

Awareness and lifestyle practices of hypertension prevention among the elderly patients at Mubende regional referral hospital, Mubende district, a cross-sectional study.

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ABSTRACT

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Background: Hypertension is a leading preventable risk factor for cardiovascular disease (CVD) worldwide. This study assessed the awareness and lifestyle practices of hypertension prevention among the elderly at Mubende regional referral hospital, Mubende district.

Methodology:

The study employed a cross-sectional study design with a convenience sampling technique to obtain 122 elderly patients aged 60 years and above. Data was collected from 31st October to 15th November 2025. A blood pressure machine was used to measure blood pressure for respondents. The data was then analyzed. The findings were analyzed using Microsoft Excel and scientific calculators, then presented in the form of tables, graphs, pie charts, and word statements.

Results:

The study involved more widowed, 45(36.9%) elderly people, with the most, 54(44.3%) aged 60-69 years. The majority, 49(40.2%), had attained primary as the highest education level, and 69(56.6%) resided in rural areas, while 53(43.4%) resided in urban areas. Findings revealed that 122(100%) participants had heard about hypertension, 73 (60%) considered hypertension as a very serious disease, with 67 (55%) participants obtaining information from health care professionals. Practically, 83(68%) were faced with difficulty understanding the information received about hypertension prevention, and 76(62%) monitored their blood pressure levels on a weekly basis. Respondents adopted positive lifestyle practices like reduced salt intake, fruits and vegetables consumption, avoidance of smoking and alcohol, practicing stress management, following health professionals' advice, engagement in regular physical activity, and routine monitoring of blood pressure.

Conclusions:

Generally, comprehension of prevention strategies of hypertension remained limited due to low health literacy and reliance on hospital education during visits.

Recommendations:

Health professionals should collaborate with community health workers and implement simplified community-level health education programs. Family members and caregivers of the elderly patients with hypertension should support them by preparing healthy meals and encouraging physical activity.

Keywords: Hypertension, Cardiovascular disease, Arteriosclerosis, Sedentary lifestyle, Mubende regional referral hospital.

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BACKGROUND

Hypertension is diagnosed when a patient's systolic blood pressure is consistently 140 mmHg and/or their diastolic blood pressure is 90 mmHg across two separate days. This condition serves as a primary risk factor for the development of chronic kidney disease and various cardiovascular complications (Burnier & Damianaki, 2023). The risk factors for high blood pressure and hypertension include obesity, physical inactivity, high sodium intake, tobacco and alcohol consumption, low socioeconomic status, and psychosocial stressors. Emerging evidence shows environmental exposures may be a risk factor for high blood pressure. Moderate to strong evidence that exposure to air pollution, cold temperature, and noise increases BP in adults (Warembourg, 2019).

The global incidence of hypertension is increasing, driven primarily by an aging demographic and greater prevalence of behavioral risks. Key contributors include sedentary lifestyles and poor dietary habits, specifically the combination of excessive sodium consumption and insufficient potassium intake (Mills et al., 2020).

Sub-Saharan Africa (SSA) bears a burden of hypertension, and it is one of the leading cardiovascular risk factors, with high numbers of undiagnosed and untreated patients. The health systems and affected people are often overwhelmed by the social and economic burden that comes with the (Gnugesser, 2022). And it coexists with other chronic diseases, such as kidney disease and diabetes, among others (Deferrari, 2021), yet rates of diagnosis, treatment, and control are markedly low. There is a large population with early-stage hypertension that may benefit from

behavioral counseling to prevent progression (Shakil, 2022).

In East African countries, hypertension is a growing burden that presents serious challenges to public health, healthcare systems, and economic development across the region. Urbanization, in particular, has transformed lifestyle patterns, increasing the consumption of processed foods high in salt, sugar, and unhealthy fats, while reducing levels of physical activity. A key determinant of health outcomes, including hypertension, is socioeconomic status (SES). SES encompasses various dimensions such as income, education, occupation, and access to resources. It influences health behaviors, healthcare access, environmental exposures, and overall living conditions. Disparities in SES between urban and rural populations manifest in different patterns of hypertension prevalence and management. Urban populations often have higher exposure to hypertension risk factors due to lifestyle changes driven by economic development. Conversely, rural populations may face challenges related to healthcare access and socioeconomic constraints, which hinder the diagnosis and treatment of hypertension (Mugisha et al., 2024).

In Uganda, the prevalence of hypertension in a MRRH study was estimated to be 26.5%, with only 7.7% of the population aware of their status with the prevalence of hypertension among patients aged 40 and above attending Mubende RRH moderately high, with smoking and obesity being significantly associated with high risk such as BMI, smoking and physical exercises significantly reducing the risk (Nakhokho, 2023). This study assessed the awareness and lifestyle practices of hypertension prevention among the Elderly at Mubende Regional Referral Hospital, Mubende District.

METHODOLOGY

Study Design and Rationale

The study employed a cross-sectional study design to assess the awareness levels and lifestyle practices among the elderly, because this study design allowed the collection of data at a single moment of time, which improved authenticity.

Study Area

The study was conducted at the OPD in Mubende regional referral hospital (MRRH) in Mubende district because it was convenient and easier for me. It is located in Mubende Municipality, Central Uganda, approximately 150 kilometers west of Kampala, Uganda's capital city, offering specialist services with a bed capacity of about 250 beds. MRRH is a public health facility that serves as a referral center for the districts of Bulisa, Hoima, Kibaale, Kiryandongo, Kagadi, Kakumiro, Kikuube, and Masindi. It offers ANC, Laboratory, Dental, ENT, Obstetrics and Gynecological, surgical, medical, pediatric, and psychiatric services.

Study Population

The study population involved elderly patients aged 60 years and above.

Sample Size Determination

The sample size was determined using the Kish and Leslie 1965 method

$$n = \frac{z^2 pq}{d^2} \quad \text{Where } n = \text{the sample size}$$

z = Standard normal deviation (1.96 for 96% confidence)

p = In Uganda, the prevalence of hypertension in an MRRH study was estimated to be 26.5% (Nakhokho, 2023) = 0.265

d = Margin of error 5% = 0.05 $q = 1 - p$; $q = 0.735$

$n = ((1.96)^2 * 0.265 * 0.735) / (0.05)^2$ Thus, $n = 121.734375$

122 participants were considered for the study.

Sampling Technique

A convenience sampling method was used to select the study participants at MRRH. This technique was applied because it gave every person in the study population an equal chance to participate, thus avoiding bias.

Sampling Procedure

Having received approval from the relevant authorities, respondents were identified, and those who fit the inclusion criteria were approached and informed of the concerns of the whole study process.

Data Collection Method

The data was collected using administered questionnaires about the awareness and lifestyle practices of hypertension prevention at MRRH.

Data Collection Tools

Semi-structured questionnaires with closed-ended questions that were specifically designed to meet the objectives of the study were used. These questionnaires were written in simple and straightforward language to ensure that they were easily understood by the participants who were participating in the study.

Data collection procedure

Medical personnel on duty in the doctor's office and the medical personnel in the OPD of MRRH were approached for the records and information about patients with either hypertension, a history of hypertension, or at risk of developing hypertension. With the guidance of this information, appropriate members were identified, and the study was explained to them to gain their consent. With a blood pressure measuring machine, each one's blood pressure was measured to ensure that they were in stable condition. Questionnaires were then administered to each one of them for data collection. After the data collection, participants were appreciated for having accepted to be part of the study process.

Quality Control

Pretesting of the questionnaire was done with 13 volunteers from the research committee of Mildmay Institute of Health Sciences to ensure reliability and authenticity of the questionnaire. Sufficient time was provided to every participant with the aim of avoiding rush while keeping the participants interactive so as to avoid boredom. Any incomplete questionnaire was repeated to ensure consistency of the data.

Inclusion Criteria

Male and female Patients aged 60 years and above who were available at the hospital, English literate, and those who consented to participate in the study.

Exclusion Criteria

The study excluded those who were very sick during the study.

Piloting the Study

A pilot study was conducted in Mubende regional referral hospital, visiting the study area a week before conducting the actual study, to seek and obtain permission from the hospital administration. This visit aimed at ensuring that the conditions at the hospital had not changed and also

ruled out the presence of highly infectious diseases that could hinder the study in the hospital.

Observation of SOPs

This involved social distancing, hand hygiene, and hand rub so as to avoid cross-infection, avoid breaking the hospital operating procedures, and also avoid hindering the normal running of the health center activities due to research.

Data Management and Analysis

The findings were analyzed and processed using Microsoft Office software, Excel, and scientific calculators, then presented as percentages, frequencies, narratives, and numbers in the form of tables, graphs, pie charts, and word statements.

Ethical Consideration

Professional appearance was assured, approval from the relevant authorities was attained before any activity was carried out, and the participant's privacy and safety were assured.

RESULTS

Table 1: Showing demographic characteristics of respondents

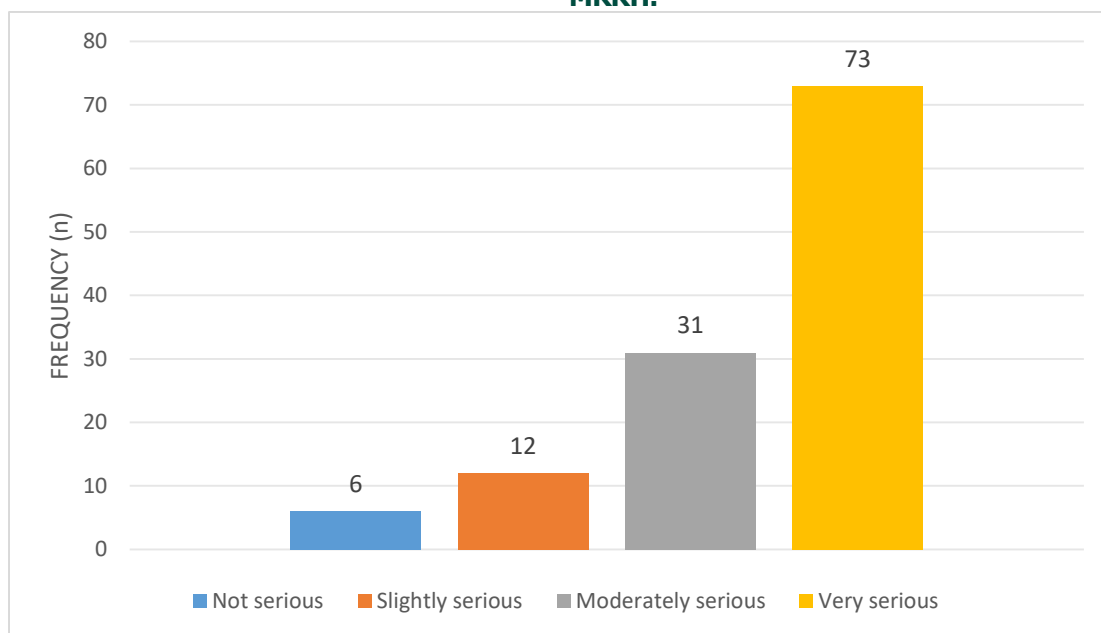
Variable	Category	Frequency (n)	Percentage (%)
Age (years)	60–69	54	44.3
	70–79	46	37.7
	80–89	18	14.8
	90+	4	3.3
Level of Education	No Formal Education	38	31.1
	Primary	49	40.2
	Secondary	23	18.9
	Tertiary	12	9.8
Marital Status	Married	59	48.4
	Widowed	45	36.9
	Single	10	8.2
	Divorced/Separated	8	6.6
Residence	Urban	53	43.4
	Rural	69	56.6

Findings in table 1 reveal that the most, 54(44.3%) were aged 60-69 years, the majority, 49(40.2%) had attained primary as the highest education level, 45(36.9%) were widowed, and 69(56.6%) resided in rural areas.

Level of awareness of hypertension prevention among elderly patients at Mubende Regional Referral Hospital.

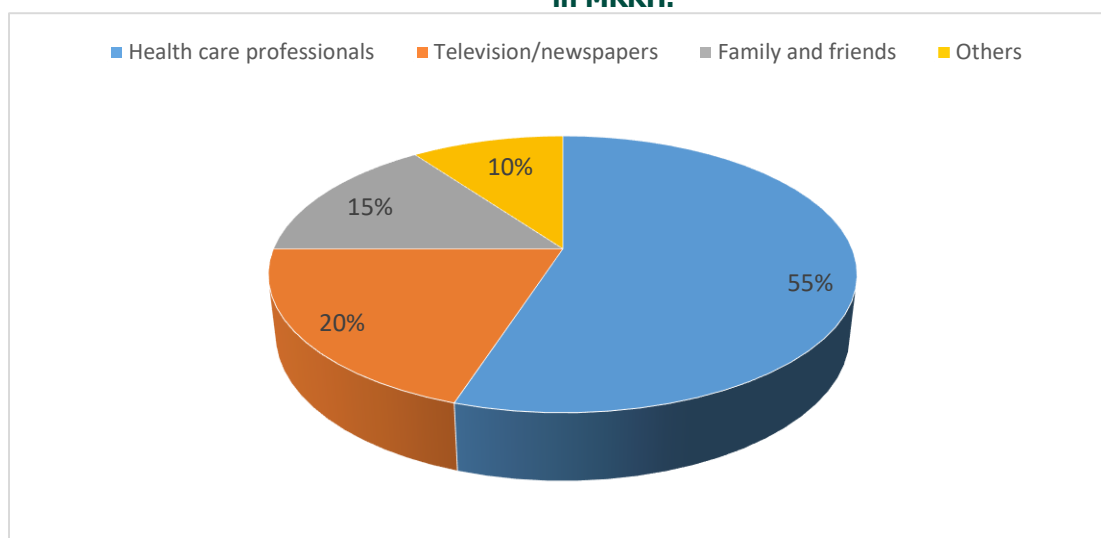
Study findings revealed that 122(100%) participants had heard about hypertension

Figure 1: Showing the response to whether hypertension is a serious health factor at MRRH.



Findings in Figure 1 show that of the 122 total participants, 6 (5%) did not consider hypertension seriously, 12 (10%) considered it as slightly serious, 31 (25%) considered it as moderately serious, whereas the largest number, 73 (60%), considered hypertension as a very serious disease.

Figure 2 shows study findings for the source of information about hypertension prevention in MRRH.



Findings in figure 2 show that health care professionals were a source of information to 67 (55%) participants, television/newspapers were a source of information to 25 (20%) participants, family and friends were a source of information to 18 (15%) and others sources such as church and community groups were a source to 12 (10%) participants.

Frequency of receiving information about hypertension prevention

Table 2: Showing response on frequency of receiving information about hypertension prevention in MRRH

Variable	Category	Frequency (n)	Percentage (%)
Frequency of receiving information about hypertension	Everyday	0	0
	Once in a while	18	15
	Whenever I go to the hospital	104	85
	Total	122	100

Findings in Table 2 show that none of the participants received information about hypertension on a daily basis. However, 18 (15%) received it once in a while, and 104 (85%) received it whenever they went to the hospital.

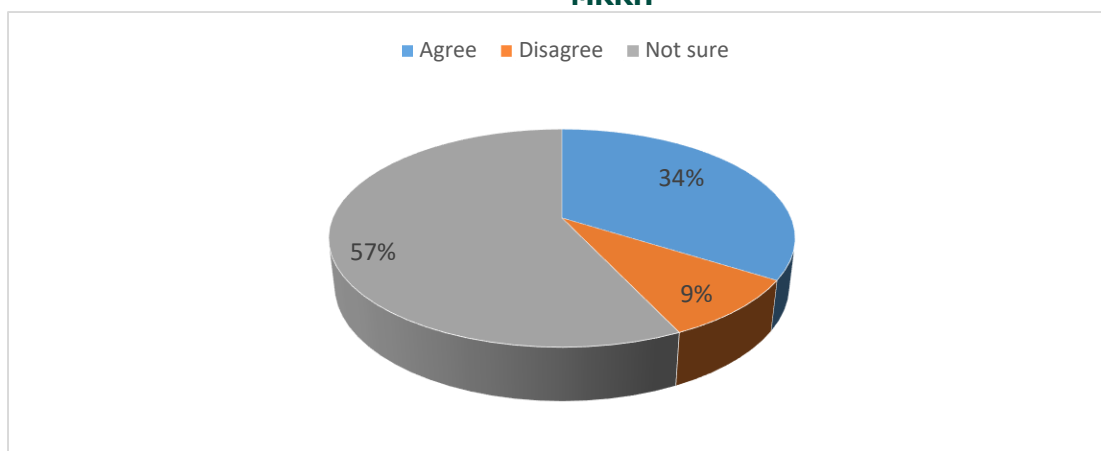
Table 3: Shows response on challenges faced while seeking hypertension prevention information in MRRH

Variable	Frequency (n)	Percentage (%)
Medication that does not manage the disease	0	0
No communication devices	0	0
Difficulty understanding the information	83	68
No problem	39	32

Findings in Table 3, about challenges faced while seeking hypertension prevention information, revealed that none of the participants faced challenges of medication that does not manage the disease or a lack of communication

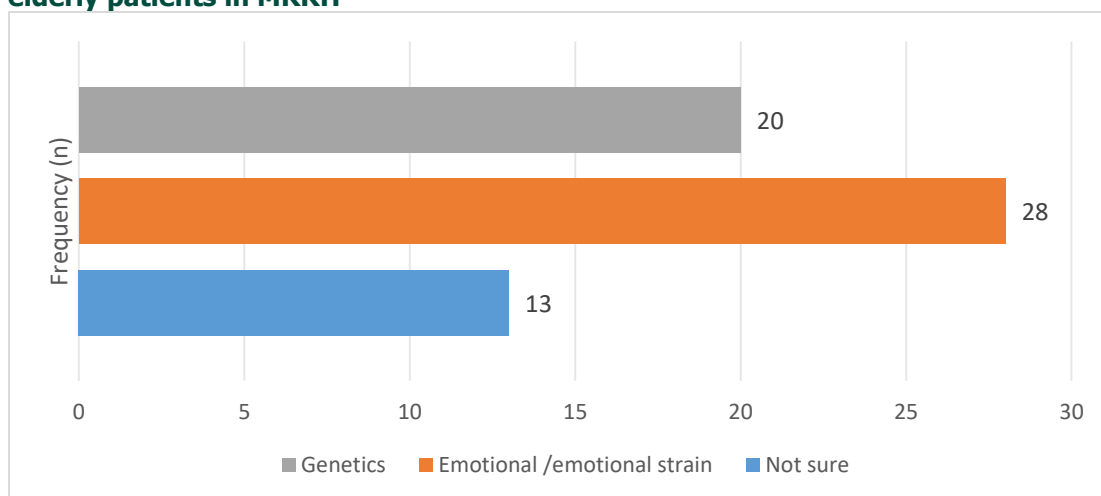
devices. However, most of the participants, 83 (68%), were faced with difficulty understanding the information that they received about hypertension prevention, whereas 39 (32%) were faced with no problem.

Figure 3: Showing patients' perception of high blood pressure being normal with age in MRRH



Findings about high blood pressure being normal with age revealed that most of the participants, 70 (57%), were not sure. Furthermore, 42 (34%) agreed that hypertension was normal with age, whereas 11 (9%) disagreed.

Figure 4: Showing the response to the perceived main cause of high blood pressure among elderly patients in MRRH



Findings about the perceived main cause of high blood pressure revealed that 61(50%) participants considered poor eating habits/unhealthy lifestyle, 20 (16%) considered genetics, 28 (23%) considered stress/emotional strain, while the remaining 13 (11%) were not sure.

Lifestyle practices related to hypertension prevention among elderly patients at Mubende regional referral hospital.

Study findings about salt usage during meals revealed that only 38 (31%) added salt to their food during and while most of the participants, 84 (69%), never consumed salt during meals.

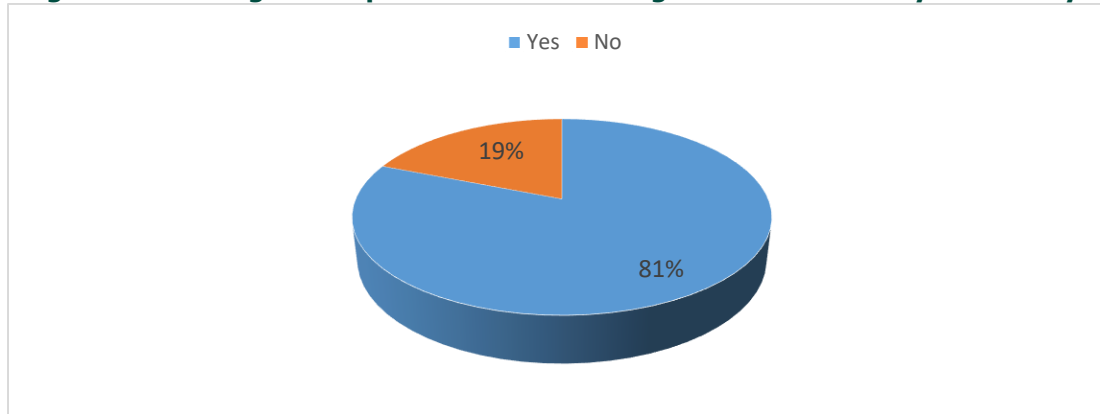
Table 4: Showing response on frequency of fruit and vegetable consumption by patients in MRRH

Variables		Frequencies (n=122)	Percentages (%)
Fruit and vegetable consumption	Rare	24	20%
	Sometimes	82	67%
	Often	0	0
	Always	16	13%

Findings in Table 4, about the frequency of fruit and vegetable consumption, revealed that of the 122 participants, 24 (20%) rarely consumed the fruits and vegetables, 82 (67%) sometimes consumed the fruits and vegetables, and 16 (13%) always consumed the fruits and

vegetables. Study findings about cigarettes/tobacco smoking revealed that none of the participants had smoked cigarettes/tobacco. Study findings about alcohol consumption revealed that none of the participants had consumed alcohol.

Figure 5: Showing the response to stress management measures by the elderly in MRRH



Findings in Figure 5, about stress management measures, revealed that 99 (81%) undertook stress management measures, whereas 23 (19%) did not have stress management measures. The common stress management measures, according to the participants, included

prayer/faith groups, talking to family, light exercise, and rest.

Study findings about participants' engagement in regular physical activity revealed that all the participants always got involved in regular physical activities to prevent hypertension.

Table 5: Showing response on frequency of blood pressure monitoring of the elderly at MRRH

Variable		Frequencies (n)	Percentages (%)
Frequency of blood pressure monitoring	Never	0	0%
	Occasionally	31	25%
	Monthly	0	0
	Weekly	76	62%
	Daily	16	13

Findings in Table 5, about the frequency of blood pressure monitoring, revealed that 31 (25%) participants occasionally monitored their blood pressure levels, 76 (62%) monitored their blood pressure levels on a weekly basis, whereas 16 (13%) monitored their blood pressure on a daily basis.

DISCUSSION

Level of awareness of hypertension prevention among elderly patients at Mubende Regional Referral Hospital.

Data analysis and interpretation revealed that 100% of participants had heard of hypertension, with 60% considering it very serious, 55% receiving prevention information from health professionals, and 85% accessing it mainly during hospital visits; however, 68% struggled to understand prevention messages, 57% were unsure about its relation to age, 50% cited poor lifestyle as the main cause, and the most common symptoms reported were headaches and dizziness (54%), followed by chest pain and shortness of breath (27%). These findings indicate that the elderly patients at Mubende Regional Referral

Hospital showed general awareness of hypertension, with irregular access to the prevention information that was challenging to understand. This is probably because hypertension is a common condition in Uganda, often discussed in communities and health facilities, though low education levels and limited health literacy might have reduced their ability to interpret medical advice, thus making the available information difficult to comprehend.

Lifestyle practices related to hypertension prevention among elderly patients at Mubende Regional Referral Hospital.

Findings revealed that 31% of participants added salt during meals while 69% did not. Fruit and vegetable consumption was reported as 20% rarely, 67% sometimes, and 13% always. None smoked cigarettes/tobacco or consumed alcohol. 81% practiced stress management measures while 19% did not. All participants followed health professionals' advice and engaged in regular physical activity. Blood pressure monitoring was done 25% occasionally, 62% weekly, and 13% daily. These findings indicate that elderly patients can prevent hypertension by reducing salt intake, moderately

consuming fruits and vegetables, avoiding smoking and alcohol, practicing stress management, following advice from health professionals, engaging in regular physical activity, and monitoring their blood pressure. This is probably because the elderly patients at Mubende Regional Referral Hospital were highly aware of the risks associated with hypertension and therefore adopted healthier lifestyle practices to effectively prevent and control hypertension. These findings agree with findings by Kebede et al. (2022) that lifestyle practices are central to hypertension prevention.

Results showed that although the elderly patients at MRRH were generally aware of hypertension, comprehension of prevention strategies remained limited due to low health literacy and reliance on hospital education during visits. In view of these findings, there is a need for simplified, community-level health education programs and continuous engagement with the health professionals, so as to address the challenges faced by the elderly in Mubende Regional Referral Hospital about understanding and applying hypertension prevention measures.

The study established that elderly patients at Mubende Regional Referral Hospital were well adapted to positive lifestyle practices that included reduced salt intake, fruits and vegetables consumption, avoidance of smoking and alcohol, practicing stress management, following health professionals' advice, engagement in regular physical activity, and routine monitoring of blood pressure. In view of these findings, the elderly patients at Mubende Regional Referral Hospital showed stronger awareness, better health professional guidance, and supportive community structures.

CONCLUSION

There is a need for simplified community-level health education programs and continuous engagement with health professionals to address challenges faced by the elderly in understanding and applying hypertension prevention measures, as evidenced by the stronger awareness, better health professional guidance, and supportive community structures among elderly patients at Mubende Regional Referral Hospital.

RECOMMENDATION

Health professionals at Mubende Regional Referral Hospital are to collaborate with community health workers and implement simplified community-level health education programs like community health talks that can be carried out on a weekly basis, so as to educate and improve the application of hypertension prevention strategies among the elderly in Mubende district.

Family members and caregivers of the elderly patients with hypertension should support them by preparing healthy meals, encouraging physical activity, reminding them to take prescribed medication, and ensure stress reducing activities like prayer at home on a daily basis.

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LIST OF ABBREVIATIONS

ANC - Antenatal Care
BP - Blood Pressure
CVD - Cardiovascular Disease
ENT - Ear, Nose, and Throat
RRH - Regional Referral Hospital
HBP - High Blood Pressure
HSB - Health-Seeking Behavior
HTN - Hypertension
MmHg - Millimeters of Mercury
MRRH - Mubende Regional Referral Hospital
OPD - Outpatient Department
PAH - Pulmonary Arterial Hypertension
SES - Social economic status
SOPs - Standard Operating Procedures
SSA - Sub-Saharan Africa:
WHO - World Health Organization

SOURCE OF FUNDING

The study was not funded.

CONFLICT OF INTEREST

The author declares that there was no conflict of interest.

AUTHOR CONTRIBUTIONS

KT - Developed and investigated the study.
HN - Supervised the study.
JFN - Supervised the study.
IPN - Supervised the study.

DATA AVAILABILITY

Data is available upon request.

INFORMED CONSENT

There was full disclosure; full comprehension, and respondents voluntarily consented to participate in the study.

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Immaculate Prosperia Naggulu is a research supervisor at Mildmay Institute of Health Sciences.

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