

Cardiovascular Diseases (CVDs) Risk Attitude and Knowledge Level of Major Risk Factors for Cardiovascular Diseases among 15-19 Years Eleventh and Twelfth-Grade Students of Lekhnath Municipality

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Abstract

Introduction: Cardiovascular diseases (CVDs) becoming a major public health problem in developing countries. Both developed and developing countries witnesses the increase in a number of lifestyle-related risk factors such as excessive smoking, tobacco, and alcohol consumption, a poor dietary habit among adult and adolescent. The social and economic burden of CVDS in developing countries is more intensifying compare to developed countries because of higher prevalence of these diseases among economically active or working age population.

Objective: The aim of this study is to assess and identify the level of knowledge and cardiovascular disease risk attitude among 15-19 years age students of grade 11th and 12th in Lekhnath Municipality.

Methodology: The institution base quantitative cross-sectional study was adopted where Proportionate multistage cluster sampling technique was used to recruit study respondents.

Result: Only small percentages (11%) of the respondent have a good level of knowledge regarding CVD risk factors. On the other hand, approximately there a quarter of the respondents (71.9%) have a cardiovascular risk-seeking attitude.

Conclusion: Majority of adolescents in this study does not have sufficient knowledge about major cardiovascular diseases risk factors. Respondents' cardiovascular risk adverse attitude was closely connected with knowledge of various cardiovascular risk factors. Thus it is necessary to increase adolescents' knowledge about various risk factors to interruption the extensive social and economic impacts

Keywords: Cardiovascular diseases; Triglycerides; Health

Introduction

Cardiovascular diseases (CVDs) becoming a major public health problem in developing countries where it is responsible for more than twice deaths combined with HIV, malaria, and tuberculosis. The social and economic burden of CVDS in developing countries is more intensifying compare to developed countries because of higher prevalence of these diseases among economically active or working age population [1-3]. Studies have reported an increase in the prevalence of risk factors plays a crucial role in higher burden CVD in developing countries [2]. It is a well-established fact that most of the chronic diseases including CVDs shared common risk factor which includes physical inactivity, poor diet, smoking, and alcohol use [4,5]. Additionally, the major causes of death are associated with modifiable risk factors particularly excessive alcohol and tobacco use, physical inactivity, high blood pressure, unhealthy diet, high lipids and diabetic mellitus [6-8].

These risk factors yield because of unhealthy lifestyle which often refers to lifestyle-related risk factors [9]. Both developed and

developing countries witnesses the increase in a number of lifestyle-related risk factors such as excessive smoking, tobacco, and alcohol consumption, a poor dietary habit among adult and adolescents [4,10]. Studies have shown that various risk factors which are developed during adolescence period continue to adulthood, for example, unhealthy dietary habits which continue adulthood have a detrimental impact on health and associated with CVDs later in life. On the other hand, development of healthy lifestyle during adolescent plays a significant role to protect the onset of chronic disease including cardiovascular diseases [11].

The non-communicable disease risk fact STEPs Survey 2013 reported that both modifiable behavioral risk factor and biological risk factors such as tobacco and alcohol consumption, raised blood pressure, blood glucose level, cholesterol, triglycerides were highly prevalent among Nepalese population. About 18.5% of study populations of STEPs survey were current smokers. Among all people who smoke, age group 15-29 accounted for 11.4 percent smokers with 20.7 percent and 2.7 percent smokers respectively. The mean age of initiation of smoking among the age group of 15-29 is 16.8. The survey reported that 17.4 percent study participants among all people who

drink alcohol 21 percent were aged between 15 and 29. The proportion of people who drink daily among age group 15-29 accounted for 8.1 percent. It is also reported that altogether 14 percent of the people involved in the moderate and low level of physical activity recommended by World Health Organization. About 21.6 percent of the respondent are overweight or obese in Nepal whereas 10.4 of the respondent are underweight. About 5.3 percent respondents self-reported hypertension. However, 42.7% of people have never measured their blood pressure by any health workers. Similarly, 27 percent people are currently on medication for a raised level of cholesterol (≥ 190 mg/dl) which is higher among 30-40 age groups [12].

Studies reported that association of CVD risk factor among young people increase the risk of mortality [13,14]. For example, especially sedentary behaviors are associated with cardiometabolic disease risk among associated with CVDs mortality [15]. However, studies have recognized that adolescent is the time period to prevent cardiovascular disease earlier to the entrenchment of risky behaviors [5]. Furthermore, World Health Organization recognized the importance of educating young people as primordial prevention to prevent chronic disease including cardiovascular diseases.

Objective

The aim of this study is to assess and identify the level of knowledge and cardiovascular disease risk attitude among 15-19 years age students of grade 11th and 12th in Lekhnath Municipality.

Method

The institution base quantitative cross-sectional study was adopted by this study which was conducted between August and October 2012. The study populations for this study were students' age between 15 and 19 years of higher secondary schools of Lekhnath Metropolitan City. Proportionate multistage cluster sampling technique was adopted for this research as shown in (Figure 1). The study population was divided into two groups based on their class i.e grade 11 and grade 12 followed by clustering of the respondent according to various academic stream base on their proportion.

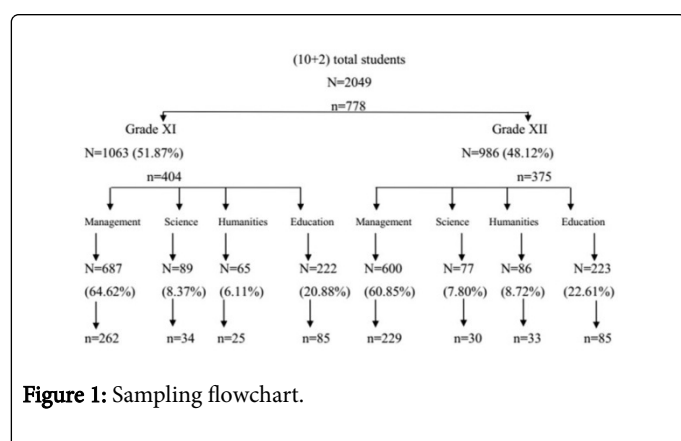


Figure 1: Sampling flowchart.

Sample size calculation

The sample size of the 778 is calculated using flowing technique;

$$NZ^2P (P-1)/d^2 (N-1) + NZ^2P (P-1)$$

Where,

n = sample size correction with finite population

N= total number of population

d= precision

p= expected proportion

Z= Z statistic at level of confidence

$$n=2016 \times 1.96^2 \times 0.5(1-0.5)/0.05^2(2049-1) + 2049 \times 1.96^2 \times 0.5(1-0.5) = 354$$

Using aforementioned formula sample size is calculated as 324. It has been assumed that 20 percent of the respondents will not response thus sample size will be adjusted for 20 percent nonresponse (324+65=389). Furthermore, because of clustering sampling techniques, the size is further adjusted 389x2=778. Thus the final sample size is 778 students.

Scoring of instrument

Altogether twelve fact-based statements consisting nine modifiable and two non-modifiable statements were used to access the level of knowledge about various risk factors of CVD, which is further categorized based on Bloom's cut of points. If respondents responded 80% of statement correctly is categorized as a good level of knowledge followed by (60-80%) and less than 60%, fair and poor level of knowledge respectively.

Similarly, altogether nine statements were used to access the CVD risk attitude towards. Among nine statements, six statements contain undesirable information about CVD while three statements consist affirmative information. CVD risk-seeking attitude refers if more than 80 percent respondent affirms undesirable's statements and disaffirm affirmative information while CVD risk adverse attitude refers if more than 80% affirm affirmative information and disaffirm undesirable statements.

Result

Out of 783 respondents (Table 1), 51.9% were students' of grade 11 and 48.1% of grade where, half of the respondents studied Management (62.7%), followed by Education (21.7%), Science (8.2%) and Humanities (7.4%). The mean age of the respondents was 16.85 years where more than half of the respondents (71.0%) were middle adolescence and rest 29.0% were late adolescence. Out of the total sample, 53.8% of the respondents were female and 46.2% of the respondents were male.

Characteristics	Middle Adolescence		Late Adolescence		Total	
	n=556	%	n=227	%	n=783	%
Grade						
Eleven	341	84	65	16	406	51.9
Twelve	215	57	162	43	377	48.1
Faculty						
Management	372	75.8	119	24.2	491	62.7
Science	41	64.1	23	35.9	64	8.2
Humanities	34	58.6	24	41.4	58	7.4

Education	109	64.1	61	35.9	170	21.7
Gender						
Male	237	65.5	125	34.5	362	46.2
Female	319	75.8	102	24.2	421	53.8

from health personal while 82.3% of middle adolescents received health information from audio aids.

Almost all of the respondents (94.6%) opted different subject than health and physical education in grade nine and ten as the second elective subject. Regarding the query, whether they had ever known anyone (family/friends/relatives) diagnosed with CVD, the majority of the respondent responded (57.7%) yes and remaining 42.8% responded doesn't aware of persons with CVDs.

Table 1: Socio demographic characteristics of the study population.

Table 2 shows that audio-visual aids are the major source (40.5%) of the health information. 91% of late adolescents get health information

Characteristics	Middle Adolescence		Late Adolescence		Total	
	n=556	%	n=227	%	n=783	%
Main source of health information						
Audio aids	120	82.8	25	17.2	145	18.5
Video aids	225	61.6	92	38.4	86	11
Audio visual aids	53	71	33	29	317	40.5
Health personnel	62	68.1	29	31.9	91	11.6
Teachers/Family members/Friends	48	62.3	29	37.7	77	9.8
Curriculum books	48	71.6	19	29	67	8.6
Second elective subject in grade 9 and 10						
Health and physical education	27	64.3	15	35.7	42	5.4
Others	529	71.4	212	28.6	741	94.6
Anyone known with cardiovascular diseases						
Yes	218	65.1	117	34.9	335	42.8
No	338	75.4	110	24.6	448	57.2

Table 2: Source of health information.

Table 3 summaries the overall knowledge level of responded regarding major CVD risk factors. About 70%, 80% and 74%, a correctly recognizes or aware that high blood pressure, Tobacco use, high fat, and cholesterol intake as CVD risk factors simultaneously.

However, a significant percentage of the respondents don't have the correct information and adequate information about other major CVD risk factors such salt intake, physical inactivity, diabetes etcetera.

It is interesting to see that more than 87% aware of the fact that enough green vegetables and fruits reduce the risk CVDs.

Statements	n=783					
	Correct		Incorrect		Don't know	
	n	%	n	%	n	%
Cardiovascular diseases are the disease of middle or old aged people.	390	49.8	240	30.7	153	19.5
A person always realizes when he/she has a heart disease.	262	33.5	293	37.4	228	29.1
High Blood pressure is one of the important risk factors for cardiovascular diseases.	548	70	51	6.5	184	23.5
Physical inactivity doesn't cause cardiovascular diseases.	366	46.7	144	18.4	273	34.9
CVDs are hereditary.	251	32.1	369	47.1	163	20.8

Tobacco chewer/smokers have the high risks of getting cardiovascular disease.	625	79.8	98	12.5	60	7.7
Obesity does not increase the risk of CVDs.	364	46.5	194	24.8	225	28.7
High fat and cholesterol intake is the risk factor of CVDs.	579	73.9	84	10.7	120	15.3
Excessive alcohol intake that is more than 60 grams per day is not the risk factor for CVDs.	417	53.3	135	17.2	231	29.5
Diabetes is the risk factor for CVDs.	327	41.8	178	22.7	278	35.5
The high salt intake that is more than 5 grams per day is the risk factor for CVDs.	244	31.2	268	34.2	271	34.6
Daily intake of enough green vegetables and fruits reduces the risk of CVDs.	687	87.7	49	6.3	47	6

Table 3: Knowledge regarding major risk factors for CVDs.

Table 4 summarizes the respondent attitude towards major cardiovascular diseases risk factors. Majority of the respondents shared the cardiovascular diseases risk-seeking behaviors. For instance, about 85% of having cardiovascular risk-seeking behavior regarding

excessive alcohol consumption, similarly more than 75.5% people is not cautious about their green vegetable and fruit intake. These risk-seeking behaviors have similarly associated with the majority of the risk factors.

n=783				
Statements	Risk seeking		Risk adverse	
	n	%	n	%
CVD is an old age problem so I don't care.	643	82.1	140	17.9
CVD is either hereditary or not I don't care.	663	84.7	120	15.3
Majority of physically inactive people get CVDs	557	71.1	226	28.9
High blood pressure is the minor problem so no needs to worry.	521	66.5	262	33.5
Fatty diet taking people are still fine so no need to worry.	548	70	235	30
Tobacco chewing/smoking causes CVDs, not sure.	542	69.2	241	30.8
Overweight is the go down of diseases especially CVDs.	567	72.4	216	27.6
Excessive alcohol consumption (>60 grams per day), credit card for CVDs.	663	84.7	120	15.3
Daily intake of green vegetables and fruits do not differ in the causation of CVDs.	591	75.5	192	24.5

Table 4: CVDs risk attitude.

Factors

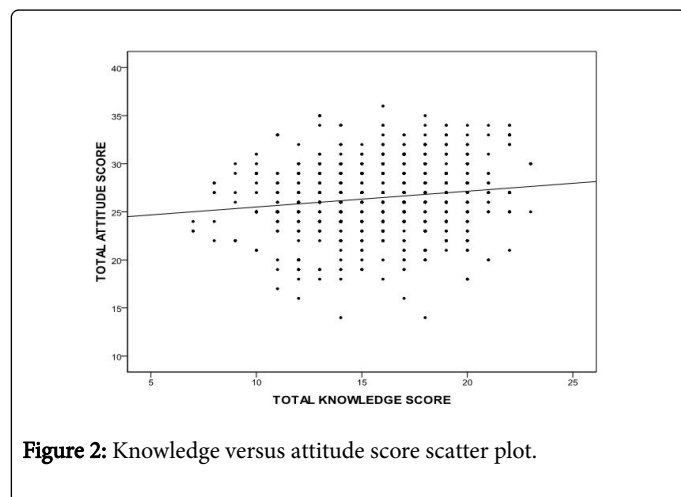
Table 5 summarized the cardiovascular disease risk and knowledge level of CVDs risks factors. Only small percentages (11%) of the respondent have a good level of knowledge regarding CVD risk factors.

Majority of the respondent (53.3%) have fair knowledge where just one-third of the respondents have a good level of knowledge. On the other hand, approximately there a quarter of the respondents (71.9%) have a cardiovascular risk-seeking attitude.

Knowledge Category	Attitude category				Total	
	Risk seeking		Risk adverse			
	n=563	%=71.9	n=220	%=28.1	n=783	%
Good	62	11	30	13.6	274	35
Fair	294	52.2	123	55.9	417	53.3
Poor	207	36.8	67	30.5	92	11.7

Table 5: CVDs risk Attitude and knowledge level regarding CVDs risk factors.

Figure 2 shows the relationship between knowledge level about cardiovascular risk factors and cardiovascular disease risk attitude. It is seen that a positive correlation between knowledge score and attitude score (Spearman's $\rho=0.137$) which is highly significant at 0.01 level ($p<0.001$). The median for knowledge score was 16 (IQR, 14-18). Similarly, median attitude score was 26 with IQR between 24 and 29.



Discussion

Majority of the respondent were not aware of the major cardiovascular disease risk factors. Among all major cardiovascular diseases risk factors knowledge regarding high BP, tobacco consumption, smoking, and high fat intake was comparatively higher. On the other hand, people are less aware of the fact that less physical activity, higher salt intake, diabetes, and obesity could lead to the risk of cardiovascular disease in later period life. Similarly, the majority of the respondents have cardiovascular risk seeking attitude which is serious threat and challenge for the public health. It is important to increase the awareness of the major CVD risk factor as the level of knowledge and CVD risk attitude is closely associated.

This study does not find any statistical significance between respondent caste, economic status, respondent's educational choices and father education. However, it is quite interesting to see that mother's education level and respondents' level of knowledge of CVDs risk factors showed statistically significant ($P=0.002$). However, Bike Kocaoglu et.al reported that low social economic status and lower parental educational was associated with higher risk of cardiovascular diseases, though it fails to establish causal association because of cross sectional study design [16]. It has seen the significant gender difference in the level of knowledge of CVD risk factor where boys possessed more good knowledge compared their female counterpart. The reason behind this would be boys exercise more power, freedom and have access to information because of patriarchal normal and values [17]. Slightly more than a quarter of respondent has CVD risk adverse attitude which means these people are conscious to protect their health and take fewer risks. This study has shown that people who have a higher level of knowledge on CVD risk factor tend to take fewer risks. Thus, it is important aware adolescent about the major CVD risk factor so they can protect themselves from the potential of developing CVD in their late life. These finding is quite similar to finding of study which was conducted in Kathmandu district of Nepal where Yadav et al. reported that only 36.8 adolescent had good knowledge about cardiovascular disease risk factors [17]. However there is no further

explanation why adolescent lacks knowledge regarding CVDS risk factors [17]. An audio videos aid seems more effective way to disseminate cardiovascular disease information. Though other studies have shown that school is the proper place to an aware adolescent about CVD risks factors but these studies have shown that only 10 percent have received health information from teachers. However, there is a slight discrepancy that why more (62.3%) middle adolescent reported teachers as a source of health information while only 37.7% of adolescents refers teachers as their source of health information. Similarly, this study showed no significant difference in the level of knowledge ($X^2=0.851$, $P=0.653$) between the adolescents who opted health education as their second elective subject. Thus the reasons for this discrepancy need to further explore. Furthermore, this study is limited to students of grade 11 and 12, so it is necessary to explore knowledge level of other student studying on a different level and as well as out of school students.

Conclusion

Majority of adolescents in this study does not have sufficient knowledge about major cardiovascular diseases risk factors. In addition, majority of the adolescent in this study have shown cardiovascular risk taking attitude which can leads to adaptation of cardiovascular risk prone behavior and lifestyle. Respondents' cardiovascular risk adverse attitude was closely connected with knowledge of various cardiovascular risk factors. Thus it is necessary to increase adolescents' knowledge about various risk factors to interruption the extensive social and economic impacts. Audio visual aids were identified as major source of health information among adolescents so wider user of these means were recommended to reach more adolescents however it is also equally recommended to explore and use teacher and school curricular to disseminated cardiovascular health information among school going adolescents. In addition cardiovascular risk attitude and knowledge level among out of school adolescents is identified as an area which needs further exploration.

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