Original Article

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Cardiovascular Health Practice among Adults in a Municipality in Kathmandu District, Nepal

Samiksha Subedee[1], Muna Sharma[2]

[1] Norvic Institute of Nursing Education, Kathmandu Nepal.
[2] Maharajgunj Nursing Campus, Institute of Medicine, Kathmandu Nepal.

Corresponding author: Samiksha Subedee
Norvic Institute of Nursing Education, Kathmandu Nepal.
Email: samikhanal2013@gmail.com
ORCID ID NO: 0000-0002-5604-573X

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Abstract

Background and Aims: Worldwide, cardiovascular diseases lead to the death of around 17.9 million annually in which 85% of those deaths is due to heart attack and stroke. However, most cardiovascular diseases are preventable with modification of behavioural risk factors. Hence, this study was conducted to find out cardiovascular health practice among adults in urban city of Kathmandu.

Methods: A cross-sectional study design was used where data was collected through an in-person interview technique among randomly selected 236 adults residing in Budhanilkantha Municipality of Kathmandu District. Semi-structured interview schedule based on WHO Stepwise approach and literature review was used to collect data. Data was analysed using descriptive statistics (frequency, percentage, median, Interquartile Range) and inferences were drawn with an application of the chi-square test.

Results: Among 236 samples, the majority (81.8%) of the adults had good practice of cardiovascular health. However, few adults (22%) consumed WHO recommended fruits and vegetables and only a quarter of them (36.4%) monitored blood cholesterol. Among them (24.1%) were current alcohol users and (25.4%) were current smokers. More than half (52.1%) were physically active. The practice of cardiovascular health was significantly associated with marital status ($p<0.001$) of the adults.

Conclusion: Although, most of the adults adopted the practice to maintain cardiovascular health, their adherence to monitoring blood cholesterol, adequate intake of the recommended number of fruits and vegetables, and physical activity is low. Hence, awareness programs focusing these facets would be helpful.

Keywords: Cardiovascular, Community Health Practice, Nepal

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Introduction

American Heart Association (AHA) focuses on health promotion and disease prevention for cardiovascular health. Moreover, it has defined seven cardiovascular health components including smoking, physical activity, dietary pattern, body mass index, total cholesterol, blood pressure and fasting plasma glucose.[1] Cardiovascular diseases (CVDs) which refers to the condition that affects heart or blood vessel account for most non communicable diseases (NCD) deaths in around 17.9 million people annually.[2] Globally CVDs account for 24% NCDs related DALYs with heart attack and stroke being the two major causes.[3]

In Nepal, heart attack is the top cause of death while stroke ranks at six.[4] Though, heart attack and stroke are fatal diseases, 85% of heart diseases and stroke are preventable if associated risk factors can be eliminated.[2] WHO Action Plan for the prevention and control of NCDs is adopted in Nepal focusing adult population regarding implementation of cardiovascular health components.[5] However, awareness of CVDs is inadequate in Nepali adults.[6] Even among those with highly adequate knowledge, only a minimal number of populations have satisfactory practice.[7,8]

Therefore, this study was conducted to assess cardiovascular health practice among adults residing in a community of Nepal so that estimation and prevention of CVDs can be done.

Methods

A cross-sectional study was conducted among 236 adults residing in Budhanilkantha Municipality of Kathmandu District in Nepal. Data was collected from 22nd September to 19th October 2019 after getting ethical clearance from Institutional Review Committee (IRC) of Institute of Medicine, Tribhuvan University with Reference no.128 (6-11)^{E2} 076/077. Administrative approval for data collection was obtained from the health section department of Budhanilkantha Municipality and ward offices of the selected wards.

Adults aged 20-60 years, who were able to communicate in Nepali language were included in this study. Sample size was calculated by Cochran formula ($n= Z^2pq/d^2$), where, $p=0.48$.[7] Adding

design effects for cluster sampling, obtained sample size (150) was multiplied by 1.5. Further assuming 5% non-response rate the total sample size for the study was thus obtained as 236.

Multi-stage sampling technique was used where a ward (an administrative unit in a Municipality) was considered as the primary sampling unit (PSU) of this survey. Among 13 wards of Budhanilkantha Municipality, 5 wards were selected by lottery method. Individual toles in ward were considered as clusters and those clusters were taken as the secondary sampling unit (SSU). A list of toles of those five wards were obtained from respective ward office then, two toles were selected from each of the sampled wards using lottery method leading to the selection of 10 toles. Then area was mapped and each household was assigned with the help of members of tole development committee and Female Community Health Volunteers (FCHV). Proportionate number of households was selected from each tole and then visited using systematic random sampling. Among eligible population, one respondent either male or female was selected from each household who was available at the time of interview. If there were more than one family residing in a same house then one family was selected by simple random sampling.

Semi-structured interview schedule was developed using WHO Stepwise Instrument Version 3.2. Part I questionnaire measured socio-demographic information of the respondents. Part II questionnaire measured practice of cardiovascular health of the respondents. There was a total of 17 questions.

Questionnaires were constructed in English and then translated to colloquial Nepali language with the help of Nepali language experts which was was pretested in 23 adults. After pretesting, the instrument was reviewed and modified and Cronbach alpha was calculated to maintain internal consistency which was 0.71. Before data collection, informed consent was taken to and confidentiality was ensured beforehand and throughout the study. WHO Show cards were used to clarify the questions.

Obtained data were entered into IBM SPSS version 16 and analysed by using descriptive statistics (frequencies, percentage, median, interquartile range) and inferential statistics (chi-square test). Then data normality was checked with application of Kolmogorov-Smirnov test. The data distribution was identified to be skewed with p value was p=0.007 hence median score percentage and interquartile range was calculated in descriptive statistics and non-parametric test (chi-square) was used to examine the association between dependent and selected variables.

Results

The median age of the respondents was 35 with interquartile range 28– 45 years. More than half (54.7%) were female and 79.7% were married, and almost all (90.6%) were literate. Similarly, 34.7% were self-employed, 18.2% had self-reported morbidities, and 39% had family history of morbidities. (Table 1).

Table 1. Socio Demographic Characteristics of the Respondents n =236

Characteristics	Number	Percentage
Age (in completed years)		
20-29	65	27.5
30-39	79	33.5
40-49	50	21.2
50-59	37	15.7
60-69	5	2.1
Sex		
Female	129	54.7
Male	107	45.3
Marital Status		
Married	188	79.7
Single*	48	20.3
Ethnicity		
Janjati	115	48.7
Brahmin/Chhetri	103	43.6
Dalit	12	5.1
Others†	6	2.6
Educational status		
Cannot read and write	22	9.3
Can read and write	214	90.7
Informal	13	6
Basic	37	17.2
Secondary	87	40.6
University	77	35.9
Occupation		
Self-employed	82	34.7
Service	69	29.2
Home-maker	48	20.3
Agriculture	8	3.4
Others‡	29	12.3
Self-reported Morbidities §	43	18.2
Hypertension	38	88.37
Diabetes Mellitus	8	18.60
Dyslipidaemia	7	16.27
Family history of Morbidities§	92	39
Hypertension	66	71.7
Diabetes Mellitus	19	43.47
Dyslipidaemia	3	11.97

**unmarried and widow, † Madhesi &Thakuri , ‡student, unemployed and retired §multiple response*

TABLE 2: Cardiovascular Health Practice among Respondents n =236

Characteristics	Number	Percentage
Fruit Intake (day/week)		
Daily	72	30.5
5-6 days	19	8.1
3-4 days	99	41.9
1-2 days	39	16.5
none	7	3.0
Servings of Fruits/per day		
≥2 servings	199	84.3
1 serving	30	13.1
Vegetables Intake (day/week)		
Daily	124	52.5
5-6 days	39	16.5
3-4 days	63	26.7
1-2 days	10	4.2
Servings of Vegetables/ per day		
≥3 servings	156	66.1
2 servings	71	30.2
1 serving	9	3.8
Adequate intake (≥5servings fruits and vegetables daily)	52	22
Inadequate intake (<5servings fruits and vegetables daily)	184	78
Consumption of processed foods high in salt (Chips, Noodles, Kurkure, Titaura, Dalmot, Preserved Pickle)/week		
Daily	8	3.4
5-6 days	13	5.5
3-4 days	53	22.5
1-2days	100	42.4
Never	62	26.27
Consumption of saturated fat (ghee)/week		
Daily	12	5.1
5-6 days	12	5.1
3-4 days	33	14.0
1-2 days	113	47.9
Never		
Moderate Physical Activity at Least 30 Minutes/Week	66	27.96
Adequate(≥5days/week)	123	52.11
Inadequate(<5days/week)	113	47.88
Daily Yoga	30	12.7
Daily Meditation	2	0.8
Smoking and Smokeless Tobacco Consumption		
Never	168	71.2
Current	60	25.4
Former	8	3.4
Alcohol consumption		
Never	167	71.2
Current	57	24.1
Former	11	4.7
Health monitoring (Within last one year)		
Blood Pressure	212	89.8
Body Weight		89.4
Blood sugar	117	49.6
Blood Cholesterol	86	36.4

The study observed that only 22% consumed ≥5 servings of fruits and vegetables daily. Processed food was consumed by 3.8% of respondents daily whereas around one-fourth (26.27%) adults never consume processed food. Similarly, 5.1% of the respondents said that they consume saturated fat (ghee) whereas one fourth (27.96%) never consume saturated fat. More than half (52.11%) respondents did adequate physical activities like brisk walking, jogging, playing sports and gardening at least 30 minutes daily. Only 12% of the respondents said that they do yoga daily. Similarly, around a quarter (25.4 %) respondents practised smoking and consumed alcohol 24.1%. Majority of the respondents (89.8%) got their blood pressure checked but only one-third (36.4%) got their blood cholesterol checked within the last one year (Table 2).

Table 3. Level of Practice Regarding Cardiovascular Health among Respondents n =236

Level of Practice	Number	Percentage	Median Practice Score % (Inter Quartile Range)
Good (≥50%)	193	81.8%	[63.15 (52.63-78.94)
Poor (<50%)	43	18.2%	
Total	236	100.0	

Cardiovascular health practice was good among the majority (81.8%) of the respondents with median practice score percentage 63.15 and interquartile range 52.63-78.94 (Table 3).

Table 4: Association between Level of Practice on Cardiovascular Health and Selected Variables n=236

Variables	Level of Practice		Total	χ^2	p -value
	Good n(%)	Poor (%)			
Sex					
Male	86 (80.4%)	21 (19.6%)	107		
Female	107(82.9%)	22 (17.1%)	129	0.260	0.610

Age Group					
20-40	123(79.4%)	32 (20.6%)	155	1.782	0.182
41-60	70(86.4%)	11 (13.6%)	81		
Education Level					
Cannot read and write	15 (68.2%)	7 (31.8%)	22	3.011	0.083
Can read and write	178 (83.2 %)	36 (16.8 %)	214		
Ethnicity					
Janjati	89 (77.4%)	26(22.6%)	115		
Brahmin/ Chhetri	89 (86.4%)	14(13.6%)	103	2.996	0.224
Others#	15(83.3%)	3(16.7%)	18		
Marital Status					
Married	165(87.8%)	23(12.2%)	188	22.23	0.000*
Single+	28(58.3%)	20(41.7%)	48		
Occupation					
Service	60 (87.0%)	9(13.0%)	167	1.754	0.185
Non-service	133(79.6%)	133(79.6)	69		
Family History of Morbidities					
Yes	77(83.7%)	15(16.3%)	92	0.371	0.542
No	116(80.6%)	28(19.4%)	144		

*p-value significance at α <0.05
#Dalit, Madhesi and Thakuri, + Unmarried and Widow

The association between cardiovascular health practice and socio-demographic variables were assessed. There was statistically significant better practice of cardiovascular health among married respondents (p<0.001 at 5% level of significance). (Table 4).

Discussion

In this study, 22% adults consumed WHO recommended amount of fruits and vegetables which is consistent with the study findings of Tanzania where 18% respondents had adequate amount of fruits and vegetables consumption.[9] This finding is also consistent with a similar study in Nepal where 11.4% people consumed adequate fruits and vegetables regularly.[10] In some countries studies have shown people consume even less (6.1%) amount of fruits and vegetables.[11] This reveals that people don't consume enough fruits and vegetables that may be due to various factors such as economic condition or lack of knowledge regarding their benefits.

Furthermore, in the current study, more than half (52.11%) adults had adequate physical activity with 12.7% doing regular yoga exercises, which is similar to another study done in Nepal and also in Kuwait where regular physical activity was practised in 50.8% and 45% respectively.[12,7]

In this study 25.4% adults had smoking habit which is consistent with the previous studies in Nepal.[13,10] However, only 3.1% respondents had a smoking habit in Malaysia[14]. These differences might be due to differences in study population and setting. This study further reveals that 24.2% adults had an alcohol consumption habit which is consistent with the findings of previous study in Nepal where 27% adults had alcohol consumption.[10]

Furthermore, in this study, most of (89.8%) the adults had measured their BP within a year which is similar to the study findings of Lebanon where 74.7% individuals monitored their BP once a year.[11] Likewise, one third (36.4%) adults had monitored their blood cholesterol level in the current study which is also similar among Lebanese.[11]

In the present study, good cardiovascular health practice was among most (81.8%) of the respondents which is consistent with the study of Nepalese and Malaysian.[5,12] However poor preventive practice was found in another study among Nepalese people.6 This difference might be due to setting, sample size and instrument and time duration. Present study reveals that the majority of adults have poor practice regarding fruits and vegetables consumption and regular monitoring of health status therefore, this study has implications on strengthening the cardiovascular health programs for adults. This study revealed all the behavioural activities concerned with maintaining cardiovascular health.

Limitations

This study was limited to adults living in Budhanilkantha municipality. Therefore, findings of this study may not be generalised to other settings. Similarly, the preventive practice to maintain cardiovascular health was self-reported by the respondents.

Conclusion

Most of the adults have adopted good cardiovascular health practice to maintain health. However, their adherence to monitoring of blood cholesterol, adequate intake of fruits and vegetables and adequate physical activity is low. Married people had better cardiovascular health practice. Therefore, health section of the concerned Municipality might consider implementing health awareness programs regarding recommended dietary intake, physical activity and periodical health monitoring to maintain cardiovascular health. However, further study is needed to find out actual preventive practices related to cardiovascular health.

Conflict of Interest: None

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