American Journal of Hypertension Research, 2024, Vol. 9, No. 2, 22-29
Available online at http://pubs.sciepub.com/ajhr/9/2/3
Published by Science and Education Publishing
DOI:10.12691/ajhr-9-2-3

Lifestyle Modification Awareness and Practice among Hypertensive Patients in Addis Ababa: A Study from Tikur Anbessa Specialized Hospital, Ethiopia

Henok Bahru Wodajeneh[1], Liban Dida Godana[1], Atiklet Zerihun Zewdie[1,*], Ashenafi Tesfaye Bedada[2], Eyosias Lemma Teshome[3], Muluken Alemayehu Workiye[4], Asnake Abebe Kotu[3], Tamiru Alemu Degaga[5], Surafel Bahru Wodajeneh[5], Ashenafi Negash Tekle[6], Israel Woldeyesus[7], Ayanaw Guadie Mamo[8], Tigist Desta Beyera[9], Frewoyni Gedey G/Egziabher[10], Melat Getachew Demisse[11], Metages Damtie Melaku[12], Bikila Gedefa Bekana[12]

[1]Internal Medicine, Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia
[2]Department of surgery, Menilik Comprehensive specialized Hospital, Addis Ababa, Ethiopia
[3]Internal Medicine, St Paul's Millennium Medical College, Addis Ababa, Ethiopia
[4]Internal Medicine, Menilik Comprehensive specialized Hospital, Addis Ababa, Ethiopia
[5]Internal Medicine, Saglan Wajee Hospital, Holeta, Ethiopia
[6]Department of Orthopedics and Traumatology, St Paul's Millennium Medical College, Addis Ababa, Ethiopia
[7]Department of pathology, Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia
[8]Internal Medicine, University of Gondar Hospital, Gondar, Ethiopia
[9]Department of Pathology, Alert Comprehensive Specialized Hospital, Addis Ababa, Ethiopia
[10]Emergency Medicine, St Peter Specialized Hospital, Addis Ababa, Ethiopia
[11]Internal Medicine, Alert Comprehensive Specialized Hospital, Addis Ababa, Ethiopia
[12]Internal Medicine, Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia
*Corresponding author: atikeltzerihun@gmail.com

Received August 04, 2024; Revised September 06, 2024; Accepted September 12, 2024

Abstract **Background:** Hypertension is one of the most critical public health challenges worldwide, contributing significantly to morbidity, mortality, and societal costs. It has become particularly problematic in developing countries undergoing epidemiological transitions. Patients' knowledge and practice of lifestyle modification are crucial in managing hypertension. However, there is limited information on the knowledge, attitude, and practice (KAP) of hypertensive patients regarding lifestyle modification. **Objective:** This study aims to assess the knowledge, attitude, practice, and factors associated with lifestyle modification among hypertensive patients attending Tikur Anbessa Specialized Hospital outpatient internal medicine clinic. **Methods:** A cross-sectional study was conducted at Tikur Anbessa Specialized Hospital, focusing on the renal and cardiac follow-up clinics. A total of 370 hypertensive patients were enrolled using consecutive sampling during the study period. Data was collected through a pretested, structured, interviewer-guided questionnaire. Data quality was ensured through supervision by fifth-year medical students. Analysis was performed using SPSS version 26, with a p-value < 0.05 considered statistically significant. **Results:** Among the 370 participants, 53.8% were female, with a mean age of 59.93 (±12) years. Additionally, 86.2% of the participants had comorbidities. The study revealed poor knowledge (40%) and poor practice (35%) regarding lifestyle modification, with a higher prevalence of poor knowledge among females. **Conclusion:** The study highlights a significant gap in awareness and practice of lifestyle modification among hypertensive patients. It is crucial to implement appropriate interventions from the time of diagnosis, particularly in clinics where patient follow-up occurs, to improve patient understanding and management of hypertension.

Keywords: *hypertension, lifestyle modification*

Cite This Article: Henok Bahru Wodajeneh, Liban Dida Godana, Atiklet Zerihun Zewdie, Ashenafi Tesfaye Bedada, Eyosias Lemma Teshome, Muluken Alemayehu Workiye, Asnake Abebe Kotu, Surafel Bahru Wodajeneh, Ashenafi Negash Tekle, Israel Woldeyesus, Ayanaw Guadie Mamo, Tigist Desta Beyera, Tamiru Alemu Degaga, Frewoyni Gedey G/Egziabher, Melat Getachew Demisse, Metages Damtie Melaku, and Bikila Gedefa Bekana, "Lifestyle Modification Awareness and Practice among Hypertensive Patients in Addis Ababa: A Study from Tikur Anbessa Specialized Hospital, Ethiopia." *American Journal of Hypertension Research*, vol. 9, no. 2 (2024): 22-29. doi: 10.12691/ajhr-9-2-3.

1. Introduction

Hypertension is one of the most critical public health challenges worldwide due to its associated morbidity, premature mortality, and societal costs. It is a major risk factor for ischemic heart disease (IHD) and stroke, the two leading causes of death globally. The number of adults with hypertension has increased dramatically, from 594 million in 1975 to 1.13 billion in 2015, with a significant rise in low- and middle-income countries. This increase is primarily due to the growing prevalence of hypertension risk factors in these populations. [1]

Hypertension is a leading yet preventable risk factor for cardiovascular morbidity and mortality, resulting from target-organ damage to blood vessels in the heart, brain, kidneys, and eyes. [2] The prevalence of hypertension is particularly concerning in low- and middle-income countries, where the World Health Organization (WHO) Africa region reports the highest prevalence at 27%, while the WHO Americas region has the lowest at 18%.

In Ethiopia, despite a shortage of comprehensive data, the overall prevalence of hypertension (defined as SBP ≥140 and/or DBP ≥90) is estimated at 15.6%, with no significant difference by sex.[4] Preventing hypertension and lowering blood pressure levels can be achieved through adopting a healthy lifestyle, which is also the first line of anti-hypertension therapy. Recommended lifestyle measures that have been shown to reduce blood pressure include weight reduction (particularly for those with abdominal obesity), reduced daily salt intake, regular physical activity, quitting smoking, moderation of alcohol intake, and adherence to the Dietary Approaches to Stop Hypertension (DASH) diet. The DASH diet emphasizes the consumption of fruits, vegetables, and low-fat dairy products rich in calcium and potassium, alongside reduced sodium intake. [3]

In 2015, an assessment of behavioral risk factors in Ethiopia revealed that 4.2% of participants were smokers, 41% had consumed alcohol in the 30 days prior to the survey, and the average weekly consumption of fruits and vegetables was significantly below recommended levels. Furthermore, 6% of the study population did not meet WHO recommendations on physical activity, and a small proportion were overweight or obese, with a higher prevalence in urban areas. [4]

Among modifiable risk factors, place of residence and physical inactivity were significantly associated with raised blood pressure. Other significant risk factors included age, alcohol consumption, and the addition of salt to food. Behavioral risk factors like tobacco and alcohol use were more prevalent among men, while biological risk factors such as obesity, impaired fasting glucose, and raised total cholesterol were more common among women. [4]

Studies conducted across sub-Saharan Africa, including Uganda, South Africa, Tanzania, and Nigeria, reported an overall age-standardized prevalence of hypertension at 25.9%. Among these populations, nurses had the highest prevalence, followed by schoolteachers, peri-urban residents, and rural residents. Awareness of raised blood pressure was alarmingly low, with only half of the hypertensive participants aware of their condition. Pre-hypertension was also prevalent, affecting 21% of the population. [5,6,7,8]

In Kenya, a cross-sectional study at Kenyatta National Hospital revealed that aging, alcohol consumption, and smoking were associated with elevated blood pressure, while regular intake of vegetables and fruits was linked to lower blood pressure and body mass index. The study also highlighted the misconception among 53.6% of respondents that antihypertensive medication could be stopped once blood pressure was controlled. [9]

In Ethiopia, various studies have shown low levels of knowledge, negative attitudes, and poor practices related to hypertension and its management. Factors such as lack of education, fear, financial constraints, and lack of commitment were identified as barriers to maintaining a healthy lifestyle. These findings underscore the need for targeted interventions to improve the awareness and management of hypertension in Ethiopia and similar settings. [10,11,12,13,14]

2. Methods and Materials

A cross-sectional descriptive study was conducted to assess the Knowledge, Attitude, and Practice (KAP) of hypertensive patients attending the cardiac outpatient clinic at Tikur Anbessa Specialized Hospital (TASH), Addis Ababa University, from June 2021 to August 2021. The study population included hypertensive patients attending the cardiac and renal follow-up clinics at TASH, selected using a consecutive sampling technique during the data collection period. Eligible participants were hypertensive patients aged 30 years and older, attending the clinic for at least six months. Exclusion criteria included hypertensive patients with mental health issues or those who were severely ill.

Tikur Anbessa Specialized Hospital, located in Addis Ababa, is the main tertiary referral center in Ethiopia. It provides specialized and comprehensive medical care and serves as a teaching hospital for Addis Ababa University, College of Medicine, and Health Sciences, offering undergraduate, postgraduate, and fellowship training in various clinical fields.

Sample Size Determination

The sample size was determined using the single proportion formula, considering a population proportion (p) of 50% due to the lack of prior research on the KAP of hypertensive patients regarding lifestyle modification in the same setting. Given the total population of 3,010 hypertensive patients registered at the TASH cardiac and renal clinics, the sample size was adjusted using the correction formula, resulting in a final sample size of 385 participants after accounting for a 10% non-response rate.

Operational Definitions

- **Hypertension Diagnosis**: For this study, hypertension was diagnosed based on a systolic BP of at least 140 mmHg or a diastolic BP of at least 90 mmHg on 2-3 office visits.
- **Lifestyle Modification**: Involves altering long-term habits related to diet or physical activity and

maintaining the new behavior for months or years as per recommended guidelines.

- **Sufficient Physical Exercise**: Defined as ≥150 minutes of moderate-intensity activity per week, such as brisk walking, bicycling, or swimming.
- **Excess Alcohol Consumption**: Defined as the intake of ≥3 bottles of beer or 3 ounces of liquor for men and ≥2 bottles of beer or 1.5 ounces of liquor for women.
- **Healthy Diet**: Defined as the consumption of fruits and vegetables on ≥3 days per week.
- **Knowledge about Lifestyle Modification**: Assessed using 12 items. Participants scoring ≥80% were considered to have adequate knowledge, while those scoring below 80% were considered to have intermediate to poor knowledge based on Bloom's cut-off point.
- **Attitude and Practice Regarding Lifestyle Modification**: Assessed similarly. Participants scoring ≥80% were considered to have a positive attitude and good practice, while those scoring below 80% were considered to have a negative attitude and poor practice.

3. Statistical Analysis

Data were collected using a pretested, structured, and interviewer-administered questionnaire, adapted from related studies. The questionnaire was prepared in English, translated into Amharic, and could be verbally translated for speakers of other languages. Data were collected from Monday to Friday according to the clinic schedule until the sample size was fulfilled. SPSS version 26 was used for data analysis. Descriptive statistics, including frequency and percentage, were used, and binary logistic regression modeling was employed for inferential analysis. A p-value < 0.05 was considered statistically significant.

4. Results

Socio-Demographic Characteristics: Out of the 370 respondents, 53.8% were female, with a mean age of 59.93 years (±12), ranging from 30 to 88 years. A majority (93.8%) were from urban areas, and 35.9% were illiterate, with women accounting for 73.6% of this group. Most patients were retired (37.6%) and married (63.5%), with an income below 1000 ETB for 35.4% of participants. Patients with less than 5 years of follow-up comprised 51.1% of the study population, while those with more than 5 years accounted for 48.9% (Table 1)

Behavioral Risk Factors: Only 6.5% of participants reported consuming alcohol beyond the daily recommended amount, 1.6% smoked, and 0.8% chewed khat.

Co-Morbidity Distribution: The most prevalent comorbidity was cardiovascular disease (33.8%), followed by multiple comorbidities (22.7%) and diabetes mellitus (17.8%) (Figure 1).

Table 1. Demographic characteristics of respondents

Variables	Category	Frequency	Percent (%)
Sex	Male	171	46.2
	Female	199	53.8
Residency	Urban	347	93.8
	Rural	23	6.2
Marital Status	Single	26	7
	Married	235	63.5
	Divorced	75	20.3
	Widow/Widower	34	9.2
Education Level	Illiterate	133	35.9
	Grade 1-8	58	15.7
	Grade 9-12	76	20.5
	Above Grade 12	102	27.6
Occupation	Unemployed	11	3
	Government/Private Employed	95	25.7
	Self Employed	38	10.3
	Farmer	8	2.2
	Housewife	73	19.7
	Retired	139	37.6
	Others	6	1.6
Income	No Income	8	2.2
	<1000	131	35.4
	1000-3000	107	28.9
	>3000-5000	68	18.4

Variables	Category	Frequency	Percent (%)
	>5000	56	15.1
Duration of Follow-up	Less Than 5 Yrs	189	51.1
	Above 5 Yrs	181	48.9
Behavioral Risks	Excess Alcohol Intake	24	6.5
	Cigarette Smoking	6	1.6
	Khat	3	0.8

Source of Information: Most patients (83.2%) cited follow-up clinics as their primary source of knowledge. While 79.7% reported being advised about lifestyle modifications at each clinic visit, only 56.5% comprehended the information provided, and 57% were aware of their current blood pressure during the survey (Table 2).

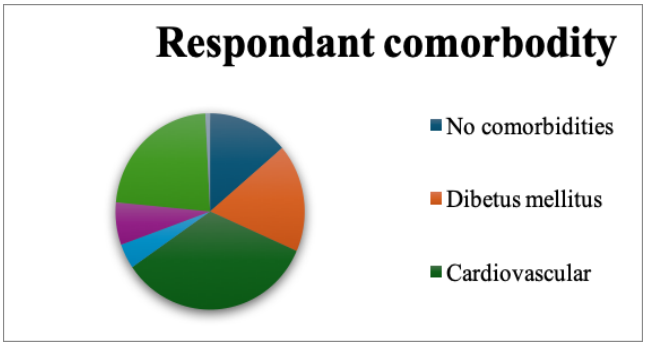

Figure 1. Distribution of co-morbidity

Table 2. Source of information on lifestyle modification among respondent's demographic characteristics. (n=370)

Source of information		Frequency	Percent
Information on each visit	No	75	20.3
	Yes	295	79.7
Understandable information in clinics	No	161	43.5
	Yes	209	56.5
Knowledge of current BP	No	159	43
	Yes	211	57

Knowledge of Hypertensive Patients Toward Lifestyle Modification: Of the respondents, 40% had intermediate to poor knowledge, while 60% demonstrated good knowledge. Almost all participants (97%) were aware of the need to reduce salt intake. However, only 62.2% knew the benefits of incorporating vegetables, fruits, nuts, and dairy into their diet. Additionally, 77% were aware of the importance of weight reduction, and 78.4% recognized the role of regular physical exercise in controlling blood pressure (Figure 2, Table 3).

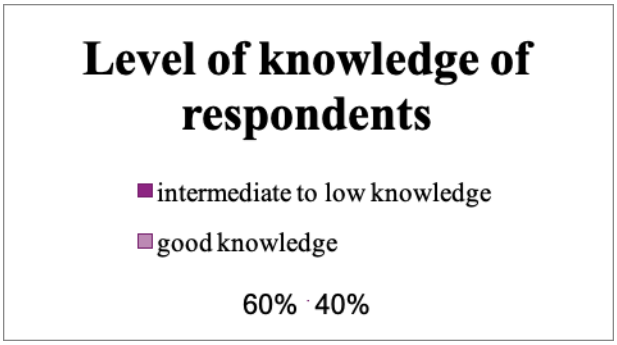

Figure 2. Overall knowledge of respondents on lifestyle modification

Factors Associated with Knowledge of Participants: Several socio-demographic factors were associated with knowledge about lifestyle modification among hypertensive patients. In the bivariate analysis, variables such as educational status, duration of follow-up, presence of comorbidities, receipt of information during clinic visits, and understandability of the provided information showed significant associations with knowledge levels (Table 4). Logistic regression analysis indicated that higher educational status, longer follow-up duration, and clearer communication by healthcare professionals were significant predictors of better knowledge. This suggests that merely providing information is insufficient; it must also be understandable to be effective.

Table 3. knowledge of respondents on lifestyle modification .(n=370)

Knowledge of lifestyle modification of participants (correct answer)	Frequency	Percent
Do you know foods that are restricted for hypertensive patient	359	97
Mention at least one restricted food	359	97
Do you know foods recommended for hypertensive patient	230	62.2
Mention at least one recommended food	230	62.2
can hypertensive patients take smoke cigarette /excess alcohol	370	100
can hypertensive patient use salty diets	359	97
Do you know weight reduction is one of non-medical management of hypertension	285	77
Do you know physical exercise is important to hypertensive patient for stable life	290	78.4

Table 4. Bi variate result for the determinants of hypertensive patients on knowledge of lifestyle modification

Socio-demographic and clinical characteristics of respondents associated with fair to poor knowledge	unadjusted binary logistic regression				Adjusted logistic regression			
Variables	Sig.	Exp(B)	95% C.I.for EXP(B)		Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper			Lower	Upper
low level of education	0.000	3.005 1	2.339	3.861	0.000	3.014	2.346	3.873
duration of follow-up	0.000	3.565 1	2.075	6.126	0.000	3.634 1	2.131	6.199

co-morbidity	0.781	1.023 1	0.872	1.2				
information in each visit	0.542	1.286 1	0.573	2.887				
understandability of info. during visits	0.010	2.362 1	1.23	4.535	0.000	2.666 1	1.563	4.548

Table 5. Practice of lifestyle modification among respondents. (n=370)

Practice of lifestyle modification of participants in managing hypertension (correct answer)	Total n=370 Number	Percent
Are you taking healthy diet	290	78.4
Are you doing regular moderate exercise (150 minute/week)	262	70.8
Are you minimizing salty diet from prior times	326	88.1
Do you smoke cigarette	364	98.4
Do you drink alcohol	346	93.5
Do you chew khat	367	99.2
Have you tried to decrease weight	217	58.6

Table 6. Bi variate result for the determinants of hypertensive patients on practice of lifestyle modification

Demographic and clinical characteristics of respondents associated with fair to poor practice								
	Unadjusted binary logistic regression				Adjusted logistic regression			
Variables	Sig.	Exp(B)	95% C.I.for EXP(B)		Sig.	Exp(B)	95% C.I.for EXP(B)	
			Lower	Upper			Lower	Upper
Knowledge	0.001	2.748 1	1.553	4.864	0.000	3.377 1	2.089	5.462
Duration of follow-up	0.01	0.583 1	0.386	0.881	0.020	0.622 1	0.417	0.927
Co-morbidity	0.23	1.088 1	0.948	1.248				
Information in each visit	0.126	1.705 1	0.861	3.376				
Understandability of info. during visits	0.86	1.055 1	0.584	1.905				
Educational status	0.48	1.082	0.869	1.348				

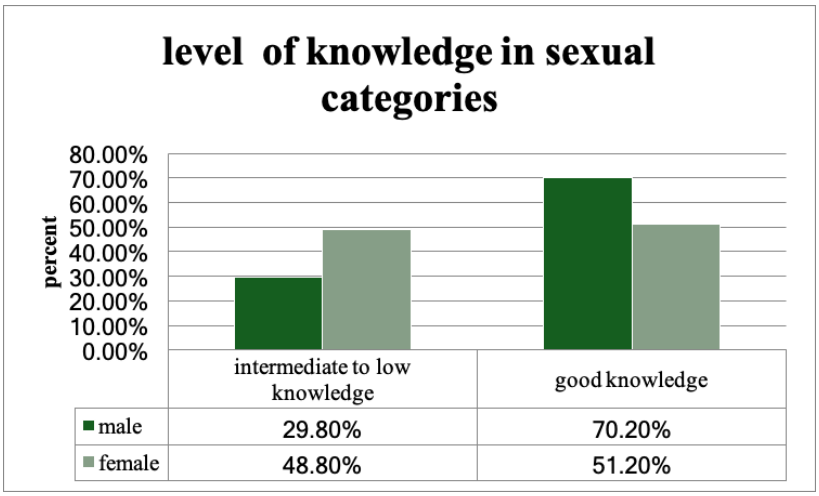

Figure 3. The level of knowledge in relation to sexual category

Level of Knowledge in Relation to Sexual Category: An analysis of knowledge levels by sexual category revealed that females had a higher prevalence of intermediate to poor knowledge about lifestyle modifications compared to males. Specifically, 70.2% of female participants were categorized as having intermediate to poor knowledge, whereas a lower percentage of males fell into this category. This significant difference suggests gender-specific variations in understanding and awareness of hypertension management. (Figure 3: The level of knowledge in relation to duration of follow-up TASH, A.A, from June

2021 to August 2021. (n=370)(Figure 3)

Practice of Lifestyle Measures by Hypertensive Patients: Of the 370 participants, 35.5% exhibited intermediate to poor practice, while 65.5% demonstrated good practice (Figure 4). Among the participants, 88.1% claimed to minimize salt intake, 58.6% attempted to lose weight, 78.4% followed a healthy diet, and 70.8% engaged in regular exercise (Table 5).

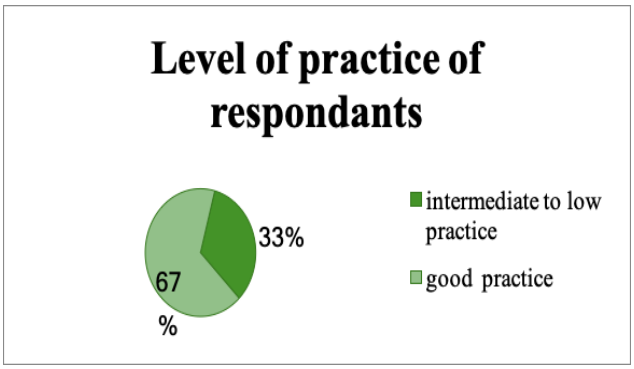

Figure 4. Level of practice of lifestyle modification

Factors Associated with the Practice of Participants: Socio-demographic characteristics, such as marital status, occupation, income, follow-up duration, comorbidities, provision of lifestyle modification information during clinic visits, understandability of information, and participants' knowledge scores were associated with lifestyle modification practices. Duration of follow-up and participants' knowledge scores were significant predictors of better practice in logistic regression analysis (Table 6). No significant difference observed in practicing life style modification between two the sex. (Figure 5)

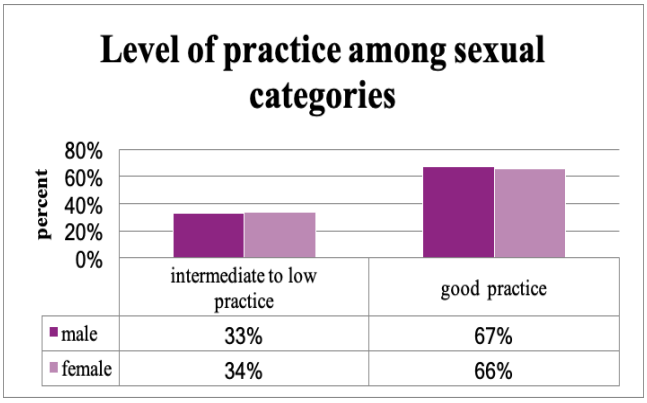

Figure 5. Lifestyle modification practice among sex groups

Obstacles to Practicing Good Lifestyle Modification: The most cited barrier to adhering to recommended lifestyle modifications was a lack of knowledge (43.5%), followed by economic constraints (38.1%) (Figure 6).

Correlation Between Knowledge and Practices: Pearson chi-square analysis and logistic regression demonstrated a significant correlation between knowledge scores and practice scores (p = 0.01). This finding underscores the link between understanding and implementing lifestyle changes (Figure 7).

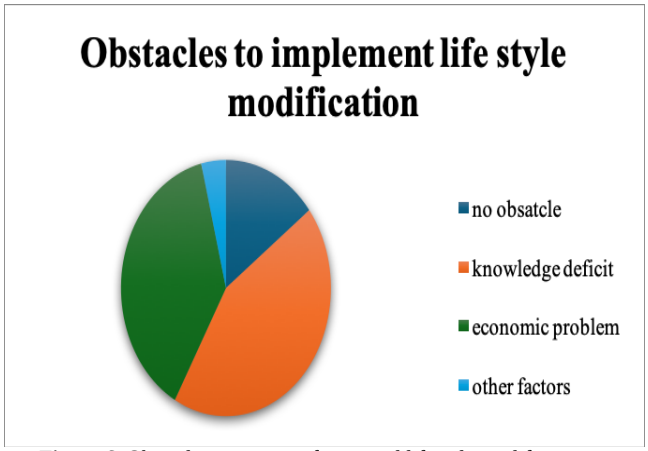

Figure 6. Obstacles restraining from good lifestyle modification

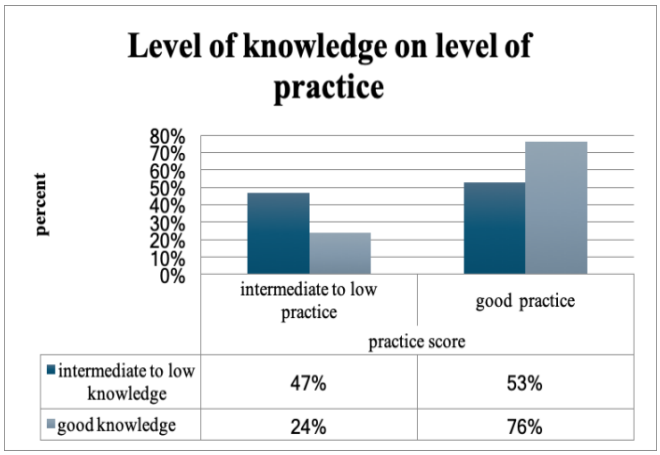

Figure 7. Correlation between knowledge of participants with practice of lifestyle modification

Relation Between Knowledge of Recent Blood Pressure and Knowledge & Practice Scores: Of the participants, 43% were unaware of their recent blood pressure readings during follow-up visits, which was significantly associated with poor knowledge and practice scores (Figure 8, Table 7 and Table 8).

Table 7. Bi variate result for the determinants of hypertensive patients recalling of recent BP on knowledge of life style modification

Logistic regression of knowledge in knowledge of recent BP			
Significance	Exp(B)	95% C.I.for EXP(B)	
		Lower	Upper
.000	2.453	1.601	3.759

Table 8. Bi variate result for the determinants of hypertensive patients recalling recent BP on practice of lifestyle modification

Logistic regression of practice in knowledge of recent BP			
Siginificance	Exp(B)	95% C.I.for EXP(B)	
		Lower	Upper
.000	3.843	2.439	6.058

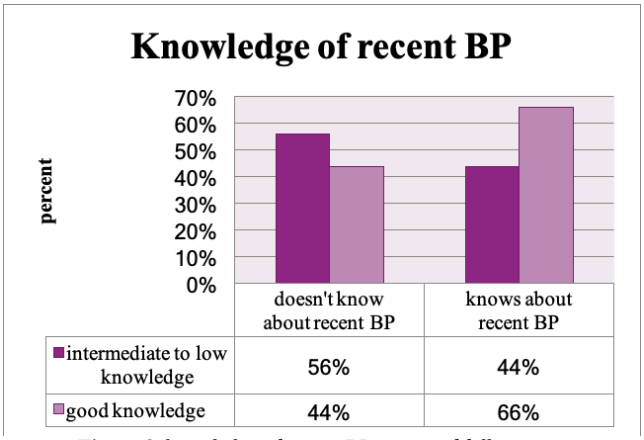

Figure 8. knowledge of recent BP at time of follow-up

Attitude of Respondents Toward Lifestyle Modification: Most respondents displayed a positive attitude towards lifestyle modification, though detailed data on this aspect are to be discussed further (Figure 9).

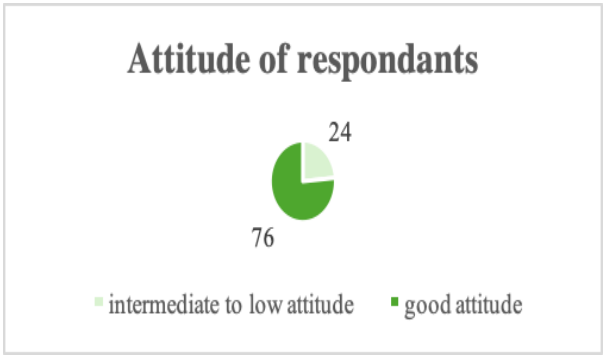

Figure 9. Attitude of respondents toward lifestyle modification

5. Discussion

Hypertension remains one of the most important public health challenges worldwide due to its association with significant morbidity, mortality, and societal costs. [15] It has become a substantial problem in many developing countries experiencing epidemiological transition.2 Therefore, concomitant non-pharmacologic management should be advocated to reduce morbidity and mortality in hypertensive patients, especially those experiencing poor blood pressure control.

This cross-sectional study was conducted at Tikur Anbessa Specialized Hospital (TASH) to assess the current knowledge and practice of hypertensive patients regarding the importance of lifestyle modifications in controlling blood pressure.

In our study, the percentage of female participants was 53.8%, which is consistent with studies conducted in Jimma, Bahir Dar, and Bishoftu, with a mean age of 60 (±12) years. A total of 63.5% of the participants were married, a figure comparable to that reported in the study at Bahir Dar Felege Hiwot Referral Hospital (67%). However, the percentage of retired participants in our study (37.9%) was significantly higher than in the Bahir Dar study (16%). The degree of illiteracy in our study was 35.9%, similar to the Jimma study (37.7%), but lower than that of the Bahir Dar study (50.4%). Income-wise, our study showed that 35.4% of the participants had an income of less than 1000 Ethiopian Birr (ETB) per month, which was somewhat better than the figures reported in the Bishoftu (60.39%) and Bahir Dar (41%) studies. The level of co-morbidities in our study was 86.2%, with cardiovascular conditions being the leading co-morbidity, a figure slightly higher than that reported in the Jimma study (63.9%).

According to our study, the level of knowledge regarding salt restriction reached 97%, comparable to the Jimma study (95.9%), slightly higher than the Bahir Dar study (91.3%), and significantly higher than the Bishoftu study (77%). The assessment of behavioral risks showed that 100% of our participants knew about the restrictions on excessive alcohol consumption, cigarette smoking, and khat chewing, which was higher than the awareness reported among participants in the Bahir Dar (45.8%) and Bishoftu (84.16%) studies.

However, knowledge about regular physical exercise (78.4%), healthy diet (62%), and weight loss (77%) was lower in our study, even though it was higher than that reported in the Bishoftu study, where knowledge about physical exercise was 53.4% and for a healthy diet was 63.3%. The overall level of good knowledge in our study was 60%, unlike the Bahir Dar study, which reported only 33%. Notably, females had more intermediate to poor knowledge (70.2%) of lifestyle modifications among the participants.

Regarding the level of practice, our study showed an overall good practice rate of 65%, higher than that reported in the Bahir Dar study (57.4%). A total of 88% of our participants claimed to practice salt reduction, comparable to the Bahir Dar study (90%) and significantly higher than the Bishoftu study (68%). Good practices toward behavioral risk factors such as alcohol avoidance (93.5%), smoking cessation (98.4%), and khat chewing avoidance (99.2%) were better than those reported in the Bahir Dar and Bishoftu studies. However, practices related to a healthy diet (78.4%), physical exercise (70.8%), and weight reduction (58.6%) were poor, comparable to the previously mentioned studies.

6. Conclusions

The findings of this study highlighted that the dominant age group was between 50-70 years, with most participants being retired. A literacy rate of 64.1%, an income below 1000 ETB in the majority (35.4%) of patients, and a marital status of married (63.7%) were observed among the participants.

This study revealed that there is still a poor level of awareness (40%) and practice (35.5%) of lifestyle modification among a representative sample of adult hypertensive patients. Although 97% of participants were aware of salt restriction and 100% were aware of the harmful effects of alcohol and cigarette smoking, a significant number of patients lacked awareness of the importance of weight reduction (23%), regular physical exercise (22%), and recommended diets (37.8%).

While the practice of avoiding behavioral risk factors such as khat chewing (0.8%), cigarette smoking (1.6%), and alcohol consumption (6.6%) is encouraging, there is still a need for improvement in salt intake (11.9%), regular physical exercise (29.2%), healthy diet adherence (21.6%),

and initiatives toward weight reduction (41.4%).

Understanding these patient factors is necessary to direct clinical interventions and develop strategies to improve blood pressure control among hypertensive patients.

This study highlights the gaps in knowledge and practice of lifestyle modifications among hypertensive patients in TASH, Addis Ababa. There is a significant need for improved education and communication strategies to enhance patients' understanding and implementation of lifestyle changes, which are critical for effective hypertension management. Future research should focus on developing targeted interventions that address these knowledge gaps and barriers to improve patient outcomes.

Abbreviations

AAU	Addis Ababa University
TASH	Tikur Anbessa Specialized Hospital
BP	Blood Pressure
CVD	Cardiovascular Disease
DASH	Dietary Approaches to Stop Hypertension
DM	Diabetes Mellitus
ETB	Ethiopian Birr
GDP	Gross domestic product
HTN	Hypertension
IHD	Ischemic Heart Disease
ICU	Intensive Care Unit
KAP	Knowledge, Attitude and Practice
NCD	Non-Communicable Disease
OPD	Outpatient department
SPSS	Statistical Package for Social Sciences
WHO	World Health Organization

Declarations

Author Contributions: conceptualization, Methodology, Investigation, Analysis, and Writing of the manuscript- Henok Bahru Wodajeneh , Atiklet Zerihun Zewdie, Muluken Alemayehu Workiye, Eyosias Lemma Teshome, Liban Dida Godana

Methodology, Data curation, Drafting, Interpretation, and Supervision and edition of the manuscript- Ayanaw Guadie Mamo, Ashenafi Negash Tekle, Ashenafi Tesfaye Bedada, Asnake Abebe Kotu

All authors revised the manuscript and have approved the final version of the manuscript.

Funding: This research received no external funding

Ethical Clearance

Institutional Review Board Statement: The study was conducted by the Declaration of Helsinki and approved by the Institutional Review Board of Addis Ababa University, College of Health Sciences.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The authors confirm that the data supporting the findings of this study are available within the article.

Acknowledgments: Not applicable.

Conflicts of Interest: The authors declare no conflicts of interest.

References

[1] World Health Organization. WHO Mortality and Global Health Estimates. 2021. Available at: http:// www.who.int/ data/ gho/ data/themes/mortality-and-global-health-estimates. Accessed August 29, 2024.

[2] Khan MU, Shah SHT. Barriers to and determinants of medication adherence among hypertensive patients attended National Health Service Hospital, Sunderland. Published online 2014.

[3] Unger T, Borghi C, Charchar F, et al. 2020 International Society of Hypertension Global Hypertension Practice Guidelines. Hypertension. 2020; 75(6): 1334-1357.

[4] Ethiopia Ministry of Health. STEPS Survey on Risk Factors for Non-Communicable Diseases and Prevalence of Selected NCDs. Summary Report. December 2016.

[5] Guwatudde D, Nankya-Mutyoba J, Kalyesubula R, et al. The burden of hypertension in sub-Saharan Africa: A four-country cross-sectional study. BMC Public Health. 2015; 15: 254.

[6] Hendriks ME, Wit FWNM, Roos MTL, Brewster LM, Akande TM, de Beaudrap P, et al. Hypertension in sub-Saharan Africa: Cross-sectional surveys in four rural and urban communities. PLoS One. 2012; 7(3).

[7] Ataklte F, Erqou S, Kaptoge S, Taye B, Echouffo-Tcheugui JB, Kengne AP. Burden of undiagnosed hypertension in sub-Saharan Africa: A systematic review and meta-analysis. Hypertension. 2015; 65(2): 291-298.

[8] Dalal S, Holmes MD, Laurence C, Bajunirwe F, Guwatudde D, Njelekela M, et al. Feasibility of a large cohort study in sub-Saharan Africa assessed through a four-country study. Glob Health Action. 2015; 8: 27422.

[9] Kimani S, Mirie W, Chege M, Okube OT, Muniu S. Association of lifestyle modification and pharmacological adherence on blood pressure control among patients with hypertension at Kenyatta National Hospital, Kenya: A cross-sectional study. BMJ Open. 2019; 9.

[10] Mulatu K. Factors associated with hypertension among age groups of 18 years and above in Southwestern Ethiopia, 2020: A community-based cross-sectional study. J Hypertens. 2020; 38(7): 202-208.

[11] Angelo AT, Geltore TE, Tufa BB, Dereje T, Tsegaye AT. Lifestyle modification practice and associated factors among diagnosed hypertensive patients in Mizan Tepi University Teaching Hospital, Southwest Ethiopia, 2019: Cross-sectional study. BMC Cardiovasc Disord. 2020; 20: 7.

[12] Daniel D, Sreekanth R. Assessment of knowledge, attitude, and practice of hypertensive patients towards the non-medical management of hypertension in Bishoftu General Hospital, 2016. J Hypertens. 2017; 4(1): 48-59.

[13] Assefa BZ, Haftu BG, Kahsay AB. Prevalence and associated factors of hypertension among the adult population in Mekelle City, Northern Ethiopia. Ethiop J Health Sci. 2014; 24(1): 21-28.

[14] Teklay G, Amare D, Gebrehiwet A, Tesfay K, Berhe A. Knowledge, attitudes, and practices of hypertensive patients towards their disease and treatment at the Ayder Referral Hospital, Mekelle, Ethiopia. J Hypertens. 2016; 4(3): 125-130.

[15] World Health Organization. Prevention and control of noncommunicable diseases in Ethiopia: The case for investment, including considerations on the impact of khat. Available at: http:// www.who.int/data/ gho/data/ themes/mortality-and-global-health-estimates. Accessed August 29, 2024.