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Knowledge, Attitude, and Preventive Practices on Cardiovascular Diseases among the selected Community People of Gorkha

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Abstract

Background: Cardiovascular disease (CVD) is leading cause of mortality in Asian country and it is very essential to understand the current epidemiological characteristics of disease in developing countries like Nepal.

Objective: The objective of the study was to assess the level of knowledge, attitude, and preventive practices regarding cardiovascular diseases among community members.

Method: A descriptive cross-sectional study was conducted among 407 adults selected from the community of Gorkha using probability and multi-stage cluster random sampling techniques from May to June 2024. Data collection was conducted using the standard tool CVD-KAP29. Frequency, percentage, mean, standard deviation and chi-square was used for data analysis.

Result: Majority of the respondents (77.15%) had good knowledge related to cardiovascular diseases (CVDs), and more than half (65.8%) had positive attitudes towards CVDs, 81.3% of the respondents demonstrated good practices towards CVDs. The level of knowledge was significantly associated with gender, level of education, income, and family history of CVDs. Gender, age, residence, education level, and family history of CVDs were significantly associated with attitudes. The level of practice was significantly associated with age, residence, level of education, and income.

Conclusion: The study concludes that majority of the respondents had good knowledge, more than half had good attitude and majority had good preventive practices towards CVDs. While most respondents showed good knowledge and preventive practices regarding CVDs, the relatively lower proportion with a good attitude highlights the need for targeted interventions. It is recommended to strengthen health education programs to promote positive attitudes, conduct regular community-based awareness and counseling sessions, reinforce preventive practices through follow-up and support activities.

Keywords: Attitude; Cardiovascular diseases; Knowledge; Preventive practices

Introduction

Globally, cardiovascular diseases (CVDs) stand as the primary cause of morbidity and mortality worldwide. In 2019, approximately 17.9 million individuals died from CVDs, constituting 32% of all global deaths.[1] Cardiovascular diseases (CVD) accounted for 10.8 million deaths in 2019 in Asian country comprising 35% of all deaths in the region.[2] In Nepal, the proportion of deaths due to non-communicable diseases (NCDs) increased from 60% in 2014 to 66% in 2018.[3]

In Nepal, heart diseases are the leading cause of early death, accounting for about one-third of all deaths with half occurring in those under 70. Heart attacks and strokes are the most common issues, largely driven by high blood pressure and poor diet. A lack of awareness about heart disease contributes significantly to the high mortality rate.[4]

In a study done in semi-urban area of Nepal showed many people including those with heart conditions lack knowledge, hold negative attitudes, and engage in unhealthy behaviors related to heart health.[5]

The increase in the frequency of cardiovascular diseases (CVDs) annually can be attributed to insufficient public awareness regarding the risk factors associated with it and a lack of initiatives aimed at prevention.[6] There's an urgent demand for comprehensive strategies to tackle CVDs in Nepal, involving targeted interventions, enhanced healthcare access, and addressing social determinants of health.[7]

Preventing cardiovascular disease (CVD) is crucial for combating its epidemic in resource-poor nations. Assessing the population's overall knowledge levels can guide public health programs, particularly those aimed at reducing modifiable CVD risk factors. Targeting preventive education involves measuring and effectively sharing knowledge about preventive measures.[8]

The primary factor thought to predict the escalation in CVDs morbidity and mortality is the community's failure to effectively prevent CHD risk factors. As a result, this topic requires additional attention.[9] Research into knowledge, attitudes, and practices (KAP) enhances comprehension of community behaviors and knowledge related to cardiovascular health. Such studies are instrumental for public health by aiding in the development of tailored educational initiatives and evaluating the efficacy of intervention programs.[10] Therefore the researchers aimed to this study. The objective of the study was to assess the knowledge, attitudes, and preventive practices on cardiovascular diseases among the community people of Gorkha.

Method

A descriptive cross-sectional study was conducted in Gorkha district, Nepal which comprises nine rural and two urban municipalities. Using a multistage probability sampling approach, two urban municipalities (Gorkha and Palungtar) three rural municipalities (Siranchowk, Gandaki and Bhimsen Thapa) were selected through simple random sampling method (lottery method) in the first stage.

In the second stage, three wards from each selected municipality were chosen using the same lottery method. Subsequently, in the third stage, households were selected systematically within each chosen ward. From the selected household, one eligible individual was chosen using a simple random technique (lottery method). The study population consisted of individuals aged 18 years and above who were able to provide informed consent. Individuals with psychiatric illness, cognitive impairment, and those unable to understand Nepali were excluded from the study. An equal proportion of respondents was selected from each municipality to ensure balanced representation across the study area. In the third stage, household was selected using systematic random sampling technique. Sample size was 407 based on sample size estimation formula ($n = z^2pq/d^2$) after adding 10% non-response rate. For estimation of sample size, prevalence of knowledge regarding cardiovascular disease taken was 40.7% (p=0.407), z=1.96, q=1-p=0.593 with 5% allowable error.[11] $n=(1.96)^2 \times 0.407 \times 0.593/(0.05)^2 = 370.8$, adding 10% non-response rate i.e (10x370.8)/100=37.0 makes sample size 407. Structured interview schedule was used based on validated research instrument CVD- KAP 29.[10] CVD-KAP-29 is a validated structured questionnaire designed to assess the knowledge, attitude and practice (KAP) regarding cardiovascular diseases in the general population. The tool consists of 29 items categorized into three domains: knowledge (12 items), attitude (10 items) and practice (7 items). The knowledge section includes 12 statements focusing on CVD risk factors, warning signs and preventive measures. Each correct answers were given a score of 1,

while incorrect answers and "do not know" response were given a score of 0, yielding a total possible score ranging from 0 to 15. The attitude domain comprises 10 items each measured on a 5 point likert scale as 1=strongly disagree to 5= strongly agree. Scores above the mean indicate a positive attitude, while scores below the mean indicate a negative attitude. The practice section included 7 items which included two items related to physical activity behaviors and 5 items related to nutrition and smoking behavior. Scores above the mean indicate a good practice and scores below the mean indicate poor practice. Permission was taken from Gorkha Health office, objectives of the study were clearly explained to the respondents and objectives of the study was explained to them. Informed consent was obtained prior to data collection and respondents were informed that their participation was voluntary and they could withdraw at any time if they chose not continue with the study. The data collection period lasted four weeks, from May to June 2024. The study obtained ethical approval from the Nepal Health Research Council (NHRC) (Reference Number: 50, ERB Number: 146_2024) and the Health Office of Gorkha District. Data was entered into the computer using Epi-data 3.1 software and then transferred to the Statistical Package for Social Sciences (SPSS, version 16). Both descriptive and inferential statistics were employed for data analysis. Descriptive statistics, including frequency, percentage, mean, and standard deviation, were used to describe the socio-demographic information of community people. Chi-square test was applied to assess the association between knowledge, attitude, and practice regarding cardiovascular disease with selected demographic variables of community people at a 5% level of significance.

Result

Out of 407 respondents, 34.2% of respondents are in the 18–35 and over-50 age groups. More than half (50.1%) are female, and 63.6% live in rural areas. More than one-third of the respondents (38.1%) have secondary education, and most of the respondents are married. Hinduism is the predominant religion, followed by 86.0% of respondents. Brahmin/Chhetri respondents make up 39.8%. In terms of occupation, 25.8% are housemakers, and nearly half (48.2%) have suf-

ficient income. Additionally, 50.6% of respondents have a family history of cardiovascular diseases (CVD) (Table 1).

Table 1 Socio-Demographic Information of Respondents (n=407)

Variables	Categories	n (%)
Age (in years)	18 - 39	181 (44.5)
	40 - 59	136(33.4)
	≥ 60	90(22.1)
Gender	Female	204(50.1)
	Male	203(49.9)
Residence	Rural	259(63.6)
	Urban	148(36.4)
Level of Education	Illiterate	73(17.9)
	Primary	109(26.8)
	Secondary	155(38.1)
	Higher	70(17.2)
Marital Status	Married	365(89.7)
	unmarried	26(6.4)
	Widowed	13(3.2)
	Divorced	3(0.7)
Religion	Hindu	350(86.0)
	Christian	37(9.1)
	Buddhist	14(3.4)
	Muslim	6(1.5)
Ethnicity	Brahmin/Chhetri	162(39.8)
	Janajati	111(27.3)
	Dalit	106(26.0)
	Others	25(6.1)
	Madhesi	3(0.7)
Occupation	Homemaker	105(25.8)
	Agriculture	84(20.6)
	Service/Job	65(16.0)
	Business	51(12.5)
	Others	50(12.3)
	Unemployed	32(7.9)
	Labor	20(4.9)
Income	Sufficient	196(48.2)
	Not Sufficient	158(38.8)
	Surplus	53(13.0)
CVDs Family History	Present	206(50.6)
	Absent	184(45.2)
	I don't know	17(4.2)

The study reveals that 57.7%, know that CVDs are the leading cause of death in Nepal. Most of them (77.1%) believe that physical activity can prevent CVDs, and nearly all, 98.0%, agree that eating fruits and vegetables benefits heart health. Regarding risk factors, 97.3% are aware that tobacco use increases CVD risk, and 93.1% know that consuming salty and canned foods raises blood pressure risk. In terms of prevention, 68.3% are aware that controlling blood glucose can reduce CVD risk, and 74.4% agree that managing blood pressure is crucial to preventing heart attacks. For symptoms, 62.7% identify chest pain as a potential sign of a heart attack (Table 2).

Table 2: Respondents' Knowledge on Cardiovascular Diseases and Risks Factors (n=407)

Statements	Yes No. (%)	No No.(%)	Don't know No. (%)
CVD and its Risk Factors			
CVD is the leading cause of death in Nepal	235 (57.7)	21 (5.2)	151 (37.1)
Physical inactivity	314 (77.1)	15 (3.7)	78 (19.2)
Unhealthy diet	399 (98.0)	2 (0.5)	6 (1.5)
Positive family history	287 (70.5)	30 (7.4)	90 (22.1)
Obesity	332 (81.6)	28 (6.9)	47 (11.5)
Smoking	396 (97.3)	3 (0.7)	8 (2.0)
Eating salty and canned foods	379 (93.1)	3 (0.7)	25 (6.1)
Diabetes	278 (68.3)	17 (4.2)	112 (27.5)
Hypertension	303 (74.4)	9 (2.2)	95 (23.3)
Heart Attack Symptoms			
Chest pain, pressure, or burning	255 (62.7)	28 (6.9)	124 (30.5)
Pain or sudden discomfort in the jaw, neck, shoulders, arms, or back	160(39.3)	20 (4.9)	227 (55.8)
Stroke Symptoms			
Sudden numbness or weakness in the face, arms, or legs	162 (39.8)	13 (3.2)	232 (57.0)

About 88.0% of respondents agreed that physical activity is essential for health, and 88.7% prefer walking over using taxis or buses. Majority, 87.5%, recognize tobacco as harmful, while 78.1% value maintaining a healthy weight. Additionally, 82.3% believe that consuming less fatty food is beneficial, and 82.1% agree that eating 2-4 servings of fruit and 3-5 servings of vegetables daily is good for health. More than half of the respondents (63.9%) think uncontrolled blood glucose can cause heart attacks, and 73.7% believe that controlling stress helps prevent heart attacks (Table 3).

Table 3: Respondents Attitude towards Cardiovascular Diseases (n=407)

Statements	SD	Disagree	Neutral	Agree	SA
I should have physical activity to have a healthy life.	0	3 (0.7)	9 (2.2)	358(88.0)	37 (9.1)
I should try to walk to go to nearer destinations instead of going by taxi or bus.	0	3 (0.7)	2 (0.5)	361 (88.7)	41 (10.1)
I believe that using any tobacco (cigarette, hookah, pipe, etc.) is harmful to health.	2 (0.5)	3 (0.7)	1 (0.2)	356(87.5)	45 (11.1)
I believe that having an appropriate weight (not overweight or obesity) helps keep me healthy.	1 (0.2)	8 (2.0)	27 (6.6)	318(78.1)	53 (13.0)
I must consume less fatty foods to maintain health.	1 (0.2)	1 (0.2)	11 (2.7)	335(82.3)	59 (14.5)
I believe that daily consumption of 2 to 4 units of fruit and 3 to 5 units of raw or cooked vegetables is beneficial for my health.	1 (0.2)	5 (1.2)	22 (5.4)	334 (82.1)	45 (11.1)
I believe that uncontrolled blood glucose in diabetic patients can cause myocardial infarction.	0	12 (2.9)	86 (21.1)	260 (63.9)	49 (12.0)
I should control my stress and mental pressure to prevent myocardial infarction.	0	6 (1.5)	54 (13.3)	300 (73.7)	47 (11.5)
I should consume less salt to prevent high blood pressure.	1 (0.2)	7 (1.7)	8 (2.0)	340(83.5)	51 (12.5)
I believe that consuming fish meat at least two times a week is beneficial for cardiovascular health	0	31 (7.6)	50 (12.3)	280 (68.8)	46 (11.3)

Majority of the respondents (77.15%) have good level of knowledge and more than half of the respondents (65.8%) had positive attitude towards cardiovascular disease and 81.3% demonstrated good preventive practices towards cardiovascular diseases (Table 4).

Table 4: Level of Knowledge, Attitude and Preventive Practice toward CVDs of the Respondents (n=407)

Variables	Category	n (%)
Level of Knowledge	Good	314(77.1)
	Poor	93(22.9)
	Mean ± SD=10.99±2.26	
Level of Attitude	Positive	268(65.8)
	Negative	139(34.2)
	Mean ± SD=39.49±2.93	
Level of Practice	Good practice	332(81.3)
	Bad practice	76(18.7)
	Mean ± SD=5.42±1.01	

Association between knowledge on CVDs with gender, level of education, level of income, and family history was found statistically significant. Likewise, respondent's attitude towards CVDs is statistically significant with gender, age, place of residence, level of education, and family history of CVDs. Similarly, level of practice towards CVDs is statistically significant with age, residence, level of education, and level of income (Table 5).

Table 5: Association Between Level of Knowledge, Attitude and Practice and Selected Variables (n=407)

Variables	Level of Knowledge		Level of Attitude		Level of Practice	
	Good n (%)	Poor n(%)	Positive n(%)	Negative n(%)	Good n(%)	Bad n(%)
Gender						
Female	138 (67.6)	66 (32.4)	118 (57.8)	86 (42.2)	162 (79.4)	42 (20.6)
Male	176 (86.7)	27 (13.3)	150 (73.9)	53 (26.1)	169 (83.3)	34 (16.7)
p value	**<0.001***		**<0.001***		0.320	
Age						
Adult	254 (80.1)	63 (19.9)	222 (70.0)	95 (30.0)	276 (87.1)	41 (12.9)
Senior citizens	60(66.7)	30 (33.3)	46(51.1)	44 (48.9)	55(61.1)	35 (38.9)
p value	**0.007***		**0.001***		**<0.001***	
Marital Status						
Living with spouse	279 (76.4)	86 (23.6)	235 (64.4)	130 (35.6)	297 (81.4)	68 (18.6)
Living without spouse	35 (83.3)	7(16.7)	33 (78.6)	9(21.4)	34 (81.0)	8(19.0)
p value	0.314		0.066		0.948	
Residence						
Rural	205 (79.2)	54(20.8)	197 (76.1)	62(23.9)	217 (83.8)	42(16.2)

Urban	109(73.6)	39(26.4)	71(48.0)	77(52.0)	114(77.0)	34(23.0)
p value	0.203		<0.001*		0.090	
Level of education						
Literate	273(81.7)	61(18.3)	237(71.0)	97(29.0)	295(88.3)	39(11.7)
Illiterate	41(56.2)	32(43.8)	31(42.5)	42(57.5)	36(49.3)	37(50.7)
p value	<0.001*		<0.001		<0.001*	
Level of income						
Sufficient	167(67.1)	82(32.9)	162(65.1)	87(34.9)	212(85.1)	37(14.9)
Not sufficient	147(93.0)	1(7.0)	106(67.1)	52(32.9)	119(75.3)	39(24.7)
p value	<0.001*		0.674		0.015*	
Family history of CVDs						
Present	172(83.5)	34(16.5)	163(79.1)	43(20.9)	165(80.1)	41(19.9)
Absent	142(70.6)	59(29.4)	105(52.2)	96(47.8)	166(82.6)	35(17.4)
p value	0.002*		<0.001*		0.519	

χ2, p value significance at <0 .05

Discussion

The present study aims to assess levels of knowledge, attitude, and preventive practices related to cardiovascular diseases. The findings indicate that two- third of respondents (77.6%) had a good level of knowledge about CVDs and their risk factors. This result is consistent with previous studies conducted in different areas, which also reported a good level of knowledge regarding CVDs and their risk factors.[12-14] In recent years, the Nepalese population has experienced a rise in non-communicable diseases (NCDs) and has gradually gained more health-related knowledge.[15]

Based on the present findings, gender, residence, level of education, and family history of CVDs have a significant association with the level of knowledge. Previous studies support these findings and conclude that educated people tend to exhibit good knowledge about CVDs.[16] Most respondents in this study were educated and had a family history of CVDs, which could explain their high level of knowledge. More than half (65.8%) of the respondents in this study had a positive attitude towards CVDs and their risk factors. These findings are consistent with previous research.[9,12] This study showed a significant association between gender, level of education, income, family history of CVDs, and residence with attitude. Existing literature supports these findings.[13] The researchers in this study discovered that the majority of respondents (81.3%) had good practices regarding cardiovascular disease. These findings contrast with earlier evidence from previous studies, which have typically shown poor levels of practice towards CVDs.[17,18] .These differences might be related to factors like participants' socioeconomic status, differences in healthcare services and access, cultural beliefs and health practices, levels of health knowledge and awareness, and variations in sample size. Level of practice towards CVDs of respondents is statistically significant with age, residence, level of education, and level of income. These findings are supported by a study conducted in lebanon.[13]

Interestingly, our findings challenge the common belief that rural populations have lower awareness and preventive practices related to cardiovascular diseases (CVDs).[18]

The limitation of the study is since this is a cross-sectional study, it cannot establish cause-and-effect relationships between knowledge, attitudes, practices, and demographic factors. Additionally, the study was conducted in only one district (Gorkha), so the findings may not be generalizable to other parts of Nepal. Furthermore, preventive practice related to cardiovascular disease was assessed in terms of respondents' knowledge which might not provide the actual practice scenario.

Conclusion

The study concludes that majority of the respondents have good knowledge of cardiovascular diseases and their risk factors. Additionally, nearly two third exhibit a positive attitude towards prevention of cardiovascular diseases and most are engaged in preventive practices. Knowledge was significantly associated with gender, education level, income, and family history of CVDs. Similarly, attitude was linked to gender, age, residence, education and family history while preventive practices were significantly related to age, residence, education, and income.

Recommendation

Based on the findings, it is recommended that targeted educational and behavioral interventions should be implemented to further improve knowledge, attitude and preventive practices related to cardiovascular diseases. Strengthening community based prevention initiatives and integrating CVD education into existing public

health services can enhance overall engagement in preventive behaviors.

Conflict of Interest: The author declares no conflict of interest.

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