

Awareness regarding Cardiovascular Disease Risk Factors among Adults attending at a Teaching Hospital, Bharatpur

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Abstract:

Background: Cardiovascular diseases (CVDs) are the leading cause of death worldwide which can be prevented by modifying lifestyles and adhering to healthy dietary practices. The proportion of death and disability due to CVDs in developing countries is increasing rapidly and has significant economic and health consequences. This study aimed to assess the awareness regarding CVD risk factors among adults attending a teaching hospital, Bharatpur.

Materials and Methods: A descriptive cross-sectional study design was adopted among 200 adults using non-probability, consecutive sampling technique. Data were collected during four weeks by using structured interview schedule, on the basis of Heart Disease Facts Questionnaire (HDFQ) and analyzed by using descriptive and inferential statistics.

Results: This study showed almost half (47.5%) of the respondents had inadequate level of awareness regarding CVD risk factors. Most of the respondents (90.5%) were aware of smoking as a risk factor of CVD and half (50.0%) were aware about only exercising will not help lower person's chance of developing heart disease. Unhealthy dietary practice (89.5%), inadequate fruits and vegetables intake (89.5%), central obesity (61%) were the most common CVD risk factors present in the respondents. The respondents' level of awareness was statistically significant with sex, ethnicity and education ($p < .05$).

Conclusion: Therefore maximum numbers of respondents' were found to be at risk of CVDs which might be due to inadequate awareness regarding certain CVD risk factors. There is indication for the appropriate preventive health education program that focuses on cardiovascular health and other modifiable risk factors such as healthy dietary practices and physical activities to increase the awareness level.

Key Word: Awareness; Adults; Cardiovascular disease; Risk factors

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I. Introduction

Non-communicable diseases (NCDs), are the leading cause of mortality worldwide and a serious public health threat to developing countries. NCDs account for almost 71% of the total health burden in terms of mortality globally. Each year, 15 million people die from NCD between the ages of 30 and 69 years and over 85% of these "premature" deaths occur in low and middle income countries. Cardiovascular diseases (CVDs) are the most frequent cause of NCD deaths, followed by cancers, respiratory diseases and diabetes¹. An estimated 17.9 million people died from CVDs in 2016, representing 31% of all global deaths. Of these deaths, 85% are due to heart attack and stroke². It has been estimated that death rate would reach around 23.3 million by 2030, because of CVDs. High blood pressure, high cholesterol, high blood glucose level, smoking, obesity and physical inactivity are common risk factors³. Adherence to dietary and lifestyle modifications by eating a healthy diet with low fat and salt, exercising regularly, quitting smoking, and maintaining a healthy body weight risk for CVD can be decreased⁴. Over three quarters of CVD deaths take place in low and middle income countries. Out of the 17 million premature deaths (under the age of 70) due to non-communicable diseases in 2015, 82% are in low- and middle-income countries, and 37% are caused by CVDs². Awareness of risk factor for CVDs in an individual determines his/her lifestyle which will help to reduce morbidity and mortality. Risk of CVDs will increase as the age increases. So, regular study is beneficial to identify the risk factors of CVDs among adults. Although, there are many studies conducted on CVDs risk factors focusing only young adult students and community people which showed the high prevalence and inadequate knowledge regarding CVD risk factors. The current study aims to explore the CVD risk factors among adults attending hospital.

II. Material And Methods

This descriptive, cross-sectional study design was carried out among adults attending at a teaching hospital, Bharatpur, Chitwan. A total 200 adult patients (both male and female) of age range from 20 to 60 years, willing to participate in the study and having ability to communicate properly were included in the study.

Study Design: A descriptive, cross-sectional study

Study Location: This study was conducted at Outpatient Departments (OPDs) of Chitwan Medical College Teaching Hospital (CMCTH) in Bharatpur, Chitwan.

Study Duration: June 2019 to December 2019

Sample size: 200 patients

Sample size calculation: The sample size was estimated on the basis of a non-probability consecutive sampling technique. The target population from which we randomly selected our sample was considered 9770 patients. The sample size actually obtained for this study was 200 patients.

Subjects & selection method: The study population was drawn from consecutive sampling technique who presented to OPDs of Chitwan Medical College Teaching Hospital from 2019-08-11 to 2019-09-06.

Inclusion criteria:

1. Both male and female
2. Aged 20-60 years,
3. Attending OPDs of medical, surgical, ENT, respiratory, gastrology, hepatology, nephrology, dermatology and ophthalmology
4. Patients willing to participate in the study and having ability to communicate properly were included in the study.

Procedure methodology

Prior to data collection, proposal approval was obtained from the thesis committee of school of nursing, Chitwan Medical College (P) Ltd and ethical approval was taken from Chitwan Medical College- Institutional Review Committee (CMC-IRC). Permission for data collection was taken from the CMCTH after submitting the request letter from School of Nursing, Chitwan Medical College.

Data was collected by the researcher herself from 2019-08-11 to 2019-09-06, during the regular OPD hour from 8 am to 4 pm. The purpose and data collection process was explained to each respondent and informed consent was taken from each respondent prior to data collection to ensure their willingness to participate in the study.

Data was collected in two sessions in separate quiet place or at the corner of OPD. Face to face interview method was done with structured interview schedule first and then physical measurements were taken. Blood pressure of respondents were measured in cloth-less left arm with manual sphygmomanometer sitting in a chair with feet on the floor and arm supported at heart level. At least two readings of systolic and diastolic blood pressure were measured and average was recorded based on the Seventh Report of the Joint National Committee on prevention, detection, evaluation and treatment of high blood pressure (JNC 7) criteria. First measurement of BP was taken before starting interview and second measurement was taken after completion of interview. Height and weight of respondents were measured in light clothing and without shoes for calculating Body Mass Index (BMI). Waist circumference was measured at the end of a normal expiration with the arms relaxed at the sides by placing a measuring tape around the waist just at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest (hip bone).

Confidentiality was maintained by not disclosing the information to others. Privacy was maintained during data collection by interviewing them separately on the corner of the OPD hall. Dignity of the respondents was maintained by giving them right to reject or discontinue from the research at any time without any penalty. All the collected data were reviewed and checked daily for its completeness, consistency and accuracy.

Statistical analysis

The collected data were coded, organized and entered into SPSS 17.0 version. The data was analyzed by using descriptive as well as inferential statistics on the basis of nature of data. Data were analyzed using descriptive statistics such as frequency, percentage, mean, median, interquartile range and standard deviation to describe socio-demographic information of the respondents, behavioral and biological risk factors, family health history and level of awareness regarding CVD risk factors among respondents. In inferential statistics, chi square test and fisher's exact test were used to find out the association between level of awareness regarding CVD risk factors and selected variables. The level of significance was set at $p=0.05$. The findings of the study were presented in different tables and interpreted accordingly.

III. Result

This study showed almost half (47.5%) of the respondents had inadequate level of awareness regarding CVD risk factors. Most of the respondents (90.5%) were aware of smoking as a risk factor of CVD and half (50.0%) were aware about only exercising will not help lower person's chance of developing heart disease. Unhealthy dietary practice (89.5%), inadequate fruits and vegetables intake (89.5%), central obesity (61%) were the most common CVD risk factors present in the respondents. The respondents' level of awareness was statistically significant with sex, ethnicity and education ($p < .05$).

Table no 1
Socio-demographic Information of Respondents

n= 200

Variables	Number	Percentage
Age (in years)		
Young adults	110	55.0
Middle aged adults	90	45.0
<i>Median = 36.50, IQR= Q_3-Q_1= 47-26, Min=20, Max= 60</i>		
Sex		
Male	82	41.0
Female	118	59.0
Ethnicity		
Dalit	27	13.5
Janajati	63	31.5
Brahmin	81	40.5
Chettri	25	12.5
Others (Marwadi and Muslim)	4	2.0
Religion		
Hindu	179	89.5
Buddhist	14	7.0
Christian	5	2.5
Islam	2	1.0
Educational Status		
Illiterate	23	11.5
General literate	14	7.0
Basic level	45	22.5
Secondary level	92	46.0
Bachelor and above	26	13.0
Marital Status		
Unmarried	29	14.5
Married	171	85.5
Occupation		
Service	38	19.0
Business	37	18.5
Daily Wages	6	3.0
Agriculture	47	23.5
House Maker	49	24.5
Student	18	9.0
Others (Unemployed and retired)	5	2.5

Min-minimum Max- maximum IQR- Inter Quartile Range

Table no 1 shows socio-demographic information of the respondents. More than half (55%) of the respondents were below 40 years (young adults) with median age 36.5 years with Q_1 -26 and Q_3 -47. Since the age distribution was non symmetrical median is used. Majorities (59%) of the respondents were female. Regarding religion, 40.5% were Brahmin, 89.5% were Hindu and 85.8% were married.

Table no 2 (A)
Behavioral and Biological Risk Factors among Respondents

n=200

Variables	Number	Percentage
Type of dietary practice		
Vegetarian	21	10.5
Non vegetarian	179	89.5
Fruits and Vegetables Consumption		
Inadequate	179	89.5
Adequate	21	10.5
Smoking Habit		
Current smoker	23	11.5
Past smoker	22	11.0
Non smoker	155	77.5
Duration of Smoking in years (n=23)		
1-10	6	26.1
11- 20	4	17.4
21- 30	7	30.4
31-40	6	26.1
Number of Sticks smoked per day (n=23)		
1-5	16	69.6
6-10	7	30.4
Physical Activity Involved		
Physically active	193	96.5
Physically inactive	7	3.5
Body Mass Index		
Below Normal	19	9.5
Normal	121	60.5
Over weight	48	24.0
Obese	12	6.0
<i>Median= 23.28, IQR= Q_3-Q_1= 25.94-20.72, Min= 14.53, Max= 36.48</i>		
Waist Circumference		
Normal	78	39.0
High	122	61.0
<i>Median= 88, IQR= Q_3-Q_1= 95-80, Min=60, Max= 118</i>		
Blood Pressure		
Normal	175	87.5
Hypertensive	25	12.5

Min-minimum Max- maximum IQR- Inter Quartile Range

Table no 2(A) depicts that out of 200 respondents most (89.5%) of them had unhealthy dietary practices. Only 10.5% had adequate consumption of fruits and vegetables daily. With regard to smoking, 11.5% were current smoker, 11% had left smoking and majority (77.5%) respondents had never smoked. Among the current smoker, one third (30.4%) respondents had been smoking since 21-30 years and majority (69.6%) respondents smoked 1-5 sticks per day. With regard to physical activity, almost (96.5%) respondents were physically active, 60.5% had normal BMI with median BMI 23.28 with Q_1 -20.72, Q_3 -25.94, 61% respondents had high waist circumference with median waist circumference 88 cm with Q_1 -80, Q_3 -95 and 12.5% were hypertensive.

Table no 2 (B)
Family Health History of Respondents

n=200

Variables	Number	Percentage
Family History of CVD		
Yes	23	11.5
No	177	88.5
If yes, what is the relation (n=23)		
Father	3	13.1
Mother	17	73.9
Brother	1	4.3
Sister	2	8.7
Family History of Hypertension		
Yes	77	38.5
No	123	61.5
Family History of Diabetes		
Yes	43	21.5
No	157	78.5
Family History of Dyslipidemia		
Yes	6	3.0
No	194	97.0

Table no 2(B) reveals that out of 200 respondents, 11.5% had family history of CVD among them 73.9 % respondents' mother had CVD. Similarly, the table showed the family history of hypertension (38.5%), diabetes (21.5%) and dyslipidemia (3%).

Table no 3
Awareness Regarding Cardiovascular Disease Risk Factors among Respondents

n=200

Statement	Correct Response	
	No.	%
1. A person always knows when they have heart disease.*	111	55.5
2. If you have a family history of heart disease you are at risk for developing heart disease.	101	50.5
3. The older a person is, the greater their risk of having heart disease.	124	62.0
4. Smoking is a risk factor for heart disease.	181	90.5
5. A person who stops smoking will lower their risk of developing heart disease.	153	76.5
6. Stress and anxiety increase the risk of heart disease.	159	79.5
7. Daily intake of fruits and vegetables reduces the risk for developing heart disease.	162	81.0
8. High blood pressure is a risk factor for heart disease.	165	82.5
9. Keeping blood pressure under control will reduce a person's risk for developing heart disease.	157	78.5
10. High cholesterol is a risk factor for developing heart disease.	121	60.5
11. Eating high fat containing diet does not affect blood cholesterol levels.*	146	73.0
12. Being overweight increases a person's risk for heart disease.	145	72.5
13. Abdominal obesity (fat belly) is a risk factor for developing heart disease.	111	55.5
14. Regular physical activity will lower a person's chance of getting heart disease.	173	86.5
15. Only exercising at a gym or in an exercise class will help lower a person's chance of developing heart disease.*	100	50.0
16. Walking and gardening are considered exercise that will help lower a person's chance of developing heart disease.	165	82.5
17. Diabetes is a risk factor for developing heart disease.	119	59.5
18. High blood sugar puts a strain on the heart.	119	59.5
19. Eating a lot of red meat decreases CVD risk.*	127	63.5
20. Soft drinks intake is the risk factors of heart disease.	132	66.0

*- False statements

Table no 3 reveals awareness regarding CVD risk factors among respondents where most of the respondents (90.5%) were aware of smoking as a risk factor of CVD and least (50.0%) were aware about only exercising at a gym or in class will not help lower person's chance of developing heart disease.

Table no 4
Level of Awareness Regarding Cardiovascular Disease Risk Factors among Respondents

Level of Awareness	Number	Percentage
Adequate (>Median)	105	52.5
Inadequate(<Median)	95	47.5
Total	200	100

Median score=15, IQR= $Q_3-Q_1=17-11$, Min= 2, Max= 20

Table no 4 depicts that 52.5% of the respondents had adequate level of awareness regarding cardiovascular disease risk factors whereas the remaining 47.5% respondents had low level of awareness.

Table no 5
Association between Respondents' Level of Awareness regarding CVD Risk Factors and Socio-demographic Factors

n=200

Variables	Level of Awareness		χ^2	p-value
	Adequate No. (%)	Inadequate No. (%)		
Age (in years)				
Young adults	51(46.4)	59 (53.6)	3.691	.055
Middle aged adults	54 (60.0)	36 (40.0)		
Sex				
Male	51(62.2)	31(37.8)	5.239	.022
Female	54 (45.8)	64 (54.2)		
Ethnicity				
Janajati	28 (44.4)	35 (55.6)	7.470	.024
Brahmin	52 (64.2)	29 (35.8)		
Others	25 (44.6)	31 (55.4)		
Religion				
Hindu	96 (53.6)	83 (46.4)	.875	.350
Non Hindu	9 (42.9)	12 (57.1)		
Education				
Illiterate	7 (30.4)	16 (69.6)	9.050	.029
Basic level	32 (54.2)	27 (45.8)		
Secondary level	47 (51.1)	45 (48.9)		
Bachelor and above	19 (73.1)	7 (26.9)		
Marital Status				
Unmarried	16 (55.2)	13 (44.8)	.097	.755
Married	89 (52.0)	82 (48.0)		
Occupation				
Employed	26 (59.1)	18 (40.9)	1.204	.548
Self employed	44 (52.4)	40 (47.6)		
Unemployed	35 (48.6)	37 (51.4)		

Significance level at .05
Muslim

Others- Chettri, Dalit, Marwadi and

Table no 5 reveals the association between respondent's level of awareness regarding CVD risk factors and socio-demographic characteristics. There is statistically significant association between level of awareness regarding CVD risk factors with sex, ethnicity and education of the respondents.

Table no 6
Association between Respondents' Level of Awareness regarding CVD Risk Factors and Selected Variables

n=200

Variables	Level of Awareness		χ^2	p-value
	Adequate No. (%)	Inadequate No. (%)		
Type of diet				
Vegetarian	11 (52.4)	10 (47.6)	.000	.991
Non vegetarian	94 (52.5)	85 (47.5)		
Fruits and vegetables intake				
Adequate	14 (66.7)	7 (33.3)	1.888	.169
Inadequate	91 (50.8)	88 (49.2)		
Smoking				
Yes	12 (52.2)	11 (47.8)	.001	.973
No	93 (52.5)	84 (47.5)		
Physical activity				
Active	102 (52.8)	91 (47.2)	-	.710 ^c
Inactive	3 (42.9)	4 (57.1)		
Body Mass Index				
Normal	74 (52.9)	66 (47.1)	.024	.877
Overweight	31 (51.7)	29 (48.3)		
Waist Circumference				
Normal	37 (47.4)	41 (52.6)	1.315	.251
High	68 (55.7)	54 (44.3)		
Blood Pressure				
Normal	90 (51.4)	85 (48.6)	.644	.422
Hypertensive	15 (60.0)	10 (40.0)		
Family History of CVD				
Yes	13 (56.5)	10 (43.5)	.169	.681
No	92 (52.0)	85 (48.0)		
Family History of Hypertension				
Yes	44 (57.1)	33 (42.9)	1.082	.298
No	61 (49.6)	62 (50.4)		
Family History of Diabetes				
Yes	25 (58.1)	18 (41.9)	.699	.403
No	80 (51.0)	77 (49.0)		

Significance level at .05

c- Fisher exact test

Table no 6 shows the association between respondents' level of awareness regarding CVD risk factors with selected variables. There is no statistical significant association between levels of awareness regarding CVD risk factors with selected variables.

IV. Discussion

This study found that almost half (47.5%) of the respondents had inadequate level of awareness. Similarly, a study conducted in Nigeria by Akintunde, Akintunde, and Opadijo showed consistent findings where 49% had low level of knowledge⁵. Whereas this findings was inconsistent with the study conducted by Ammouri et al., which showed 60.5% had low level of knowledge⁶. This discrepancy might be due to low level of educational status of respondents.

In this study, out of 200 respondents most of the respondents (89.5%) had unhealthy dietary practices which is compatible with the study findings conducted in Nepal by Anil et al. where 88.4% were having unhealthy dietary practices⁷. The present study determined that most of the respondents (89.5%) had inadequate intake of fruits and vegetables daily. This finding is consistent with the study conducted in Nepal by Dhungana et al., which showed almost all (98%) respondents consumed inadequate fruit and vegetables (<400 gm/day)⁸. This might be due to dependency over seasonal production, insufficient supply and high price of fruits and vegetables.

With regard to smoking, nearly quarter (22.5%) of the respondents had smoked and 77.5% never smoked. Among 22.5% smoker, 11.5% were current smoker and remaining 11.0% were past smoker which is similar with previous study conducted in Nepal by Dhungana et al., which showed 17.6% were current smoker and 16.1% were past smoker⁸. This trend of quitting smoking might be because of increasing literacy rate and implementation of tobacco free initiatives throughout the country. Regarding physical activity, 96.5% respondents were physically active. This result is in contrary with the study conducted in Nepal by Dhungana et al., which showed 79% respondents had sufficient physical activity⁸.

Regarding BMI, in current study nearly one-third (30%) of the respondents were overweight and obese. This study is in contrast with the study conducted in Nepal by Dhungana et al., which showed 59.9% were overweight and obese⁸. With regard to high waist circumference, 61% respondents had high waist circumference (central obesity). This finding is incompatible with the findings of study conducted in Nepal by Khanal et al., which showed 31.3% respondents have central obesity⁹. Regarding hypertension, 12.5% respondents had hypertension which is congruous with the study done in Nepal by Shrestha and Gautam which showed that 16.2% respondents had hypertension¹⁰. But another findings of Dhungana et al. reported 34.6% respondents had hypertension which is contrary to this study⁸. This might be due to poor dietary practices and unhealthy lifestyles.

Study found statistically significant association between awareness with sex ($p=.022$), ethnicity ($p=.024$) and education ($p=.029$). Similarly study conducted in India by Mariya, Siddiq, Paul, Thomas, and DR support this study findings which revealed that there was significant association between level of awareness with sex ($p=.014$) and education ($p=.000$)¹¹. This finding is contrast to the study conducted in Nigeria by Akintunde, Akintunde, and Opadijo which showed there was no significant association between level of awareness with education ($p=.617$)⁵. The possible description of it might be due to more social preferences to male for education in Nepalese society and health seeking behavior among educated respondents.

V. Conclusion

Based on the findings of the study it is concluded that almost half of the respondents had inadequate awareness regarding CVD risk factors. Majority of the respondents were aware of smoking as a risk factor of CVD whereas least were aware about only exercising at a gym or in an exercise class won't help lower a person's chance of developing heart disease. Most common CVD risk factors which were seen in higher number of respondents are poor dietary practices, inadequate fruits and vegetables intake, abdominal obesity, overweight and obesity, family history of hypertension, smoking and hypertension. There was significant association between respondents' level of awareness regarding CVD risk factors with sex, ethnicity and education. Overall awareness regarding CVD risk factors is low which may be associated with increased proportion of CVD risk factors.

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