Journal of NCDs & Global Health
Vol. 3 No. 3 (2026): March 2026 issue
https://doi.org/10.51168/c98fhw77
Original article

Factors influencing adherence to Healthier dietary patterns among Hypertensive clients at Mukono General Hospital: A Cross-Sectional Analytical Study.

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Abstract

Background

Adherence to a dietary pattern is crucial for realizing its intended health benefits. Even the most evidence-based diets like DASH and Mediterranean can fail to impact health outcomes if not followed consistently. This study examines factors influencing adherence to healthier dietary patterns among hypertensives at Mukono General Hospital, emphasizing modifiable determinants to inform targeted interventions.

Methodology

A cross-sectional analytical design was adopted. Using Yamane's formula, a sample of 101 hypertensive outpatients aged 18-75 years was selected via systematic random sampling from the NCD clinic in June 2025. Data were collected through researcher-administered structured questionnaires capturing socio-demographics, dietary patterns via Food Frequency Questionnaire (FFQ), and adherence factors (knowledge, awareness, access, cultural tastes. Analysis involved SPSS version 26, with chi-square tests for bivariate associations and multivariable logistic regression for predictors ($p<0.05$).

Results

Most of the participants, 72 (80%), were female, and 18 (20%) were male. 21.1% had not attended any school, 50% had completed primary education, 27.8% had secondary education, and 1.1% had tertiary education. 50% of the respondents were self-employed, 36.7% were unemployed, 11.1% were employed in the formal sector, and 2.2% were retired. Bivariate analysis showed significant associations between adherence and sex ($p=0.039$), knowledge ($p<0.001$), and awareness ($p<0.001$); no significance for income, education, marital status, employment, residence, access, or cultural tastes. Sex ($p=0.039$), knowledge ($p<0.001$), and awareness ($p<0.001$) were significantly associated with adherence to healthier dietary patterns. Multivariable logistic regression identified knowledge as a strong predictor (AOR=14.434, 95% CI: 1.684-123.789, $p=0.017$), increasing adherence odds 14-fold.

Conclusion

The results demonstrate that knowledge and awareness are the most critical determinants of adherence, while socio-demographic factors, access and availability, and cultural tastes were not significant factors in this context.

Recommendations

Health practitioners and nutritionists should integrate routine dietary counseling into hypertension management, emphasizing evidence-based patterns like DASH and Mediterranean diets.

Keywords: Hypertension, dietary adherence, knowledge, awareness, Dietary Approaches to Stop Hypertension, Mukono General Hospital.
Submitted: *January 17, 2026* ***Accepted:*** *February 17, 2026* ***Published:*** *March 16, 2026*
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Background of the study.

Hypertension, also known as high blood pressure, is a condition in which the blood vessels have persistently raised pressure (WHO, 2025). Blood is carried from the heart to all parts of the body through the vessels. Each time the heart beats, it pumps blood into the vessels, and blood pressure is created in the vessels as blood is pumped by the heart. The higher the pressure, the harder the heart has to pump.

Adherence to a dietary pattern is crucial for realizing its intended health benefits. Even the most evidence-based

diets like DASH and Mediterranean can fail to impact health outcomes if not followed consistently. A meta-analysis by Challa et al. (2025) concluded that adherence to the Mediterranean diet is associated with a modest but significant reduction in both systolic and diastolic blood pressure. However, achieving sustained adherence remains a challenge due to a range of interconnected factors. Socio-demographic characteristics such as age, gender, education level, marital status, and income level play a critical role in dietary adherence. Studies indicate that older individuals are more likely to follow dietary recommendations due to increased health concerns and experience with chronic illness (Ferreira F et al., 2024). Gender differences have also been observed, with women often showing better dietary compliance, possibly due to greater health-seeking behaviors and caregiving roles (Nguyen H et al., 2019). Furthermore, individuals with higher education levels significantly adhered to the Mediterranean diet, attributing it to health literacy and better access to nutrition information (Pinho. M et al, 2023).

Conversely, low-income populations may face economic barriers to accessing healthy food options such as fruits, vegetables, and low-fat proteins, limiting their ability to adhere to recommended diets (Garcia M et al., 2021).

Limited knowledge about the relationship between diet and blood pressure is a major barrier to adherence. Nutrition literacy, defined as the ability to obtain, process, and understand nutrition information, has been positively associated with adherence to the Mediterranean and DASH diets, particularly among individuals receiving targeted counseling (Turner et al., 2022). The quality and frequency of nutrition counseling provided at the NCD clinics greatly impact adherence. Consistent follow-up by community health workers in rural Uganda significantly improved adherence to healthier dietary patterns among hypertensive patients (Ouma et al., 2022). Strategies like community nutrition education and culturally adapted DASH models have improved adherence in minority populations (Livingstone et al 2023). Tools like MEDAS have helped quantify adherence and correlate it with biomarkers of the disease, and mobile health tools and nutrition apps have been shown to increase adherence by delivering just-in-time guidance (Park et al., 2024). This study examines factors influencing adherence to healthier dietary patterns among hypertensives at Mukono General Hospital, emphasizing modifiable determinants to inform targeted interventions.

Methodology

Research design

A sectional analytical research design was adopted in this study aimed to examine the effects of selected dietary patterns on hypertension control among hypertensive clients from Mukono General Hospital. In a sectional type of research design, data were collected at only one point in time.

Study population

The target population was hypertensive outpatient clients aged 18 to 75years who were diagnosed with hypertension and received treatment and follow-up care at the outpatient NCD clinic of Mukono General Hospital for the month of June 2025 and consented. Adults aged 18years and above were legally and ethically capable of providing informed consent, they comprehend the research process, understand dietary-related questions, and provide meaningful responses.

Sampling and sampling techniques

Sample size determination

The sample size was determined using Yamane's formula for known finite populations, depending on the known or estimated hypertensive population in Mukono general hospital NCD clinic of N=120. The formula used:

$$n=\frac{N}{1 + N (e) 2}$$

Where n= required sample size

N= total population of hypertensive clients = 120

e= desired margin of error (commonly 0.05 for 95% confidence level)

$$n = \frac{120}{1+120 (0.05)2}$$

$$= 92.3$$

$$= 92$$

To account for potential non-response or incomplete questionnaires, a 10% adjustment will be applied

92 + (10% 0f 92) = 109 + 9.2 =101.2

The final required sample size is 101 hypertensive clients

Sampling procedure

Participants were identified using a systematic random sampling technique from the clinic registers on appointment days. Data collection was carried out for one month to obtain a sample size of 101. This was done by obtaining records of all hypertensive patients expected to visit the medical outpatient NCD clinic on the clinic day at the hospital. Respondents were identified by dividing the estimated population size N by the sample size n. The first respondent was picked randomly, and the subsequent clients were picked at every second interval. This exercise was repeated on every clinic day until the sample size of 101 clients was met. To ensure that clients were only interviewed once, a record of the client number was entered in the questionnaire. This sampling technique ensured random and unbiased selection from the NCD clinic hypertensive population and improved representativeness across the district.

Data collection

Data collection instruments

Primary data was collected using structured researcher-administered questionnaires from real patients covering social demographic data (age, gender, marital status, income, and education level), dietary patterns (frequency and types of food consumed), and factors influencing adherence to healthier dietary patterns. Tools were pretested

before data collection on a subset of 10% of clients in a nearby facility not included in the main study.

The food frequency questionnaire assessed habitual dietary patterns over the past month. The questionnaire was crucial for obtaining standardized data from participants, and the FFQ specifically identified dietary behaviors and patterns that affected blood pressure control. Blood pressure measurements were taken using a digital sphygmonometer; two readings were taken 5 minutes apart, and the average was recorded. Controlled BP was defined according to Uganda clinical guidelines. The blood pressure monitor provided up-to-date, standardized blood pressure data to accurately determine control status.

Data analysis plan

Data was entered in Microsoft Excel and analyzed using SPSS version 26. Cleaning, coding, and consistency checks were performed before analysis.

To determine factors influencing adherence to healthier dietary patterns among hypertensive clients from Mukono General Hospital. Descriptive statistics used frequencies and means for socio-demographic, behavioral, and health-related factors. Multivariate logistic regression identified predictors of high adherence to healthy diets. The outcome was the identification of modifiable factors for dietary adherence interventions. Results were presented in tables for frequencies and regression results.

Validity and reliability of research instruments

Validity

Content validity, the structured questionnaire, and the dietary assessment tool were developed based on existing validated instruments used in similar studies and aligned with WHO guidelines on dietary assessment. Subject matter experts in nutrition reviewed the instruments and ensured they comprehensively covered key concepts. The researcher was trained and standardized in data collection techniques, including BP measurement and dietary questions.

Dietary pattern sections were aligned with validated constructs such as the DASH diet and WHO guidelines. Internal consistency between dietary components was evaluated through double data checks.

Reliability

Cronbach's alpha was calculated for the questionnaire section where a threshold of a $\geq$ was considered acceptable. A subgroup of 10% of participants was re-examined after one week using the same questionnaire and assessed the temporal stability of responses, especially for food frequency and dietary practices. A pilot study on a small sample of hypertensive clients in the nearby facility, not selected for the main study, was conducted. Digital blood pressure monitors were calibrated before the start of data collection and checked weekly, ensuring measurement accuracy.

RESULTS

Table 1: Summary of characteristics of 90 hypertensive respondents from Mukono General Hospital

Variable	Category	Frequency (n=90)	Percentage (%)
Gender	Male	18	20.0
	Female	72	80.0
	Single	2	2.2
Marital status	Married	34	37.8
	Divorced	22	24.4
	Widowed	32	35.6
	None	19	21.1
Level of education	Primary	45	50.0
	Secondary	25	27.8
	Tertiary	1	1.1
Employment status	Employed	10	11.1
	Self-Employed	45	50.0
	Unemployed	33	36.7
	Retired	2	2.2
Monthly household income	<100,000	8	8.9
	100,000-300,000	26	28.9
	300.001-600,000	37	41.1
	>600,000	19	21.1
Age group	18-36	3	3.3
	37-55	29	32.2
	56-75	58	64.4
Residence	Urban	48	53.3
	Semi-Urban	23	25.6

	Rural	19	21.1

Most of the participants, 72 (80%), were female, and 18 (20%) were male. Also, respondents (37.8%) were married, 35.6% were widowed, 24.4% were divorced, and 2.2% were single. 21.1% had not attended any school, 50% had completed primary education, 27.8% had secondary education, and 1.1% had tertiary education. 50% of the respondents were self-employed, 36.7% were unemployed, 11.1% were employed in the formal sector, and 2.2% were retired. Monthly income was categorized as less than 100,000 UGX 8.9%, 100,000- 300,000 UGX 28.9%, 300,000- 600,000 UGX 41.1% and above 600,000 UGX 21.1%

Table 2: Summary of characteristics of 90 hypertensive respondents from Mukono General Hospital

Characteristics	Frequency(n=90)	Percentage (%)
	34	37.8
followed a detox diet	56	62.2
No		
Yes	82	91.1
followed the Ketogenic diet	8	8.9
No		
Yes	52	57.8
followed the Mediterranean diet	38	42.2
No		
Yes	22	24.4
followed the DASH diet	68	75.6
No		
Yes	19	21.1
Adherence	71	78.9
doesn't adhere		
adheres	39	43.3
Is the blood pressure controlled	51	56.7
No	70	77.8
Yes	20	22.2
Have comorbidity		
None		
Yes		

Determining factors influencing adherence to healthier dietary patterns among hypertensive clients from Mukono General Hospital

Adherence was defined as consistent intake of patterns aligned with DASH or Mediterranean diets, based on the frequency of healthy food consumption.

Bivariate analysis

Chi-square tests were conducted to examine associations between socio-demographic variables, knowledge, access, awareness, cultural, and adherence to healthy dietary patterns.

Table 3: Bivariate analysis showing the association between socio-demographic characteristics and adherence among hypertensive clients from Mukono general hospital

Variable	Category	Adherence		χ2	p-value
		Doesn't adhere n (%)	Adheres n (%)		
Marital status	single	0 (0)	2(100)		
	married	9(26.5)	25(73.5)		
	divorced	7(31.8)	25 (68.2)		
	widowed	3(9.4)	25(90.6)	5.283	0.152
Sex	male	7(38.9)	11(61.1)		
	female	12(16.7)	60(83.3)	4.27	0.039
	none	3(15.8)	16(84.2)		
	primary	7(15.6)	38(84.4)		
	secondary	8(32)	17(68)		
	tertiary	1(100)	0(0)	6.674	0.083
Employment status	employed	3(30)	7(70)		
	self-employed	12(26.7)	33(73.3)		
	unemployed	4(12.1)	29(87.9)		
	retired	0(0)	2(100)	3.445	0.328
Monthly household income	<100,000	0(0)	8(100)		
	100,000-300,000	5 (19.2)	21(80.8)		
	300.001-600,000	10 (27)	27(73)		
	>600,000	4(21.1)	15(78.9)	2.974	0.396
Residence	urban	10(20.8)	38(79.2)		
	semi-urban	6(26.1)	17(73.9)		
	rural	3(15.8)	16(84.2)	0.667	0.716

Table 4: showing bivariate analysis between influencing characteristics and adherence to healthier dietary patterns among hypertensive clients from Mukono General Hospital

Characteristics	Doesn't adhere n (%)	Adheres n (%)	χ2	P value
	9 (47.4)	8 (11.3)		
	10 (52.7)	63 (88.8)	29.121	0.000
Knowledge				
No	2(10.5)	45 (63.4)		
Yes				
Awareness	17 (89.5)	26(36.6)	21.911	0.000
No				
Yes	9(47.4)	28 (39.4)		
Access and availability				
No	10(52.6)	43(60.6)	1.381	0.17
yes				
Cultural and tastes				
No	18(94.8)	51(71.9)		
Yes	1(5.3)	20(28.1)	5.489	0.139

Sex (p=0.039), knowledge (p<0.001), and awareness (p<0.001) were significantly associated with adherence to healthier dietary patterns. Monthly household income, marital status, employment status, place of residence, education level, access and availability, and cultural and tastes did not show a statistically significant association in bivariate analysis.

Logistic regression analysis

Table 5: Binary logistic regression analysis of factors influencing adherence among hypertensive clients from Mukono general hospital

Predictor	B	S.E.	Wald	AOR(B)	P value	95% C.I.for AOR(B)	
						Lower	Upper
Awareness	-5.93	1.658	12.797	0.003	.000	0	0.068
Knowledge	2.67	1.123	5.65	14.434	.017	1.597	130.419

Multivariable logistic regression using the forward likelihood ratio method was performed to identify significant predictors of adherence to healthier dietary patterns. Only variables retained in the final model were presented in the table. After stepwise selection, knowledge was a positive predictor, and participants with knowledge were 14 times more likely to adhere to healthier dietary patterns compared to those without knowledge (AOR=14.434, P=0.017). Surprisingly, awareness was significantly associated with a lower likelihood of non-adherence to healthier dietary patterns compared to those who were aware (AOR= 0.003, P<0.001). Awareness reduced the odds of non-adherence by 97%. Cultural and taste, access, and availability were excluded in the final model because they did not significantly contribute to the prediction of adherence to healthier dietary patterns.

Discussion of findings

Socio-demographic characteristic

The majority, 72 (80%) of the participants were female, indicating a potential gender disparity in either the prevalence or healthcare-seeking behavior related to hypertension within the sample population. 64.4% were aged **56 years and above**, highlighting the heightened vulnerability of older populations to hypertension.

The largest groups were married individuals, constituting 37.8% (n=34), while single clients made the smallest proportion at 2.2% (n=2). These variations in marital status influenced dietary behaviors and nutritional support systems, as marital status often correlates with lifestyle factors such as meal preparation, food access, and social support, which in turn affect hypertension control.

Half (50.0%, n=45) had attained primary education, which suggested potential challenges in accessing or understanding complex dietary information, highlighting the need for tailored, accessible nutritional interventions to effectively address hypertension in this setting. 50.0% were self-employed, which suggested that many clients may rely on irregular or limited incomes, which could influence their access to healthy diets necessary for hypertension management. For instance, financial instability may restrict the ability to purchase fresh fruits, vegetables, or low-salt foods, thereby increasing reliance on cheaper, processed alternatives that heighten hypertension risks.

More than half of the respondents (53.3%) resided in urban areas, followed by 25.6% from semi-urban areas. These findings suggested that most clients live in urban and semi-urban settings where access to both healthy and unhealthy food options is higher. Urban residents are likely to have better physical access to markets, supermarkets, and health facilities, which could facilitate the adoption of healthier dietary practices such as increased fruit and vegetable consumption. However, urban living is also strongly associated with the availability and consumption of processed and fast foods, often high in salt, fat, and sugar, which may negatively affect hypertension control.

Determining factors influencing adherence to healthier dietary patterns among hypertensive clients from Mukono General Hospital

Knowledge emerged as a strong and statistically significant predictor (AOR=14.434, P=0.017), suggesting that clients with better knowledge of dietary recommendations were over 14 times more likely to adhere to healthier dietary patterns compared to those with limited knowledge. This highlights the importance of nutrition education in promoting adherence. These findings are consistent with studies that suggest the level of knowledge and participation in dietary counselling sessions influences adherence to healthier dietary patterns (Turner et al., 2022).

Awareness was significantly associated with a lower likelihood of non-adherence to healthier dietary patterns compared to those who were aware (AOR= 0.003, P<0.001). Awareness reduced the odds of non-adherence by 97%. The strong effect of awareness indicates that clients with higher awareness of the role of diet in hypertension control were significantly more likely to adhere to healthier dietary patterns, reinforcing the role of health communication in influencing behavior.

Overall, the results demonstrate that knowledge and awareness are the most critical determinants of adherence, while demographic factors, access and availability, and

cultural tastes were not significant in this context. This underscores the importance of targeted educational and awareness campaigns to improve dietary practices as part of hypertension management interventions.

conclusion

The results demonstrate that knowledge and awareness are the most critical determinants of adherence, while socio-demographic factors, access and availability, and cultural tastes were not significant factors in this context.

Recommendations

Based on the findings of this study on dietary patterns and their effects on hypertension control among hypertensive clients from Mukono General Hospital, the following recommendations are proposed.

Health practitioners and nutritionists should integrate routine dietary counseling into hypertension management, emphasizing evidence-based patterns like DASH and Mediterranean diets. Provide individualized nutrition education to hypertensive clients, taking into account cultural preferences and local food availability. Use locally adapted dietary guidelines to improve understanding and compliance among clients.

Health facilities and program managers should establish community-based nutrition support programs or group education sessions to raise awareness about healthier dietary patterns for hypertension control. Implement follow-up mechanisms like dietary recall reviews and adherence checklists to monitor progress and provide reinforcement.

Acknowledgement

I would like to thank the Almighty God for the gift of life, knowledge, and wisdom he has granted me and for the successful research conducted. I give sincere gratitude to my research supervisor, Mr. Kibirige Gordon of Mildmay Institute of Health Sciences, for the guidance, support, and expertise.

Great appreciation to the leadership of Mukono General Hospital, the doctors, the clinicians, and the nurses for the guidance and support they offered me during the research period, and for allowing me to conduct my research in this hospital. Additionally, I want to thank all the respondents who found time to participate in the study. I also want to thank the hospital nutritionist, Mr. Sentongo Patrick, for the support and guidance rendered. Not forgetting members of the nutrition department at Mildmay Institute of Health Sciences.

I recognize with appreciation my fellow students for the remedial and prompt encouragement throughout this academic journey and throughout the research period.

May the almighty God bless you abundantly.

List of abbreviations

WHO: World Health Organization
DASH diet: Dietary Approaches to Stop Hypertension
BP: Blood pressure
NCDs: Communicable Diseases
MEDAS: Mediterranean Diet Adherence screeners
SPSS: Statistical package for social sciences

Conflict of interest

The author declared no conflict of interest

Author contributions

Bayiga Joanita was the principal investigator
Kibirige Gordon supervised the research.
Patrick Sentongo supervised the research.

Data availability

Data is available on request

Author Biography

Joanita Bayiga is a student at Uganda Christian University
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Source of funding

The study was not funded.

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