

Patient'S Knowledge of Cardiovascular Diseases Risk Factors and Associated Factors Among Adult Cardiac Patients in Selected Health Institutions; A Cross Sectional Study, Addis Ababa, Ethiopia 2021 G.C.

Bezina Damtew (✉ damtewbezina355@gmail.com)

Addis Ababa University

Yoseph Tsige

Addis Ababa University

Ketema Bizuwork

Addis Ababa University

Sosina Workineh

Addis Ababa University

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Abstract

Background

cardiovascular related disorders are a major public health challenge in globally as well as in Ethiopia. It is crucial to improve the life style of the community at the same time it is a key for health care policy to give emphasis for prevention by educating the community by different ways. Therefore, the current study patient's knowledge about risk factors related to those diseases.

Method

A facility-based descriptive cross-sectional study design was conducted. 420 Participants selected by systematic random sampling technique from April 01, 2021 until Jun 28, 2021 and met the criteria were included. Data was collected by interviewer-administered questionnaire. Level of knowledge was assessed by the Heart Disease Fact Questions. Bivariate and multivariate logistic regression was done to identify factors associated with identified class of knowledge. P-value less than 0.05 was considered as to indicate statistical significances.

Result

The result showed that most of the study subjects were in the age range of >54. The mean age was 48.7 ± 13 years. 255(62.7%) were females. 300(71.6%) of participants have sufficient knowledge toward cardiovascular diseases risk factors. Age, Sex, Place of residence, Status of education and Marital status was significantly associated with Participant's knowledge ($p < 0.05$, 95% C. I).

Conclusion

The majority of participants had sufficient knowledge regarding cardiovascular diseases risk factors. Maintaining good status, implementation of innovative interventions and structured, nurse-led lifestyle counseling would be required to effectively guide patients.

Background

Globally ,442.7million cases of cardiovascular Diseases(CVDs) were reported in 2015 including 17.9million cases of deaths from those diseases(1).This burden seems to get even worsen in developing countries as awareness of those disease among the population is limited(2).Among CVDs, increasing blood pressure, hypertension is considered as the mainly observed one(3).

Hypertension was diagnosed among 1.3billion people worldwide (4)in which 33% of adults were found to have this condition globally(5).This proportion of adults projected to get increased by 60% ,in 2025(6).In

Sub-Saharan countries 125.5million individuals were estimated to get diagnosed with hypertension by the same year(7).

Ethiopia, were transition is being made from infectious disease to those non infection disease (8)this burden of CVDs are not found to have some mercy. Prevalence of hypertension among those population was reported to be 19.6%(9)which was highly documented among urban population, even though ischemic heart disease was reported to be leading cause of death among CVDs(12).

Scarcity of research regarding knowledge of patients about CVDs risk factors in developing countries has been mentioned(9).In Nigeria poor knowledge of patients about risk factors was observed(10) which was reported to get more worse in Cameroon(11).And also residency area and educational status were reported to associate with the health literacy of those patients(12, 13).

Although knowledge of cardiovascular risk factors reported to be a back bone in the prevention of those diseases(14); researches to give input are scarce in developing countries, including Ethiopia. Therefore, this study will assess knowledge of CV risk factors among CVDs patients and its associated factors in two Hospitals which represents the country at whole.

Methods And Materials

Study Design, and setting

Cross sectional study design was conducted at Tikur Anbessa Specialized Hospital (TASH) and St, Paul Referral Hospital (SPHMMC), Addis Ababa, Ethiopia. In Addis Ababa there are 12 governmental hospitals, from which 2 of them were selected for the study by lottery method. The selected hospitals are TASH and SPHMMC.420 participants were selected as they were presented at the center from April to June 2021.

Sample size determination and sampling technique

The sample size was calculated using a single-population proportion formula with 95% confidence intervals (CIs), a 5% margin of error, and 54% proportion of level of depression based on study done in Eastern part of the country(8). With 10% of non-response rate the final total sample size was calculated to be 420.Participants who found to be meeting the criteria was selected until the required sample size was met. By using the formula for proportional allocation, i.e., $n_h = (N_h / N) * n$;280 patients from Tikur Anbessa Specialized Hospital (TASH), and 140 patients from St Paulo's Hospital were included in the study. A systematic random sampling method was employed to select a study participant.

To select the study participants, the total sample size was allocated proportionally based on the number of patients from each selected hospital. Again, proportional allocation was implemented for each selected hospital. Finally, from each hospital, patients were selected using simple random sampling with replacement method to attain the final participants.

Data collection

The data extraction tool was developed from validated tool, the Heart Disease Fact Questions (HDFQs) (15) and international physical activity questionnaires. the HDFQ and international physical activity questionnaires were translated into Amharic and were back translated into English by language experts to check reliability of the translations.

Questionnaires about sociodemographic status (age, sex, residency area, marital status, occupational status, educational status) of the participants were developed after rigorous literature review and were adopted to our context. Four clinical nurses were recruited as data collectors by principal investigator (PI). Those data collectors were well trained about the objective of the study. The PI monitored the data quality and supervise overall process.

Measurements

Respondents were asked 29 knowledge-based questions to assess their knowledge toward CVD Risk factors and they were categorized in to two groups based on their score (Sufficient knowledge and Insufficient knowledge). Total cumulative knowledge level was determined out of 29 and mean level of knowledge was determined to be 19.9. Hence mean and above (i.e, ≥ 20) is considered "Sufficient knowledge" while the rest was considered "Insufficient knowledge".

Data analysis

The collected data were checked daily for completeness and rechecked again by the principal investigator before data entry. Data were entered into EpiData 3.1 (EpiData Association, Odense, Denmark), and transferred to SPSS version 25.0 (IBM Corp., Armonk, NY, USA) for farther analysis. The entered data were explored for errors and missing values were checked before analysis.

Descriptive statistics were used to summarize the data in both tables and graphs. In order to identify associated factors, bivariate logistic regression analysis was done for each independent variable and significant variables were included in the final multiple logistic regression model. Standard coefficients with 95%CI were presented using tables.

Results

Socio-Demographic Characteristics of participants

The response rate was 100%.255 (60.7%) of participants were females. The mean age was 48.7 (SD=13.05). The minimum total of study participants 374 (89%) were urban residents. 240 (57.1%) participants were married and most participants 125 (29.7%) acquire tertiary level of education. Majority 131 (31.2%) of the study participants are enrolled in private sector. (**Table1**).

Table 1: Socio-Demographic Characteristics of Respondents in Addis Ababa Public Hospitals, 2021 (n = 420).

Variables	<i>n</i>	%
Age (48.7(SD=13))		
18-29	53	12.6
30-41	73	17.4
42-53	90	21.4
≥54	204	48.6
Sex		
Male	165	39.3
Female	255	60.7
Residence		
Urban	373	89
Rural	46	11
Marital Status		
Single	81	19.3
Married	240	57.1
No longer married	99	23.6
Occupational Status		
Self-employees	131	31.2
Government Employees	91	21.7
Retired	75	17.9
Unemployed	123	29.3
Educational status		
No formal education	95	22.6
Primary (1-8)	99	23.6
Secondary (9-12)	101	24
Tertiary (≥diploma)	125	29.7

Knowledge of cardiovascular risk factors

90.5% of the participants did know that obesity (over-weight) increases the risk for heart diseases while only 44% of participants did know that family history of heart disease is risk factor for developing

one(**Table 2**). Findings of this study revealed that the majority of patients who participated in this study had sufficient knowledge score, 300 (71.4%) (**Figure 1**).

Table 2: Frequency Distribution of Respondents Knowledge Score towards Cardiovascular Disease Risk Factors of the Selected Public Hospitals in A.A, Ethiopia, 2021 (N=420)

Characteristics		Frequency	Percentage (%)
A person always knows when they have heart disease	Yes	238	56.7
	No	182	43.3
If someone has a family history of heart disease, he/she is at risk for developing heart disease	Yes	185	44.0
	No	235	56.0
The older a person is, the greater their risk of having heart disease	Yes	320	76.2
	No	100	23.8
High blood pressure is a risk factor for heart disease	Yes	364	86.7
	No	56	13.3
Keeping blood pressure under control will reduce a person's risk for developing heart disease	Yes	372	88.6
	No	48	11.4
Smoking is a risk factor for heart disease?	Yes	368	87.6
	No	52	12.4
A person who stops smoking will lower their risk of heart disease?	Yes	359	85.5
	No	61	14.5
Chewing khat is a risk factor for heart disease?	Yes	323	76.9
	No	97	23.1
A person who stops chewing khat will lower their risk of heart disease	Yes	321	76.4
	No	99	23.6
Drinking alcohol is a risk factor for heart disease	Yes	348	82.9
	No	72	17.1
A person who stops drinking alcohol will lower their risk of heart disease	Yes	346	82.4
	No	74	17.6
Being overweight increases a person's risk for heart disease	Yes	380	90.5
	No	40	9.5
Regular physical activity will lower a person's chance of getting heart disease	Yes	376	89.5
	No	44	10.5
Only exercising at a gym or in an exercise class will lower a person's chance of developing heart disease	Yes	199	47.4
	No	221	52.6

Walking and gardening are considered exercise that will help lower a person's chance of developing heart disease	Yes	351	83.6
	No	69	16.4
Diabetes is a risk factor for developing heart disease	Yes	355	84.5
	No	65	15.5
High blood sugar puts a strain on the heart	Yes	370	88.1
	No	50	11.9
If someone's blood sugar is high over several months it can cause his/her cholesterol level to go up and increase his/her risk of heart disease	Yes	366	87.1
	No	54	12.9
A person who has diabetes can reduce his/her risk of developing heart disease if he/she keeps his/her blood sugar level under control	Yes	370	88.1
	No	50	11.9
Men with diabetes have a higher risk of heart disease than women with diabetes weight under control	Yes	229	54.5
	No	191	45.5
Cardiovascular disease is the most common cause of death in Ethiopia	Yes	327	77.9
	No	93	22.1
High cholesterol is a risk factor for developing heart disease	Yes	369	87.9
	No	51	12.1
If someone's bad cholesterol (LDL) is high he/she is at risk for heart disease	Yes	370	88.1
	No	50	11.9
A person with heart disease have high cholesterol	Yes	326	77.6
	No	94	22.4
People with heart disease tend to have low good (HDL) cholesterol	Yes	223	53.1
	No	197	46.9
Does eating fatty foods affect blood cholesterol	Yes	288	68.6
	No	132	31.4
Many fruits and vegetables are high in cholesterol	Yes	63	15.0
	No	357	85.0
Does dietary fiber lowers blood cholesterol level	Yes	339	80.7
	No	81	19.3
Do you think eating a high fiber diet increases the risk of getting heart disease	Yes	301	71.7

Association between Dependent and Independent Variables

On binary logistic regression analysis most socio-demographic variables (Sex, Age, Place of residence, educational status) were all significantly associated with knowledge toward CVD risk factors at p-value <0.05 with 95% C.I. The variable that was found not to be statistically significantly related with Sufficient Knowledge was marital status and occupational status.

By adjusting potential confounders in multivariate logistic regression analysis, Patients that are in the age range of (30-41) were found to be 80% more likely to have sufficient knowledge [AOR=0.2; 95%CI (0.9-0.45)]. In addition, male patients were 54% more likely to have sufficient knowledge [AOR=0.46; 95%CI (0.3-0.8)]. Patients who are urban dwellers were found to be four times more likely to have sufficient knowledge compared with their rural counterparts [AOR=4.2; 95%CI (1.9-9.5)]. Finally, Patients with no formal education were found to be 82% more likely to have insufficient knowledge towards CVD risk factors [AOR=0.18; 95%CI (0.07-0.43)]. **Table 3.**

Table 3: Association Between Socio-Demographic Factors with Knowledge Of patients Towards CVD risk factors At Public Hospitals Of A.A, Ethiopia, 2021 (n=420)

Variable	Mean knowledge CVD risk factors		Odds Ratio at (95% CI)			
	Insufficient Knowledge	Sufficient Knowledge	COR (95%CI)	P-Value	AOR (95%CI)	P-Value
Age in years						
18-29	18	35	0.55(0.28-1.06)	0.075	0.37(0.13-1.01)	0.054
30-41	30	43	0.4(0.22-0.71)	0.002	0.20(0.9-0.45)*	0.00
42-53	27	63	0.66(0.37-1.15)	0.146	0.34(0.16-0.71)*	0.04
>=54	45	159	1		1	
Sex						
Male	57	108	0.62(0.4-0.95)	0.03	0.46(0.3-0.8)*	0.009
Female	63	192	1			
Residence						
Urban	88	286	7.4(3.7-14.5)	0.00	4.2(1.9-9.5)*	0.00
Rural	32	14	1			
Marital Status						
Single	30	51	0.7(0.42-1.2)	0.2		
Married	19	80	1.7(0.99-3.1)	0.051		
No longer Married	71	169	1			
Occupational Status						
Self employed	47	84	0.7(0.4-1.2)	0.21		
Government employee	21	70	1.3(0.7-2.47)	0.37		
Retired	17	58	1.35(0.69-2.6)	0.37		
Unemployed	35	88	1			

Educational Status

No formal education	46	49	0.28(0.2-0.5)	0.00	0.18(0.07-0.43)*	0.00
Primary	25	74	0.77(0.4-1.4)	0.43	0.49(0.23-1.05)	0.069
Secondary	23	78	0.89(0.5-1.68)	0.72	0.75(0.36-1.53)	0.43
Higher	24	99	1		1	

*P-Value <=0.05

Discussion

The study revealed that 71.4% of CVD patients had satisfactory knowledge regarding CV risk factors. However, studies conducted in south east Asian countries of Bangladesh(16),Malaysia(17), and Republic of Korea(18) reported 38.9%, 55.6% and 41% respectively. Their report is significantly lower than ours. This discrepancy might be due to lack of health awareness trainings on area of CVD which is a routine procedure among CVD patients in our study setting, socio-demographic differences, study time gap and study setting difference.

Studies from Africa reported mean knowledge of patients towards CVD risk factors to be 32.1%, 49.4% while a systematic review from Sub Saharan Africa revealed a mean knowledge level ranging from 4.4%-68.1% (13, 19, 20)which are significantly lower than our study. These differences can be due to different measurement tools, difference in socioeconomic background, lack of awareness creation events, poor patient counseling, lack of effective communication with physicians and absence of independent CVD units equipped to deal with sustainable Cardiovascular patient care in the former studies.

Studies from Eastern and Northern Ethiopia reported mean Knowledge of 54% and 32.2% respectively(8, 21). The observed difference could be due to the fact that our participants are largely urban dwellers located in the capital city compared with the formers.

Our rates of CVD risk factors literacy echoes findings of previous studies from Tanzania(22), South Africa(23), and Iran(24) where findings were 80%, 75% and 78.7% respectively. This observed similarity in literacy rates could be explained by the education-level similarities among study participants and similarity of tools used for knowledge assessment, similarity of study setting

Among individual risk factors related knowledge observed from literatures, smoking(17, 23, 25) mentioned to constitute 36.2–93.2% of participants, alcohol intake in excess explained by 40.7%(26) and by 65%(27) by Lebanon population. Unhealthy diet was mentioned by 2.8–88% in multiple studies(8, 17, 25–27) while physical inactivity was explained by 1.2– 96%(17, 23, 25, 27).Further more excess body

weight was explained by 1.6–100% to be risk factors(17, 25, 27) while hypertension(17, 25, 27) was explained by 6.2–94%.In addition, diabetes(17, 23, 27) was explained by 5.3–92.4%. Meanwhile our study revealed, Smoking 11.9%, Excess alcohol intake 9%, unhealthy diet 46.4%, Physical inactivity 50% and excess body weight 57.9% as an individual risk factors for CVD. Our participants had significant knowledge on being overweight (90.1%), regular physical activity (89.1%), keeping blood pressure (88.8%) and smoking (87.7%). At the same time patients had deficient knowledge about eating a high fiber diet (29%), only exercising at gym (46.5%) and family history (44.1%).

In our study four independent variables (Age ([AOR=0.2; 95%CI (0.9-0.45)]), Sex ([AOR=0.46; 95%CI (0.3-0.8)]), place of residence ([AOR=4.2; 95%CI (1.9-9.5)] and educational status ([AOR=0.18; 95%CI (0.07-0.43)])) were found to have significant statistical correlation with Knowledge towards risk factors of CVD. Meanwhile after adjusting cofounders married patients were found to be 53% more likely to have satisfactory behavior [AOR=0.47; 95%CI (0.23-0.92)].

Residence, education level and marital status were associated with knowledge of cardiovascular risk factors(8) thus, social, cultural and economic factors are major determinants of health literacy. As that of our result multiple studies (8, 20, 25) revealed direct relation of educational status and health literacy. A review from Sub-Saharan Africa reported that place of residence is associated with improved knowledge of CV risk factors(28). In Ethiopia, rural residents attain lower educational level and have poor access to health information as compared to urban residents who relatively have better health literacy. Thus, low knowledge of CV risk factors in rural residents could be due to their lower education attainment.

Conclusion

The study revealed that about three quarter of the study participants had sufficient knowledge regarding cardiovascular risk factors. Maintaining good status, implementation of innovative interventions and structured, nurse-led lifestyle counseling would be required to effectively guide patients.

Abbreviations

CV: Cardiovascular, CVD: Cardiovascular Disease, CVDs: Cardiovascular Diseases, HDFQs (Heart Disease Fact Questions), SPHMMC (Saint Paul Millennium Medical College), TASH (Tikur Anbessa Specialized Hospital).

Declarations

Ethical Approval and Consent to Participate

Ethical clearance of this study was obtained from the Ethics Review Board of the school of Nursing and Midwifery; College of Health Sciences, Addis Ababa University; and from the Institutional Review Board (IRB) of college of health science. Written informed consent was taken from all voluntary participants including vulnerable groups, after giving them all information regarding the study, including aims,

benefits and potential risk of the study. Confidentiality and anonymity of the participants was kept private.

Consent for publication

Not applicable.

Availability of data and material

The dataset used for the study is not publicly available in order to maintain data security but is available from corresponding author on reasonable request.

Competing interests

The authors declare that they have no competing interests

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Authors' Contribution

BD, YT, KB and SW worked in the conception and design of the study. BD collected, analyzed interpreted the data. SW drafted the manuscript. YT and KB monitored and evaluated the data. YT, KB and SW critically revised and edited the manuscript. All authors read and approved the manuscript.

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Figures

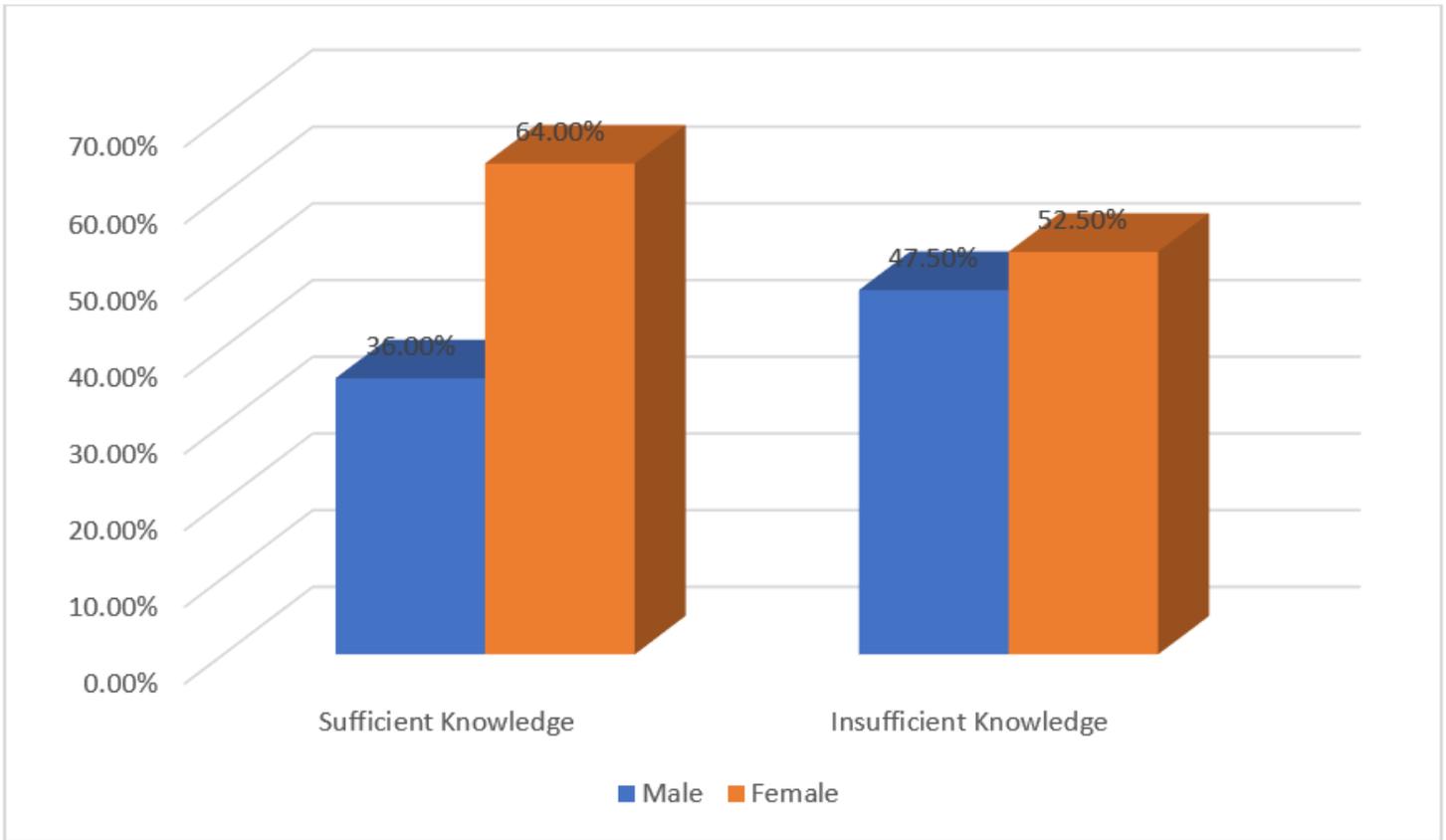


Figure 1

Level of participants' Knowledge regarding CVD risk factors Patients' knowledge of CVD risk factors from selected health institutions of Addis Ababa, Ethiopia ,2021 (n=420). The majority of participants (n=300) had sufficient level of knowledge regarding CVD risk factors.