

FACTORS ASSOCIATED WITH HYPERTENSION AMONG ADULTS AGED 45-60 YEARS AT KASANGATI HEALTH CENTRE IV, WAKISO DISTRICT. A CROSS-SECTIONAL STUDY.

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Abstract

Background

Hypertension is a condition in which the blood vessels have persistently raised pressure. This study determined the prevalence and factors associated with hypertension among adults aged 45-60 years at Kasangati Health Centre IV, Wakiso district.

Methodology

A descriptive cross-sectional study design was used, and data was collected on a sample of 60 respondents. The respondents were selected by using a convenient sampling method as a sampling technique, and a semi-structured questionnaire with open-ended questions. Data was analyzed manually by use of tally sheets and entered into the computer using the Microsoft Excel computer program, illustrated using graphs and figures for quantitative data.

Results

46.7% of the respondents were aged 55- 60 years, (60%) of the respondents had ever been diagnosed with high blood pressure, (63.3%) of the respondents believed that males were mostly affected by high blood pressure, (57%) of the respondents were not exercising at all in a week, (67%) of the respondents were adding extra salt to cooked food, (80%) of the respondents were having a history of hypertension in their family, (53.3%) of the respondents were taking alcohol, (56.6%) of the respondents had ever smoked, (41.6%) of the respondents had not included fruits or vegetables in their diet. (66.6%) Of the respondents who were not staying near highly polluted areas, (56.6%) were staying in cold environments, and (63.4%) were staying in hilly areas.

Conclusion

Generally, the overall prevalence of hypertension was high, and individual factors associated with hypertension were: lack of physical exercise, additional salt intake, and family history of hypertension. The environmental factors associated with hypertension were somewhat fair, thus increasing the number of cases of hypertension.

Recommendation

Health workers should constantly encourage adults to modify their lifestyle by avoiding smoking, alcohol consumption, and dietary modifications to manage comorbidities like overweight, obesity, and diabetes.

Keywords: Hypertension, Middle-aged adults, Risk factors, Blood pressure, Lifestyle factors, Kisangani Health Centre IV, Wakiso District

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Background

Hypertension, also known as raised blood pressure, is a condition in which the blood vessels have persistently raised pressure. It has been reported that one in four men and one in five women have raised blood pressure (Ziqian Zeng, 2020). Globally, an estimated 1.28 billion adults aged 30–79 years worldwide have hypertension, most (two-thirds) living in low- and middle-income countries. An estimated 46% of adults with hypertension are unaware that they have the condition. Less than half of adults (42%) with hypertension are diagnosed and treated. Approximately 1 in 5 adults (21%) with hypertension have it under control. Hypertension is a major cause of premature death worldwide (WHO, 2024). The estimated prevalence of HTN in Africa is around 30.8%, 12, and in Sub-Saharan Africa, it is between 30.0% and 31.1%. Regarding the age group,

approximately 46% of adults over the age of 25 suffer from HTN. In the developing world, about one in three adults has HTN on average, and by 2025, it is expected that three out of four people in low- and middle-income countries will have HTN. The Pan-African Society of Cardiology (PASCAR) identified 10 points for African ministers of health to achieve a 25% reduction by 2025 in HTN (Abdulkerim Hassen Moloro, 2023). Hypertension is a growing concern among adults in Uganda. According to a study conducted in 2016, the prevalence of hypertension among adults in Uganda was 24.3% This is a significant increase from previous years and is attributed to a sedentary lifestyle, unhealthy diet, and stress. Hypertension is a major risk factor for cardiovascular diseases, stroke, and kidney failure, among others, and therefore needs to be addressed through public health interventions (Kiggundu, 2016). The

identification of predictors of hypertension is of paramount importance in the early detection and management of this public health concern. Factors such as age, gender, family history, obesity, physical inactivity, tobacco use, excessive alcohol consumption, high salt intake, stress, and certain medical conditions such as diabetes and kidney disease have been associated with hypertension. Additionally, there exists a notable positive correlation between environmental factors, such as air pollution, noise, seasonal change, geographical location, and hypertension (Bolm-Audorff, et al., 2020). This study determined the prevalence and factors associated with hypertension among adults aged 45-60 years at Kasangati Health Centre IV, Wakiso district.

Methodology

Study design

This was a cross-sectional study using quantitative methods of data collection. This design enabled the researcher to establish the factors associated with hypertension among adults at one point in time.

Study area

The study was conducted among adults attending the OPD clinic of Kasangati HCIV. Kasangati Health Centre IV is a health Centre in Nangabo sub-county, Kyadondo, Central Uganda, and has an elevation of 1,196 Metres. Kasangati Health Centre IV is situated near the town of Gayaza and the village of Bulindo. It serves about 2 million people and offers outpatient services, general inpatient services, and general surgical services.

Study population

The study was done among adults aged 45-60 years who were attending Kasangati HCIV at the time of data collection. All eligible individuals, regardless of their hypertension diagnosis, participated in the study.

Sample size determination

Sample size was determined using QR/T (Burton, 1965) Where;
Q=Total number of days spent in data collection

R= Maximum time taken by the interviewer per day

T= Maximum time taken by the interviewer Therefore;

R= 6 hours

Q= 10 days

T= 1-hour QR/T= (10x6)/1

n= 60 respondents

Therefore, the sample size for this study was 60 respondents.

Sampling technique

Simple random sampling technique was used to select adults aged 45-60 years at Kasangati HCIV. The participants were recruited following their availability at the facility during data collection. This sampling technique was used because Kasangati HCIV is cheap and easy to employ, and it ensures randomization.

Sampling procedure

Simple random sampling was employed to obtain the study participants. Participants were recruited from the outpatient department of Kasangati HCIV. In this case, the population was 120 participants, and the lottery method was used. Each of the 120 participants was assigned a number between 1 and 120, after which 60 of those numbers were chosen at random.

Data collection method

During data collection, the researcher used face-to-face interviews using a questionnaire to collect quantitative data. The chosen data collection method was appropriate to collect data on prevalence and factors associated with hypertension among adults aged 45-60 years at one point in time. The method was also simple and quick to use.

Data collection tool

An interviewer-administered questionnaire containing close-ended questions was used to collect data among adults aged 45-60 years. The questionnaire was developed by the researcher after adapting questions from the WHO STEPS standard tool. The tool assessed the prevalence of hypertension with self-reported presence or absence of hypertension (have you ever been diagnosed with hypertension), requiring a binary response (yes/no). The follow-up question included: how long ago was the hypertension diagnosis made? Additionally, the tool assessed the factors associated with hypertension among adults aged 45-60 years, including environmental factors and individual factors.

Data collection procedure

The researcher gained approval for the study from the institution, which was presented to the clinical head of Kasangati HCIV. After gaining approval, the researcher sought further approval from the charge of the OPD clinic of Kasangati HCIV and made an appointment for data collection. During data collection, the researcher screened participants for eligibility and consecutively recruited them into the study following their availability at the clinic. Each recruited participant was interviewed separately in a private clinical room. All participants were assured of confidentiality, and no third parties were involved. After interviews, each tool was checked for completeness.

Piloting the Study

The research tools and methods used were pretested by conducting a pilot study among adults aged 45-60 years at Kasangati HCIV. The tool was administered to 60 participants at the OPD clinic of Kasangati HCIV, and the responses were analyzed to see if they answered the set research questions. All the necessary adjustments in the research method and tool were made following the pilot study. This was done to ensure the correctness of the method and tool to be used.

Quality control

All the study tools in this study were pretested during a pilot study that was conducted at Kasangati HCIV among 60

participants, and necessary modifications were made after the pretest. Data was collected by the researcher herself, who was trained by the research supervisor about research ethics, conduct, and data collection to ensure quality. The researcher gave ample time for data collection and enough time during interviews to minimize recall bias. In this study, adults aged 45-60 years who were attending the OPD clinic of Kasangati HCIV and consented to participate were included in the study. On the other hand, adults who were very sick and unable to talk were excluded from the study.

Data analysis and presentation

Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS) version 26. Descriptive statistics were used to report the demographic characteristics of participants and the prevalence of hypertension at univariate analysis. The data was summarized using frequencies and percentages and presented using tables and figures. To assess the factors associated with hypertension, bivariate analysis between the factors and prevalence of hypertension was done to find any associations that exist. Binary logistic regression was done and variables with p- values<0.2 were deemed significant. Variables that remained significant at the bivariate level were analyzed at the multivariate level to remove any confounding variables. Logistic regression was done at a 95% level of significance. The variables with P values<0.05 were significant. Data was summarized using p-values, odds ratios, and confidence intervals in tables.

Discussion of results
Socio-demographic data

Table 1; showing the distribution of respondents according to their socio-demographic data, N=60.

Response	Frequency (f)	Percentage (%)
Age		
45-50	12	20
50-55	20	33.3
55-60	28	46.7
Sex		
Male	22	36.6
Female	38	63.4
Tribe		
Muganda	18	30
Munyankole	24	40
Musoga	8	13.3
Mukiga	10	16.7
Level of education		
No formal education	4	6.6
Primary level	5	8.4
Secondary level	23	38.3
Graduate level	28	46.7
Occupation		
No formal occupation	24	40
Employed	36	60
Marital status		
Single	7	11.6
Cohabiting	2	3.4
Divorced	18	30

Married	28	46.7
Widowed	5	8.3

Table 1: The study findings revealed that the majority (46.7%) of the respondents were aged 55- 60 years, whereas the minority of the respondents (20%) were aged 45-50 years. The study findings revealed that most (63.4%) of the respondents were females, whereas the least (36.6%) of the respondents were males. The study findings revealed that the majority (40%) of the respondents were Banyankole, whereas the minority (13.3%) of the respondents were

Basoga. The study findings revealed that most (46.7%) of the respondents were at graduate level while the least (6.6%) of the respondents had no formal level of education. The study revealed that the majority (60%) of the respondents were employed while the minority (40%) of the respondents were not formally employed. The study revealed that most (46.7%) of the respondents were married while the least (3.4%) of the respondents were cohabiting.

Prevalence of hypertension among adults aged 45-60 years at Kasangati Health Centre iv, Wakiso district.

Figure 1: showing the distribution of respondents according to whether they had ever been diagnosed with high blood pressure.

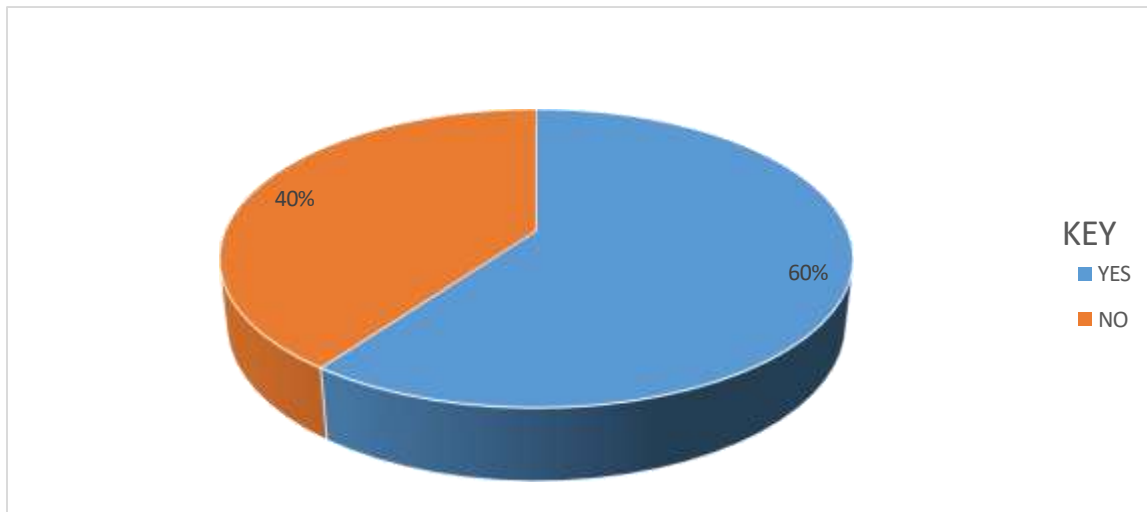


Figure 1 shows that the study findings revealed that the majority (60%) of the respondents had ever been diagnosed with high blood pressure, while the minority (40%) of the respondents had never been diagnosed with high blood pressure.

Table 2 showing the distribution of respondents according to which gender they believed that were mostly affected by high blood pressure.

Response	Frequency (f)	Percentage (%)
Male	38	63.3

Female	22	36.7
Total	60	100

Table 2 shows that the study findings revealed that most (63.3%) of the respondents believed that males were mostly affected by high blood pressure, while the least (36.7%) of the respondents believed that females were mostly affected by high blood pressure.

Figure 2 showing distribution of respondents whether they had ever been diagnosed with HIV.

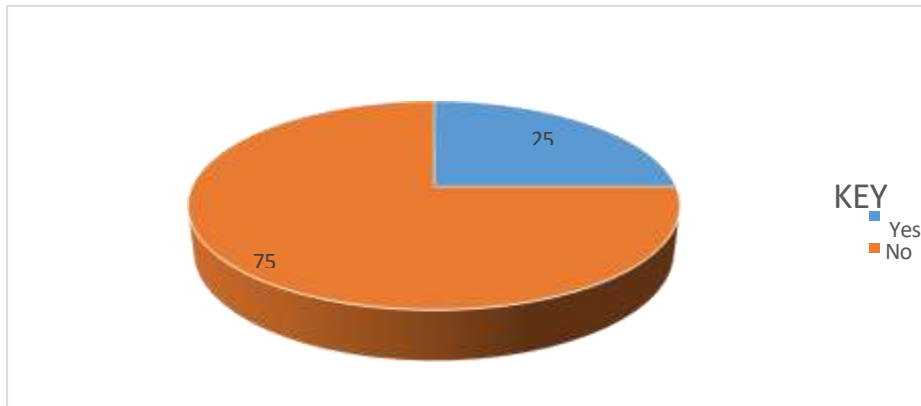


Figure 2 indicates that the study findings revealed that the majority (75%) of the respondents had never been diagnosed with HIV, while the minority (25%) of the respondents had ever been diagnosed with HIV.

Individual factors associated with hypertension among adults aged 45-60 years at Kasangati Health Centre iv, Wakiso district.

Figure 3 showing the distribution of patients according to the number of times they were doing exercises in a week.

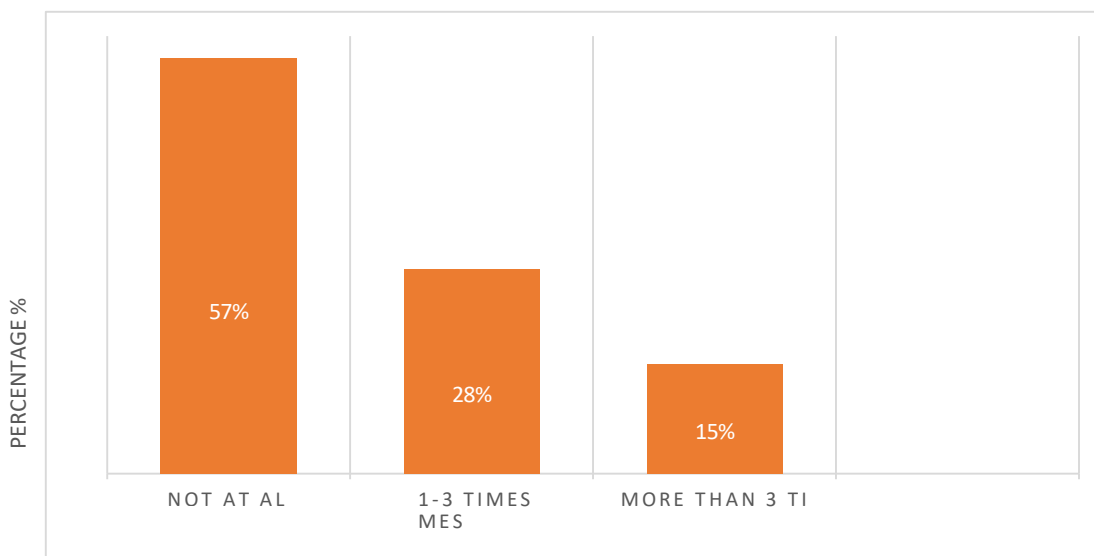


Figure 3 indicates that the study revealed that the majority (57%) of the respondents were not exercising at all in a week, while the minority (15%) of the respondents were exercising more than 3 times a week.

Figure 4 showing the distribution of respondents according to whether they were adding extra salt to cooked food.

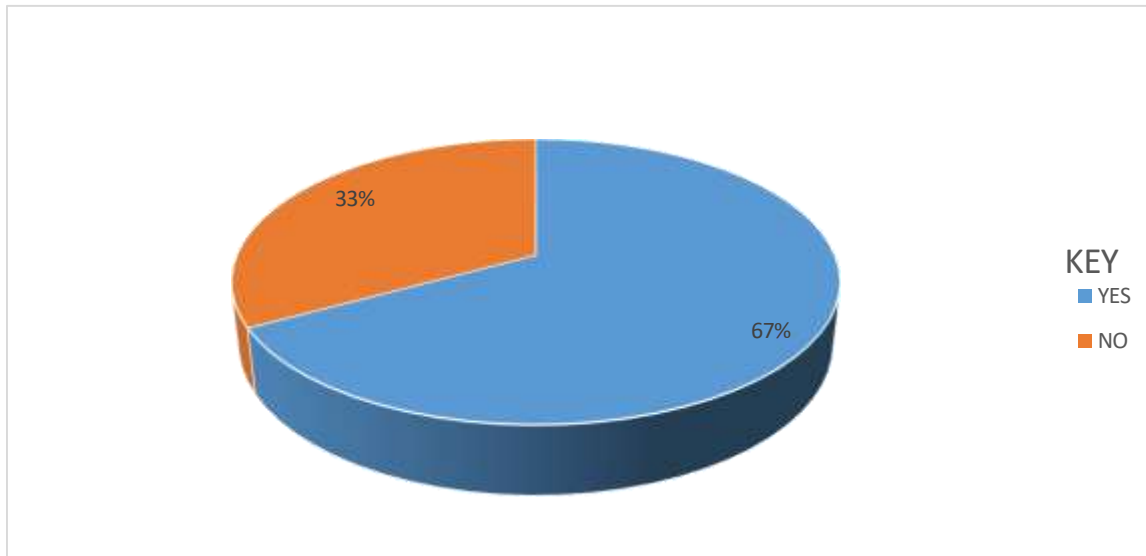


Figure 4 shows that the study revealed that the majority (67%) of the respondents were adding extra salt to cooked food while the minority (33%) were not adding extra salt to cooked food. Showing the distribution of respondents, whether there is a history of hypertension in their family.

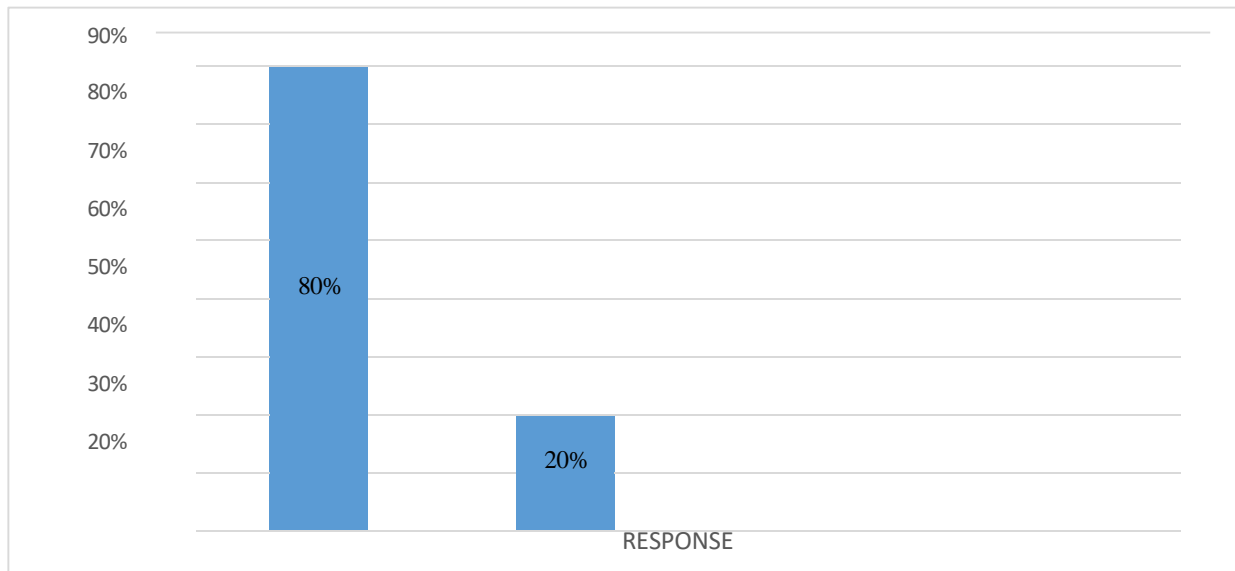


Figure 5 shows that the study revealed that most (80%) of the respondents had a history of hypertension in their family, while the least (20%) of the respondents did not have a history of hypertension in their family.

Table 3 showing the distribution of respondents whether they were taking alcohol N=60

Response	Frequency(f)	Percentage (%)
Yes	32	53.3
No	28	46.7

Table 3 shows that the study revealed that the majority (53.3%) of the respondents were taking alcohol, while the minority (46.7%) of the respondents were not taking alcohol.

Figure 6 showing the distribution of respondents whether they had ever smoked.

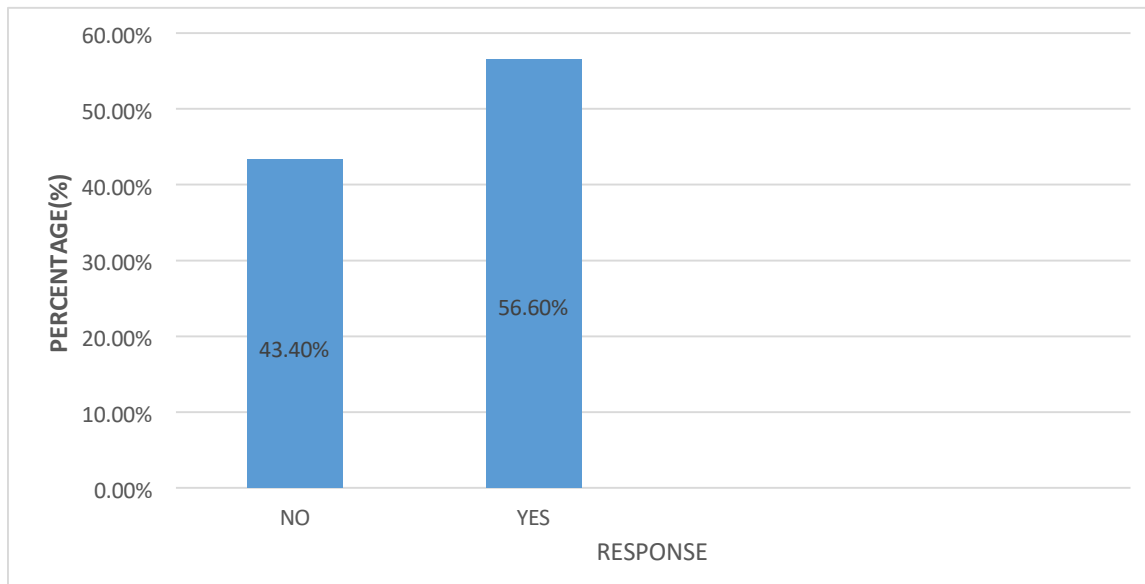


Figure 6 shows that the study revealed that the majority (56.6%) of the respondents had ever smoked while the minority (43.4%) of the respondents had never smoked.

Table 4 showing the distribution of respondents according to number of times they included fruits or vegetables in their diet N=60

Response	Frequency (f)	Percentage (%)
Not at all	25	41.6%
1-3 times	20	33.4%
More than 3 times	15	25%

Table 4 shows that the study revealed that most (41.6%) of the respondents had not included fruits or vegetables in their diet, while the least (25%) of the respondents had included fruits or vegetables in their diet.

Environmental factors associated with hypertension among adults aged 45-60years at Kasangati Health Centre iv, Wakiso district.

Table 5 showing the distribution of respondents according to whether they were staying near noisy places N=60.

Response	Frequency (f)	Percentage (%)
Yes	48	80
No	12	20

Table 5, the study revealed that the majority (80%) of the respondents were staying near very noisy places, whereas the minority (20%) of the respondents were not staying near very noisy places.

Table 6 showing the distribution of respondents according to whether they were staying near highly polluted areas N=60.

Response	Frequency (f)	Percentage (%)
No	40	66.6
Yes	20	33.4

Table 6 shows that the study revealed that the majority (66.6%) of the respondents were not staying near highly polluted areas, while the minority (33.4%) of the respondents were staying near highly polluted areas.

Figure 7 showing the distribution of respondents according to which most prevalent environmental temperatures they were staying in.

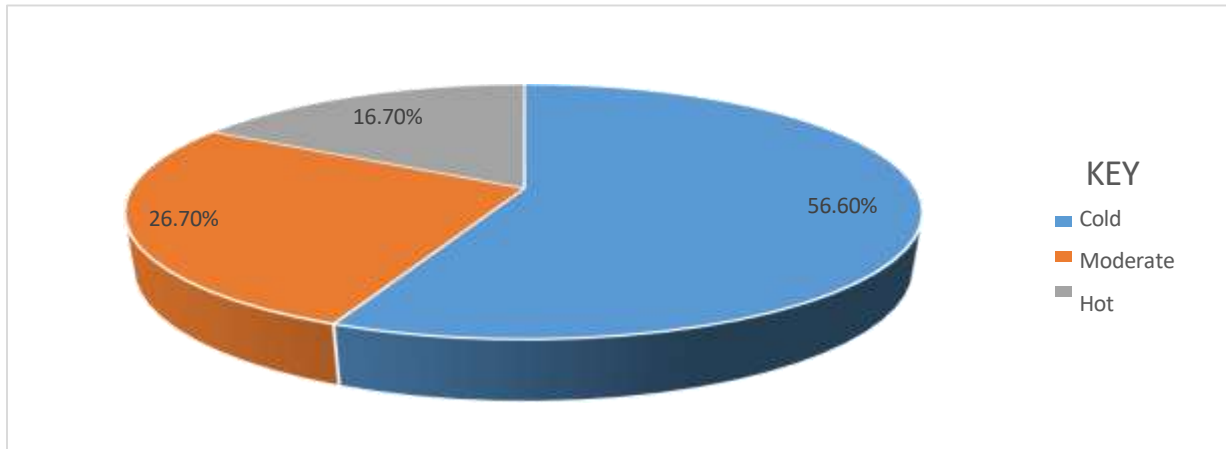


Figure 7 shows that the study revealed that most (56.6%) of the respondents were staying in cold environmental temperatures while the least (16.7%) of the respondents were staying in hot environmental temperatures.

Figure 8 showing the distribution of respondents according to the nature of landscape of place they were staying.

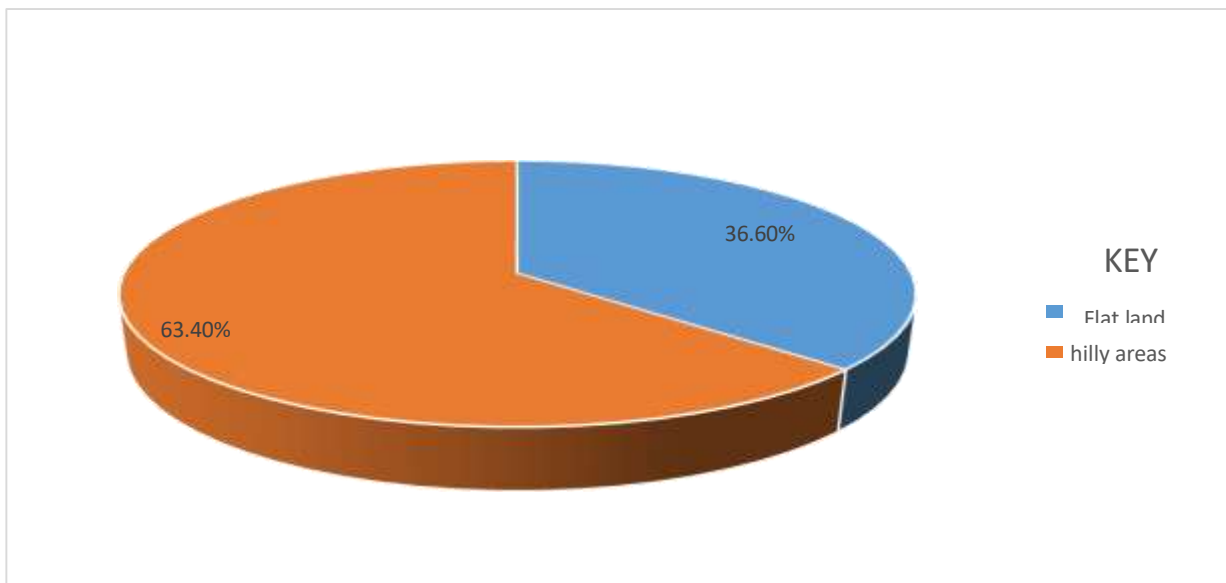


Figure 8 shows that the study revealed that most (63.4%) of the respondents were staying in hilly areas while the least (36.6%) of the respondents were staying in flat areas.

Table 7 showing the distribution of respondents according to whether the nature of their occupation was predisposing them to excessive noise.

Response	Frequency (f)	Percentage (%)
Yes	20	33.4
No	40	66.6

Table 7 revealed that the majority (66.6%) of the respondents revealed that the nature of their occupation was not predisposing them to excessive noise, while the minority (33.4%) of the respondents revealed that the nature of their occupation was predisposing them to excessive noise.

Discussion of results

Prevalence of hypertension among adults aged 45-60 years at Kasangati Health Centre iv, Wakiso district.

The study discovered that (60%) of the respondents had never been diagnosed with high blood pressure. This could be a result of the study participants taking antihypertensive treatment before. This is in agreement with a study that was carried out by Fuh Princewel, (2019), where 12.8% of the study participants knew they were hypertensive patients. The study discovered that (63.3%) of the respondents believed that males are mostly affected by high blood pressure. This could be due to stress since they are the heads of the family and have a lot of responsibilities to accomplish. This is in line with a study that was carried out in Nigeria, by Adeloje (2015), where the prevalence of hypertension among men was 29.5%. The study discovered that (75%) of the respondents had never been diagnosed with HIV. This could be because the respondents are aware of the transmission and severity of HIV and therefore use preventive measures for HIV. This is in disagreement with a study that was carried out in South Africa by Okyere (2022), where the prevalence of hypertension among HIV patients was 50.1%.

Individual factors associated with hypertension among adults aged 45-60 years at Kasangati Health Centre iv, Wakiso district.

The study discovered that (57%) of the respondents were not doing physical exercise at all in a week. This could be due to a lack of time for physical exercise since they are working class and dedicate most of their time to their occupation. This is in disagreement with a study that was carried out by Fuh Princewel (2019), where (55.5%) of the participants were moderately doing physical exercise.

The study discovered that (67%) of the respondents were adding extra salt to cooked food. This could be because the respondents are not aware of the dangers of adding extra salt to cooked food. This is in line with a study that was carried out in Pakistan by Riaz (2021). The study discovered that (80%) of the respondents had a history of hypertension in their family. This could be due to genetics that run in the family. This is in line with a study that was carried out in Pakistan by Riaz (2021). The study discovered that (53.3%) of the respondents were taking alcohol. This could be because the respondents take alcohol in their leisure time as a relief from stress. This is in line with a study that was carried out by Fuh Princewel, (2019), where (63.4%) of the study participants were taking alcohol. The study discovered that (56.6%) of the respondents had ever smoked. This could be because the respondents practice smoking as a source of leisure. This is in disagreement with a study that was carried out by Fuh Princewel, (2019), where (10.3%) of the study participants were smokers. The study discovered that (41.6%) of the respondents had not included fruits or vegetables in their diet at all in a week. This could be due to the ignorance of the patients about the benefits of including fruits and vegetables in their diet. This is in agreement with a study that was carried out by Fuh Princewel (2019).

Environmental factors associated with hypertension

The study discovered that (80%) of the respondents were staying near very noisy areas. This could be attributed to the fact that they live in areas near industries and roads, which predisposes them to noise. This is in line with a study that was carried out in Spain by Rosa Maria Bruno (2017). The study discovered that (66.6%) of the respondents were not staying near highly polluted areas. This could be because they live in areas near industries and roads, which predisposes them to dangerous gases.

This is in line with a study that was carried out in Germany by Rosa Maria Bruno, (2017). The study discovered that (56.6%) of the respondents were staying in areas with cold temperatures. This could be attributed to the environment they live in. This is in agreement with a study that was carried out in Germany by Rosa Maria Bruno, et al. (2017) that revealed that there was a 41% increase in CV mortality during winter. The study discovered that (63.4%) of the respondents were staying in hilly areas. This could be attributed to the environment they live in, which is cold due to high altitudes. This is in agreement with a study that was carried out by Rosa Maria Bruno, et al. (2017), which revealed that cold temperatures are associated with hypertension. The study revealed that (66%) of the respondents were not predisposed to excessive noise by the nature of their occupation. This could be because their occupations were situated in noise-free areas. This was in agreement with a study that was carried out by Bolm-Audorff, et al. (2020), which revealed that there is a 95% positive relationship between occupational noise and hypertension.

Conclusion

The study established that the prevalence of hypertension among adults aged 45-60 years was high which is evidenced by (60%) of the respondents had ever been diagnosed with high blood pressure, (63.3%) of the respondents believed that males are mostly affected by high blood pressure, (75%) of the respondents had never been diagnosed with HIV. The study further established that the individual factors associated with hypertension among adults aged 45-60 years were somehow fair which is evidenced by (57%) of the respondents not doing physical exercise at all in a week, (67%) of the respondents adding extra salt to cooked food, (80%) of the respondents had a family history of hypertension in their family, (53.3%) of the respondents were taking alcohol, (56.6%) of the respondents were smoking cigarettes, (41.6%) of the respondents were not including fruits or vegetables at all in their diet. Regarding the environmental factors associated with hypertension among adults aged 45-60 years was somehow fair which is evidenced by, (80%) of the respondents staying near very noisy places, (66.6%) of the respondents not staying near highly polluted areas, (56.6%) of the respondents were staying in cold environmental temperatures, (63.4%) of the respondents were staying in hilly areas as the nature of the landscape, (66.6%) of the respondents were not predisposed to excessive noise by the nature of their occupation. The researcher generally concluded that the prevalence of hypertension was high, and individual factors associated with hypertension were somewhat fair;

environmental factors associated with hypertension were somewhat fair, thus increasing numbers of hypertension.

Study limitations

The study used a cross-sectional design; hence, it was difficult to ascertain the causal relationship between the prevalence of hypertension and factors affecting it. Self-reported bias where some participants did not remember past events and hence gave vague responses.

Recommendations

The researcher therefore recommends that the local authorities work together with health workers at Kasangati Health Center IV, Wakiso district, and conduct continuous health education of the adults on the risk factors, prevention, and treatment of hypertension. Continuous health education will provide an opportunity for the adults to acquire prevention measures and be advised to practice the above preventive measures. Health workers should constantly encourage adults to modify their lifestyle by avoiding smoking, alcohol consumption, and dietary modifications to manage comorbidities like overweight, obesity, and diabetes. The facility is recommended to create ample time for the hypertension clinic by adding an extra time for hypertensive patients and advising its health workers to follow up their patients and advise them to seek medical attention in cases of emergencies. The Ministry of Health, together with the district public service manager, is recommended to allocate more health workers at the hypertension clinic to reduce the heavy work-load and also ease hypertension services delivery at the clinic.

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List of abbreviations

Bp :	Blood pressure.
CV :	Cardiovascular
Fc :	Female condom
HCIV:	Health Centre IV.
HIV:	Human Immune-deficiency Virus
HTN:	Hypertension

Conflict of interest

No conflict of interest declared.

Availability of data

Data used in this study is available upon request from the corresponding author

Author's contribution

MYN designed the study, conducted data collection, cleaned and analyzed data and draft the manuscript and RA supervised all stages of the study from conceptualization of the topic to manuscript writing.

Ethical approval

The ethical approval was sought from the Department of Clinical Medicine, Kampala School of Health Sciences. Further approval was gained from the clinical head of Kasangati Health Centre IV and the in-charge of the OPD clinic at Kasangati Health Centre IV. The researcher did not use real names of participants during data collection, and data was collected in private clinical rooms to ensure privacy and confidentiality. Written informed Consent to participate in this study was gained from all the participants, and they were informed of the risks and benefits of their participation. They were also informed about their voluntariness to participate in this study.

Informed consent

A consent form was filled by the respondents after explaining the purpose of the study to them. The respondents were assured of confidentiality as no name would appear on the questionnaire. No participant was forced to participate in the study, and all the study materials used during the interviews were safely kept under lock and key, only accessible by the researcher.

Author's biography

Mayi Yahaya Nalugunju is a student of diploma in clinical medicine and community health at Kampala School of Health Sciences.

JNC:	Joint National Committee
OPD:	Outpatient Department
UNICEF:	United Nations Children's fund
WHO:	World Health Organization

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Robert Asimwe is a research supervisor at Kampala School of Health Sciences.

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