study, he found out that out of the 157 respondents who responded to the questionnaire, out of those who had the problem of hypertension, 7.9% higher cases were found in men than women. However, other contradicting results have shown that women risk 5-6 more times being hypertensive than their male counterparts (Otundo, 2014).

2.2. Influence of Patient's Attitude on Hypertension

Otundo (2014) argues that attitude refers to the patient's feelings towards hypertension, as well as any preconceived ideas that they may have towards it. An attitude in most occasions leads to practices. Therefore, practice refers to how they demonstrate through their actions the knowledge and attitude of hypertension. The levels of attitude and practice understanding by tailoring the programme more appropriately to the needs of the community will allow for a more efficient process of awareness creation; thus influencing the management of hypertension easily.

Many patients have a negative attitude towards taking medication, especially if they feel well. One component of attitude that influence hypertension in developing countries like Kenya today is lifestyle and eating habits. According to adopting a healthy lifestyle prevents the development of hypertension and lowers blood pressure. The frustration of advocating lifestyle change is obvious to healthcare providers in clinical practice. Community resources are scarce or convenient counseling takes considerable time, and therefore many patients do not adhere to treatment.

Even with extensive publicity regarding the importance of blood pressure control and the benefits of drug therapy, only 16% of people with hypertension in Canada have the condition under control. Physicians and other health care professionals should also be active advocates for community resources to assist patients with lifestyle change (Midgley, Matthew, Greenwood, & Logan, 1996).

2.3. Influence of Patients' Knowledge on Hypertension

The acquired knowledge possessed by a hypertensive patient refers to their understanding of issues related to hypertension (Mueke, 2012).

According to World Health Organization (2013) knowledge about hypertension is mostly held by the health workers and is limited to hospitals and therefore in most cases, the patients are limited in a number of ways. According to the report, health care workers in Kenya for example can only assess and manage

hypertension and lifestyle modification adequately if the patient is educated and convinced that lifestyle changes are essential and the most cost-effective method of obviating cardiovascular disease as one of the possible complications. Health care workers can help patients through blood pressure checks at every opportunity and by counseling patients and their families about preventing hypertension and the positive influence of lifestyle modification. All patients would benefit from general advice on healthy lifestyle habits, in particular, healthy body weight, moderate consumption of alcohol and regular exercise (Cappuccio et al., 2004).

In a descriptive survey by Oliveria, Chen, McCarthy, Davis, and Hill (2005) to understand the status of hypertension knowledge, awareness, and attitudes in a group of hypertensive patients, results showed that patients are knowledgeable about hypertension in general, but are less knowledgeable about specific factors related to their condition. The median duration of hypertension was 14 years, suggesting that even though these patients have had this condition for a long time their knowledge was inadequate.

2.4. Influence of Patients' Socio-Economic Factors on Hypertension

According to Cooper and Bovet (2013) socio-economic status is commonly conceptualized as the social class of an individual or group. It is often measured as a combination of education, income, and occupation. According to WB (2015) there is an increase in hypertension prevalence in the middle income and low-income countries. In low-income and middle-income countries, the blood pressure average is higher than in high-income countries such as the United States.

In Kenya, the average SBP increased from 127 mmHg to 132 mmHg in 1990 and 2008, respectively. By contrast, in USA a decrease in average BP by about 3 mmHg during the same period has been observed (Otundo, 2014). Slum settlements are typically characterized by poor living conditions, which in turn have a major impact on health and access to healthcare for the population. With the psycho-social burden of violence, insecurity, and stress, there may also be an increased risk of CVD WHO (2013). However, information on CVD, their risk factors, and their management in slums is limited just as this is in the rest of Kenya including the case of Siaya County.

USA, recorded a relatively high hypertension prevalence WHO (2013) and awareness and treatment levels are still low (Guo et al., 2015). Additionally, death from a major CVD such as stroke in urban African setting like Dar es Salaam in Tanzania is more than five times higher than in England, and the most likely reason for this is the high prevalence and poor control of hypertension (Jennifer, 2013). One of the reasons for the increase in the prevalence of hypertension is urbanization WB (2015). The levels of hypertension are higher in urban than in rural settings in East Africa. This is mainly because of contextual and behavioural factors associated with urban environments such as dietary changes and sedentary lifestyle. Large proportions of the urban populations in low-income and middle-income countries live in slums.

3. Theoretical Framework

In this study, the researcher analysed hypertension situation from the holistic context of social cognitive theory (Bandura, 1986) and from the perspective of individual's dynamic operation in the state of wellness or illness using Neuman's systems model (Neuman & Fawcett, 2002).

3.1. The Social Cognitive Theory

In the social cognitive theory (SCT) (Bandura, 1986) it was emphasized that there is a relationship between the environmental, personal and behavioural factors in health and chronic disease management. According to Bandura (1986) there is a bidirectional influence that is present in the interaction of the behaviour, cognitive and other personal factors, and environment that operate in the individual's system. However, these interactions differ in the intensity of influence and in the manner of occurrence (Bandura, 1990). Bandura (1990) asserted that cognitive process is the most external influence that affects behaviour and considers social support an effective tool to get through the impediment and stress encountered in the life paths people take. Bandura (1997) also posited that self-efficacy is a link between knowledge application and actual behavioural change and is one of the most effective predictors of health behaviour.

Clark and Dodge (1999) explored the SCT to predict disease management behaviour and found self-efficacy as a construct in adherence to prescribed medication, recommended diet required, adequate exercise, and stress management. SCT can further be explored by investigating the link between hypertension knowledge, self-efficacy, spirituality, and social support in predicting hypertension self-management behaviour by using a holistic approach.

In this manner, this theoretical approach was modified to focus on the specific variables including attitude, knowledge and socio-economic factors on hypertension, and their influence on the hypertensive patients, as a way of determining behavioural, personal, and environmental factors in health and chronic disease management.

4. Research Methodology

This study employed the use of a cross-sectional descriptive research design. The study was conducted at Siaya County Referral Hospital, Kenya. Siaya County is made up of five constituencies namely Ugenya, Alego, Gem, Rarieda and Bondo. It is found along the Lake Victoria shores in Western Kenya, is inhabited by 842,304 people, 199,034 households, and covers an area of 2,530.5 Km². The target population of this study consisted of 340 hypertensive patients who attended the Siaya County Referral hospital between December 2016 and May 2017. This study used Krejcie and Morgan sample determination table of 1970, with a population of 340 patients, the sample was established as 181. The study participants were selected through both simple random and systemic random sampling techniques.

Data collection was obtained from primary sources using semi-structured interview guides and questionnaires. The Research instruments were piloted in 1 randomly selected clinic within Siaya County that was excluded from the study. This one health clinic was chosen under the assumption that all the health clinics within this County exhibited almost similar characteristics in terms of their scope and service delivery. Siaya County Referral Hospital is also in the same catchment area with the clinic therefore the same patients who would attend the clinic would also attend Siaya County Referral Hospital. This was done to determine the validity and reliability of the instruments. The pilot study was done in order to identify ambiguities and flaws in the questions and also to reveal inadequacies in the content. This enabled the researcher to evaluate and improve the questionnaires. The pilot study helped in the development of the necessary experience in using the instruments before the main study.

Pilot data collected was analysed and the results were used to modify the questionnaires. To improve the face validity of the instrument the questionnaires were scrutinised by the supervisor and the student identified items which were unclear or ambiguous to the respondents. Such items were reviewed and reworded, thereby improving the face validity of the instruments. To test consistency in producing a reliable result (reliability), a test-retest method was used.

A sample of ten percent of the sample size was drawn from the study area, these subjects didn't participate in the main research. After obtaining research permit from Baraton University and from NACOSTI the researcher contacted the administrators of the sampled clinic to seek appointment with them. The researcher then visited the sampled clinic first to familiarize with the clinic's authority and explain the purpose of the study and make necessary arrangement for actual administration of the instruments and data collection. Repeated familiarization visits were done before the actual visit for data collection. The researcher then collected data by issuing the research instruments to respondents. The data was analysed through descriptive statistics; frequency and percentage, the mean for central tendency and standard deviations for variability. The relationship between the variables was tested using the Spearman rho correlation. The study observed ethical considerations such as informed consent, confidentiality and beneficence

4.1. Study Findings

4.1.1. Demographic and Health Information of Respondent

Majority of the respondents, 65.7% were female while the minority were male. Slightly more than two-fifths of the respondents at 40.9%, were between 51-60 years as the minority at 8.8% aged between 18-30 years. More than half of the respondents at 50.8% were married while the least number of them at 2.8% cohabiting. Slightly more than one-third of the respondents at 39.8% attained a primary level of education while the minorities at 10.5% were diploma holders. More than half at 52.5% were employed in the formal sector as the minorities at 9.4% were self-employed. Most of the respondents at 76.2% smoked and 86.7% of the respondents experienced stress. Other than the high blood pressure, majority of the respondents at 65.7% had no other health complains while the minority at 6.1% had a visual impairment.

Key informant interview with a nurse at the clinic revealed that demographic and health information had a major role to play in the wellbeing of a hypertensive patient.

One of the key informants had this to say:

"The elderly are more likely to have the stage 2 hypertension compared to the younger patients. Patients who are on stage 1 of hypertension and smoking are more at risk of getting to stage two of the condition. Stress is also noted as a risk factor to severe forms of hypertension in patients attending the clinic."

In support of this notion, yet another key informant had this to say:

"Stress is one of the common triggers of high blood pressure attack among our patients, whenever our patients get stressed, their blood pressure goes up and they have to be brought to the clinic and sometimes even get admitted. We often advise them to share their concerns and worries with their family members so that a solution is found early enough."

4.2. Correlation Between Demographic and Health Information and Hypertension Prevalence

Hypertensive patients who had better demographic status (Higher education, more paying employment, Non-smoking, Less stress) were less likely to suffer severe hypertension. It was established that there was a significant weak negative relationship between demographic and health characteristics and hypertension, $r(N=181) = r = -0.053, p=0.005 CI=95\%$.

Table-1. Respondent's demographic and health information

| Characteristics | Categories | Percentage/Proportion |
|---|-----------------------------|-----------------------|
| Respondents gender | Male | 34.3% |
| | Female | 65.7% |
| Respondents age | 18-30 Years | 8.8% |
| | 31-40 years | 20.5% |
| | 41-50 years | 29.8% |
| | 51-60 years | 40.9% |
| Respondents marital status | Married | 50.8% |
| | Divorced | 17.7% |
| | Separated | 11% |
| | Widowed | 9.9% |
| | Cohabiting | 2.8% |
| Respondents' highest level of education | Others | 7.8% |
| | Primary certificate | 39.8% |
| | Secondary certificate | 30.9% |
| | Diploma certificate | 10.5% |
| | Bachelor's degree and above | 18.8% |
| Respondents' employment status | Formal employment | 52.5% |
| | Informal employment | 18.2% |
| | Self-employed | 9.4% |
| | Unemployed | 19.9% |
| Whether respondent smokes | Yes | 76.2% |
| | No | 23.8% |
| Whether respondent experiences stress | Yes | 86.7% |
| | No | 13.3% |
| Health complains other than high blood pressure experienced | Heart problem | 10.5% |
| | Paralysis of limb | 8.3% |
| | Visual impairment | 6.1% |
| | Kidney problem | 9.4% |
| | None | 65.7% |

Table-2. Correlation between demographic and health information and Hypertension Prevalence

| | | | Demographic Factors | Hypertension Prevalence |
|----------------|------------------------------------|-------------------------|---------------------|-------------------------|
| Spearman's rho | Demographic and health information | Correlation Coefficient | 1.000 | -.053 |
| | | Sig. (2-tailed) | . | .005 |
| | Hypertension Prevalence | N | 181 | 181 |
| | | Correlation Coefficient | -.053 | 1.000 |
| | | Sig. (2-tailed) | .005 | . |
| | | N | 181 | 181 |

4.3. Influence of Attitude on Hypertension among Hypertensive Patients

This section presents the hypertensive patients opinions on influence of patient's attitude on hypertension. The findings showed that the respondents had fair knowledge on the extent to which their attitude on hypertension could determine the prevalence of hypertension in their lives (Mean of means=3.13).

It was also established from key informant interview with a nurse at the clinic that attitude influenced hypertension as she revealed that an individual's eating habits is one of the major influencers of the control of hypertension as she further stated that this was one of the areas patients needed to take keen note of when trying to control hypertension and revealed that the consumption of fatty food inclusive of poor eating habits also influence hypertension.

The key informant had to say this:

"A number of people today think that cooking meals with a lot of fat make the food sweeter but we are wrong and hurting our health since consuming this fatty food leads to clogging of fats in our blood vessels a function that is a building stone to hypertension."

4.4. Correlation between Respondent's Attitude and Hypertension Prevalence

It was determined that there was an insignificant weak negative relationship between patient's attitude and hypertension prevalence, $r(N=181)=-0.034$, $p=0.651$, $CI=95\%$. This meant that hypertensive patients in Siaya County Referral Hospital with a positive attitude were less likely to suffer from severe hypertension.

Table-3. Views on influence of attitude on hypertension

| Statement | SD | D | N | A | SA | Mean | S.D |
|--|-------|-------|-------|-------|-------|------|-------|
| I think that healthy diet can control hypertension. | 12.2% | 51.4% | 23.2% | 4.4% | 8.8% | 2.46 | 1.057 |
| I think that it is easy for me to modify my diet | 8.8% | 34.3% | 13.8% | 4.4% | 38.7% | 3.30 | 1.487 |
| I feel I could use & enjoy low fat meal | 3.3% | 12.2% | 30.9% | 14.4% | 39.2% | 3.74 | 1.194 |
| I feel fruit only could help me to control hypertension | 19.3% | 29.3% | 30.9% | 5.6% | 14.9% | 2.67 | 1.273 |
| I think that I will enjoy my food without salt | 19.9% | 38.7% | 18.8% | 9.4% | 13.3% | 2.57 | 1.279 |
| I think that I will like to decrease intake of saturated fats | 3.3% | 13.3% | 24.8% | 14.4% | 44.2% | 3.83 | 1.224 |
| I regularly decrease caffeine by reducing my caffeine intake e.g. coffee, tea, coke. | 12.2% | 32.6% | 26.5% | 7.7% | 21% | 2.93 | 1.317 |
| I feel it is important to regularly eat Omega-3 fatty acids such as fish oil weekly | 16% | 29.8% | 11.1% | 12.7% | 30.4% | 3.12 | 1.510 |
| I think that exercises can help me to control my hypertension | 27.1% | 38.7% | 26% | 1.7% | 6.6% | 2.22 | 1.073 |
| I think I need the advice to lose my body weight | 0.0% | 0.0% | 9.4% | 33.1% | 57.5% | 4.48 | 0.663 |
| Mean of means | | | | | | 3.13 | |

Table-4. Correlation between Attitude and Hypertension Prevalence

| | | Attitude | Hypertension Prevalence |
|----------------|-------------------------|----------|-------------------------|
| Attitude | Correlation Coefficient | 1.000 | -0.034 |
| | Sig. (2-tailed) | . | .651 |
| | N | 181 | 181 |
| Spearman's rho | Correlation Coefficient | -0.034 | 1.000 |
| | Sig. (2-tailed) | .651 | . |
| | N | 181 | 181 |

4.5. Influence of Knowledge on Hypertension among Hypertensive Patients

This section presents the hypertensive patients' opinions on influence of knowledge on hypertension among hypertensive patients. It was established that the respondents had an average on how knowledge on hypertension could affect the prevalence of hypertension (Mean of means=3.13).

Table-5. Views on influence of knowledge on hypertension

| Statement | SD | D | N | A | SA | Mean | SD |
|--|-------|-------|-------|-------|-------|------|-------|
| Smoking can worsen hypertension | 9.4% | 19.9% | 12.2% | 30.9% | 27.6% | 3.48 | 1.332 |
| Inactivity can worsen hypertension | 23.3% | 29.8% | 38.1% | 3.3% | 5.5% | 2.48 | .958 |
| High cholesterol can worsen hypertension | 0.00% | 0.00% | 98.9% | 0.00% | 1.1% | 3.02 | .210 |
| Drinking alcohol can worsen hypertension | 5.5% | 14.4% | 64.1% | 5.5% | 10.5% | 3.01 | .919 |
| Excessive salt intake can worsen hypertension | 6.6% | 0.00% | 12.2% | 24.3% | 56.9% | 4.25 | 1.110 |
| Overweight can worsen hypertension | 11% | 30.9% | 19.9% | 15.5% | 22.7% | 3.08 | 1.348 |
| Stress can worsen hypertension | 18.3% | 42.5% | 30.9% | 4.4% | 3.9% | 2.33 | .955 |
| Being older is at greater risk for hypertension | 11.6% | 30.9% | 21.6% | 15.5% | 20.4% | 3.02 | 1.325 |
| Family history of hypertension increase risk for developing it | 1.1% | 3.9% | 33.1% | 13.8% | 48.1% | 4.04 | 1.035 |
| Irregular medical check-up and medication can worsen my hypertension | 1.1% | 2.8% | 28.2% | 18.7% | 49.2% | 4.12 | .987 |
| Mean of means | | | | | | 3.28 | |

Similarly, it was revealed from key informant interview with a nurse at the clinic that respondents' knowledge of hypertension could be a determinant to the prevalence of hypertension. As established from the interview that one's risk of hypertension could be curbed through getting some exercise by either opting to join a gym or starting slow and undertaking more physical activities into ones daily routine and also revealed that the primary way that high blood pressure causes harm to the body is by increasing the work load of the heart and blood vessels that prompts them to work harder and less efficiently. It was further established that alcohol consumption could worsen hypertension.

This is what the key informant had to say:

"Drinking too much alcohol can raise blood pressure to unhealthy levels. Having more than three alcoholic drinks in

one sitting temporarily increases one's blood pressure, but repeated binge drinking could lead to a long-term increase."□

She also stated that stress could cause hypertension through repeated blood pressure elevations as well as by stimulation of the nervous system that further produces large amounts of relevant hormones that lead to hypertension and that family history of the disease does increase one's chances but does not mean that one will automatically have high blood pressure.

4.6. Correlation between Knowledge and Hypertension Prevalence

It was established that there was a significant moderate negative relationship between knowledge and hypertension prevalence $r(N=181)=0.537, p<0.001$. This meant that hypertensive patients in Siaya County Referral Hospital who were more knowledgeable were less likely to suffer severe hypertension.

Table-6. Correlation between Knowledge and Hypertension Prevalence illustrates

| | | Knowledge | Hypertension Prevalence |
|----------------|-------------------------|-------------------------|-------------------------|
| Spearman's rho | Knowledge | Correlation Coefficient | 1.000 |
| | | Sig. (2-tailed) | .000 |
| | | N | 181 |
| | Hypertension Prevalence | Correlation Coefficient | -0.537** |
| | | Sig. (2-tailed) | .000 |
| | | N | 181 |

4.7. Effect of Socio-Economic Factors on Hypertension among Hypertensive Patients

This section presents the hypertensive patients' opinions on the effect of socio-economic factors on hypertension among hypertensive patients. The study established that the hypertensive patients in Siaya County Referral Hospital were average socially and economically (mean of means =3.34).

Table-7. Effect of socio-economic factors on hypertension

| Statement | SD | D | N | A | SA | Mean | SD |
|--|-------|-------|-------|-------|-------|------|-------|
| I have an active life working to earn a living | 0.00% | 0.00% | 9.4% | 78.4% | 12.2% | 4.48 | 0.663 |
| I am able to pay for my medical check-up | 29.9% | 37% | 19.9% | 7.7% | 5.5% | 2.32 | 1.053 |
| I am able to purchase drugs for my condition | 28.8% | 35.9% | 19.9% | 7.7% | 7.7% | 2.40 | 1.114 |
| I am able to afford a balanced diet most of the time | 19.3% | 35.4% | 26% | 7.7% | 11.6% | 2.57 | 1.221 |
| I have family members who often accompany me to the health facility | 11% | 30.9% | 17.7% | 16.6% | 23.8% | 3.11 | 1.366 |
| I have family members who remind me to take medication | 9.4% | 33.7% | 11% | 18.8% | 27.1% | 3.20 | 1.397 |
| I am in a support group for people with the same life condition | 8.9% | 13.8% | 1.1% | 20.4% | 55.8% | 4.01 | 1.388 |
| I have time off to relax and refresh every week without overindulgence | 9.4% | 5.5% | 3.9% | 24.3% | 56.9% | 4.14 | 1.290 |
| I have a good quality of life | 10.5% | 8.8% | 11.6% | 21% | 48.1% | 3.87 | 1.375 |
| Mean of means | | | | | | 3.34 | |

It was also established from key informant interview with nurses at the clinic that being socially and economically stable would help reduce hypertension a great deal as it was noted from the key informant interview that payment for medical check-up posed as a challenge to a number of patients, this was because they only came to the facility when they had no other money but would not drop by to do a check-up as the money could be used in a different platform.

Most of the patients also came to the clinic on their own and only a few were accompanied by either their parents or spouses posing a picture that the respondents were socially and economically unstable. The nurse also stated that the quality of life of a person would influence the way he or she would either handle hypertension or prevent getting hypertension since when one lives a good stress-free life, the chances of one getting hypertension are close to nil.

This is what the key informant had to say:

"Some of the patients would rather buy food with the money they have other than coming to the facility for check up or buy drugs. Their family members do not escort them to the facility and this is a clear sign that they lack social support."□

4.8. Correlation between Socio-Economic Factors and Hypertension Prevalence

The study reveals that there was a significant strong negative relationship between socio-economic factors and hypertension prevalence $r(N=181) = -0.750, p < 0.001, CI=95\%$. This means that hypertensive patients in Siaya County Referral Hospital who were socially and economically stable were less likely to suffer from severe hypertension.

Table-8. Correlation between socio-economic factors and Hypertension Prevalence

| | | Socio-economic factors | Hypertension Prevalence |
|-------------------------|-------------------------|-------------------------|-------------------------|
| Spearman's rho | Socio-economic factors | Correlation Coefficient | 1.000 |
| | | Sig. (2-tailed) | .000 |
| | | N | 181 |
| Hypertension Prevalence | Hypertension Prevalence | Correlation Coefficient | -0.750** |
| | | Sig. (2-tailed) | .000 |
| | | N | 181 |

5. Discussions

Hypertension is an issue to public health since it is a modifiable risk factor for stroke, ischaemic heart disease, congestive heart failure, renal failure and peripheral vascular disease. While empirical studies have noted that hypertension and other cardiovascular diseases, are increasing in developing countries both in the rural and urban areas, the current study has empirically verified a number of factors that could be perceived as the determinants of hypertension prevalence in patients attending the hypertensive clinic in Siaya County Referral Hospital.

Majority of patients with hypertension in this study were of old age. This could be attributed to the fact that old people had low physical activity, did not adhere to hypertensive drugs and also lacked family support. This is consistent with the findings by [Hazarika, Biswas, Narain, Kalita, and Mahanta \(2012\)](#) which reported that there is an increase in the prevalence of hypertension with the increasing age. Another study conducted by [Kannel \(2016\)](#) noted that there is a significant association of hypertension with age.

It was further established that among the many factors that one's risk of high blood pressure increases with age, getting some exercise could make a big difference by either opting to join a gym or starting slow and undertaking more physical activities into ones daily routine. A higher number of hypertensive patients in this study were female. This finding is inconsistent with the finding by [Kearney et al. \(2005\)](#) who noted that males have shown higher prevalence of hypertension as compared to females.

A high number of hypertensive patients in this study had a low education level. This is in agreement with the findings of the report published by WHO which indicated that education is directly related to hypertension; illiterates being more susceptible ([Thakor, Kumar, & Desai, 2014](#)). Another study conducted by [Hazarikas, Biswas, and Mahanta \(2003\)](#) showed that prevalence of hypertension was high among patients with low education level compared to patients with high education level.

Evidence of attitude influencing hypertension prevalence in hypertensive patients in this study agrees with [Kannel \(2016\)](#) who established that attitude towards a health condition impacts on self-care management practices.

The significant rise in the number of deaths caused by hypertension and with the context of this study which found that knowledge among hypertensives is very high and that this is marginally influencing self-care management practices; the issue of what accounts for a change in attitude is important. This study only focused on attitude alone but there other studies which associated attitude with the existing culture. For example a study done by [Bourne, Glen, Laws, and Kerr-Campbell \(2010\)](#) established that West Indians show a combination of personalistic, naturalistic, and modern medical beliefs, which need to be understood in order to mount effective programs for the management of hypertension in the community which highlights other areas outside of attitude and behavioral changes.

Chevannes did a qualitative study on men in the Caribbean and found that a part of what explains their behavior and attitude is the culture. He asserts that the macho culture in the Caribbean accounts for men unwillingness to seek medical care because those issues are interpreted as showing weakness, effeminate and are not characteristics of manhood.

A study in Pakistan concurred with Chevannes and went further to state that men's willingness to seek medical care is based on the severity of illness (if an illness may result in death) and retards economic opportunities (including employment and reduced income).

A high number of hypertensive patients in the present study had a high knowledge regarding some of the risk factors for hypertension but not all the risk factors. This study finding concurs with a study done by [Hendriks et al. \(2012\)](#) which noted that patients had high knowledge of some risk factors for hypertension but the knowledge about these risk factors was rarely practiced.

The differences between knowledge and practice may be due to the fact that they know that for controlling high blood pressure, they should reduce their weight by diet and also increasing physical activity,

but they may not have enough knowledge regarding the appropriate ways to do this. This finding is similar to that of *Mani et al., (2009)* who established that it is important to maintain an intensive exercise programme even if the blood pressure goes down.

This involves moderate exercises like brisk walking three to five times a day for thirty minutes. The WHO-International Society of Hypertension guidelines recommends that hypertensive patients who drink alcohol should limit their intake to twenty to thirty grams for men and ten to twenty grams for women, which is the maximum of approximately two standard drinks per day for men and one point five standard drinks for women. Controlled alcohol intake maintains lower blood pressure and reduces the risks of stroke and heart attack. In this study, patients were knowledgeable about stress but they may not have engaged themselves in active hobbies like gardening, dancing and social activities. This helps in taking off minds of worrying situations.

This study finding established that there is a significant association between hypertension prevalence and socio-economic status of the hypertensive patients. This could be associated with low awareness levels, treatment and control frequency. In addition the hypertensive patients are not privileged with resource materials and this leads to a vicious circle comprising disadvantages that start in early stages of life and continue in later stages of life through less accessibility to healthy food, less time to engage in physical activity, and less access to settings that encourage physical activity (this is important in controlling hypertension) and inadequate use of health services.

This study is similar to that of *Mueke (2012)* which found out that the socio-economic status of a patient influences the behaviour of adherence to hypertension medication in hypertension control. The finding of this study is also similar to the WHO, (2003) which established that hypertensive patients of low socioeconomic status have a challenge of medication affordability and transportation costs to the health facilities. Such patients are more concerned about basic needs of food and shelter, rather than medication adherence as a measure to control their hypertensive condition WHO (2013).

6. Conclusion

Demographic characteristics of the respondents significantly determine the prevalence of hypertension among hypertensive patients in Siaya County Referral Hospital. Those who had a better demographic status such as higher education, better-paying employment, non-smoking and less stress were likely to suffer severe hypertension.

The attitude of the hypertensive patients significantly determines hypertension prevalence among hypertensive patients in Siaya County Referral Hospital since hypertensive patients with a positive attitude were less likely to suffer from severe hypertension.

Knowledge levels of the hypertensive patients insignificantly determine hypertension prevalence among hypertensive patients in Siaya County Referral Hospital since those who were more knowledgeable were more likely to suffer severe hypertension because this knowledge was not put into practice.

Socio-economic status significantly determines hypertension prevalence among hypertensive patients in Siaya County Referral Hospital, since those who were socially and economically stable were less likely to suffer from severe hypertension.

7. Recommendations

1. Health workers at the hypertensive clinic in Siaya County Referral Hospital need to practice intensive awareness creation through advertisements, sensitization programs and production of flyers and leaflets. Key informative messages on demographic and health information influencing hypertension prevalence should target the high-risk population.
2. Effective attitude change in hypertensive patients is dependent on health care workers. Health workers at the hypertensive clinic in Siaya County Referral Hospital need to monitor the attitudes of hypertensive patients, and offer any necessary advice, as a way of controlling the risks of severe hypertension. This requires a good relationship between healthcare workers and hypertensive patients.
3. The Ministry of Health should provide site-specific information to patients at the facilities and this should be translated into different local languages for patients who are semi-literate. This will sensitize the hypertensive patients to put into practice what they are already knowledgeable about concerning hypertension.
4. There is a need for both the county and the national government to come up with health support programs, including subsidized medicare, increasing free medical camps and provision of affordable health insurance covers that would cater for hypertensive patients of low socio-economic status to enable them access medical care.

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