

Lifestyle patterns on prevention of coronary artery disease among hypertensive clients, attending a tertiary hospital, Kathmandu

Mahato AK¹, Onta M², Mishra TA³

¹Anju Kumari Mahato, Instructor, Biratnagar Nursing Campus; ²Mandira Onta, Professor and Assistant Dean, TU IOM;

³Tulashi Adhikari Mishra, Associate Professor, Maharajgunj Nursing Campus, Maharajgunj, Kathmandu, Nepal.

Abstract

Background: Hypertension is one of the major risk factors for cardiovascular disease, especially for coronary artery disease. Healthy lifestyles will delay the progression of coronary artery disease.

Objectives: To find out the life style pattern on prevention of coronary artery disease among hypertensive clients.

Methodology: This is a descriptive; cross sectional research design based on quantitative approach. Non probability purposive sampling was used to select 202 respondents attending Outpatient Department at Manmohan Cardiothoracic Vascular and Transplant Centre, Kathmandu. Data was collected by interview technique using semi-structured questionnaire by researcher herself. Descriptive and inferential statistics were used to analyze the data.

Results: Findings of the study showed that 7.90% of hypertensive clients consumed ≥ 5 servings of fruits and vegetables per day, whereas 97.52% were engaged in vigorous intensity work and current tobacco and alcohol consumers were 28.57% and 33.80% respectively. Adherence to all four healthy lifestyle pattern (Diet, Physical Activity, Tobacco Use and Alcohol Consumption) was 32.7%, whereas more than half (58.9%) of the clients adhered to three lifestyle pattern. There was significant association between dietary pattern, economic status ($p = 0.018$) and ethnicity ($p = <0.001$); and tobacco use and sex ($p = <0.001$).

Conclusion: Adherence to healthy lifestyle pattern of hypertensive clients was inadequate. Thus, health education and other interventions to promote healthy lifestyle pattern are suggested.

Key words: Coronary artery disease; Hypertension; Lifestyle pattern

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INTRODUCTION

Hypertension is one of the leading causes of the global burden of disease. Cardiovascular disease risk doubles for every 20-mmHg increase in systolic and 10-mmHg increase in diastolic pressure. Hypertension is often associated with additional cardiovascular disease risk factors, and the risk of cardiovascular disease increases with the total burden of risk factors⁷. Age Adjusted Death Rates per 100,000 Population of hypertension in the United States of America is 14.64, India is 18.52, whereas in Nepal is 20.77¹³.

Coronary artery disease (CAD) is a major cause of morbidity and mortality in Nepal. In Nepal the prevalence of hypertension as highest risk factor of coronary artery disease is 35.3%. Majority of risk factors for CAD are modifiable, timely intervention and prevention can help in morbidity and mortality due to this disease⁶.

A healthy lifestyle is a way of living which lowers the risk of being seriously ill¹⁴. Most of the Non-Communicable Diseases (NCDs) are due to certain lifestyle risk factors like tobacco use, alcohol intake, lack of proper physical activity, lack of proper diet, etc. Each year 7.2 million deaths are due to tobacco, 4.1 million due to excessive salt intake, 3.3 million due to alcohol intake and 1.6 million due to insufficient physical activity¹⁵.

Address for correspondence

Ms. Anju Kumari Mahato
Instructor, TU IOM Biratnagar Nursing Campus, Biratnagar
E-mail: anjujaisawal@gmail.com

Awareness level of hypertensive patients is still low regarding lifestyle. The modification of life style is satisfactory for most risk factors, except for a few like salt intake, additional salty food and number of sticks of cigarettes smoking. So, focus should also be given on modification of lifestyle for reducing the adverse consequences of hypertension¹. The overall prevalence of the healthy lifestyle indicator (i.e., having all 4 Healthy Living Characteristics) was only 3.0%. Healthy lifestyle defined as a combination of 4 HLCs was undertaken by very few adults in the United States, and no subgroup followed this combination to a level remotely consistent with clinical or public health recommendations¹⁰.

METHODOLOGY

Descriptive cross sectional study design based on quantitative approach was adopted for this study. The study setting was Manmohan Cardiothoracic Vascular and Transplant center, Kathmandu, Nepal. Study population was hypertensive clients attending outpatient department. Non-probability Purposive sampling technique was adopted and sample size was 202. Respondents aged 20 to 60 years, with history of having hypertension and diagnosed at least before 6 month were included in the study.

Approval for research and data collection was taken from Research Committee, Maharajgunj Nursing Campus, Institutional Review Board (IRB), and Institute of Medicine. Informed consent was taken from the client and confidentiality was maintained. Data was collected through face to face interview technique using semi structured questionnaire by researcher herself. On an average 8 to 10 clients were interviewed per day and the average time required for an interview was approximately 30 minutes. The data was collected from 2nd July to 28th July, 2017 for a period of 4 weeks. After data collection, informal health teaching was given to client. The collected data was analyzed by using descriptive statistics e.g. Mean, Median, Mode, Standard Deviation and range. Chi-square was used to identify association between lifestyle pattern regarding prevention of CAD and selected variables.

RESULTS

The mean age of the respondents was 50.37 ± 9.00 years. Majority of respondents (82.2%) were in age group 41

to 60 years. Likewise, female respondents were 64.4%. Based on address, 52% were from inside the Kathmandu valley. Above half of the respondents (53%) belonged to Upper caste group and very few (2%) were Dalit. About two third of respondents (67.37%) were literate and 28.67% were bachelor degree completed and above, and 6.61% were less than primary level. About 36.10% were homemaker and 9% were dependent. Approximately two third (63.36%) of respondents had income enough for twelve months and surplus and 2.97% had income enough for less than six months. Almost all of the respondents 191 (94.55%) had history of ≥ 15 years of hypertension. Among them 196 (97%) respondents had compliance with the treatment (Table 1).

Regarding diet, 164 (81.18%) were non vegetarian and 100 (60.97%) consumed chicken. Only 16(7.9%) of respondents took more than or equal to 5 serving of fruit and or vegetable. About 163(80.69%) of respondents never took additional salt and nearly half of them i.e. 97 (48.01%) never took processed food. Likewise, in physical activity of the respondents only 71(35.14%) did vigorous intensity work; about 70.79% of the respondents were sitting less than 23 hours in a week in leisure time. Most of them: 167 (82.67%) did high physical activity. This study showed 63 (31.18%) of the respondents were using tobacco; among them 18(28.57%) were current users. About 45(71.42%) were using smoked tobacco. Regarding alcohol consumption, about 71(35.14%) of the respondents consumed alcohol and 24(33.33%) of them were current user.

Overall, lifestyle pattern of the respondents, 76(37.6%) were taking healthy diet. 197 (97.5%) were physically active, 184(91.1%) did not use tobacco currently and only 197(97.5%) were not consuming alcohol currently. Among all four healthy lifestyle patterns, 66(32.7%) of respondents adhered to all four healthy life style pattern (Table 6)

This study showed that there is significant statistical association between dietary pattern of the respondents with economic status (p-value 0.018) and ethnicity (p-value<0.001). Similarly, there was association between sex and smoking status (p-value<0.001). Likewise, there was association between educational statuses with alcohol consumption (p-value 0.037).

Table 1: Respondent's lifestyle pattern: Diet (n=202)

Variables	Number	Percentage
Type of diet		
Non-vegetarian	164	81.18
Vegetarian	38	18.81
Type of meat (n=164)		
Chicken	100	60.97
Mutton	42	25.60
Buffalo	14	8.53
Fish	6	3.65
Whole egg	1	0.60
Pork	1	0.60
Frequency of eating meat in a week (n=164)		
Weekly	72	43.90
Twice weekly	37	22.56
Occasionally	34	20.73
Alternate day	12	7.31
Daily	9	5.48
Type of cooking pattern (n=202)		
Shallow frying	118	58.41
Making Gravy	65	32.17
Deep frying	13	6.43
Boiling/steaming	6	2.97
Types of oil/fat (n=202)		
Sunflower oil	116	57.42
Mustard oil	60	29.70
Soya bean oil	21	10.39
Maize oil	3	1.48
Butter or ghee	2	0.99
Intake rate of dairy product (n=164)		
Daily	80	48.80
Sometimes	66	40.20
Alternate day	11	6.70
Once a week	4	2.40
Twice a week	3	1.80
Intake of dairy product (n=164)*		
Milk without Cream	89	54.30
Curd	57	34.80
Milk with Cream	46	28.00
Paneer	17	10.42

*Multiple Responses

Table 2: Respondent's lifestyle pattern: Fruits, vegetables and salt

Variables	Number	Percentage
Intake rate of fruit		
Occasionally	82	40.60
Daily	68	33.70
Alternate day	29	14.40
Twice weekly	14	6.90
Weekly	9	4.50

Table 2 cont...

No. of fruit serving per day		
0 to 3 serving per day	201	99.50
3 to 5 serving a day	1	0.50
≥ 5 serving	0	0.00
Intake rate of vegetables		
Daily	189	93.60
Alternate day	8	4.00
Occasionally	4	2.00
Twice weekly	1	0.50
No. of vegetable serving per day		
0 to 3 serving per day	178	88.10
3 to 5 serving per day	22	10.90
≥ 5 serving	2	1.00
No. of fruit and vegetable serving per day		
0 to 3 serving per day	101	50.00
3 to 5 serving per day	85	42.10
≥ 5 serving	16	7.90
Additional salt needed		
Never	163	80.69
Sometimes	17	8.41
Rarely	17	8.41
Always	5	2.47
Consume processed food		
Never	97	48.01
Sometimes	56	27.72
Rarely	44	21.78
Always	5	2.47

Table 3: Respondent's lifestyle pattern: Physical activities

Variables	Number	Percentage
Vigorous intensity work(> 3,000 METs minutes/week)		
Yes	71	35.14
No	131	64.85
Moderate intensity work(600–3,000 METs minutes/week)		
Yes	197	97.52
No	5	2.47
Sitting hour per week		
<23 hours per week	143	70.79
>23 hours per week	59	29.20
Physical activity per week		
High	167	82.67
Moderate	30	14.85
Low	5	2.47

Table 4: Respondent's lifestyle pattern: Tobacco use

Variables	Number	Percentage
Tobacco used		
Yes	63	31.18
No	139	68.81
Tobacco used status (n=63)		
Current	18	28.57
Former	45	71.42
If Former year of stop amoking (n=45)		
>3 Years	33	73.33
0-2 Years	12	26.66
Duration exposed to tobacco		
>10 Years	39	61.90
0-10 Years	24	38.09
Type of tobacco used (n=63)		
Smoked only	45	71.42
Smokeless only	12	19.04
Both	6	9.52
Sticks of smoking per day (n=51)		
≤ 10 Sticks	38	74.50
>10 sticks	13	25.49

Table 5: Respondent's lifestyle pattern: Alcohol consumption

Variables	Number	Percentage
Alcohol consumption		
Yes	71	35.14
No	131	64.85
Alcohol used status (n=71)		
Current	24	33.80
Former	47	66.20
Frequency of current alcohol intake (n=24)		
Less than once a month	16	66.70
Daily	6	25.00
1-3 days per week	1	4.20
1-4 days per week	1	4.20
Type of alcohol (n=24)*		
Local alcohol (Raksi)	15	62.50
Beer/Jaand/Tumba	7	29.16
Wine	6	25.00
Whisky	3	12.50
Amount of alcohol consumption per day (n=24)		
1 Drink	19	79.20
>1 drink	5	20.80

*Multiple Responses.

Table 6: Overall adherence to healthy lifestyle pattern of the respondents

Variables	Number	Percentage
One of healthy lifestyle pattern	1	0.5
Two of healthy lifestyle pattern	16	7.9
Three of healthy lifestyle pattern	119	58.9
All four of healthy lifestyle pattern	66	32.7

DISCUSSION

Regarding the dietary pattern, most of the respondents (81.18%) were non-vegetarian which is similar to the finding of another study done in Bharatpur which showed slightly lower percentage (i.e. 4%) of vegetarian¹¹. Only 1% of respondents use ghee in replacement of cooking oil (mustard, soybean, sunflower oil) which is also supported with the finding (2%) of study done in Sindhuli District⁴. The status of fruit and vegetable intake of respondents in this study were: 99.5% of them took 0 to 3 serving of fruit per day and 88.1% took 0 to 3 serving of vegetable per day. Only few of them (7.9%) took ≥ 5 serving of fruit and or vegetable and average consumption was 2.8 servings of fruit and vegetables per day. The finding of the study supported with the various studies, sufficient fruits and vegetables consumption (≥ 5 servings/day) was lacking in 96.6% of respondents⁴, only 1.1% of the survey population consumed the recommended five or more servings of fruit and vegetables per day². In contrast 23.3% of persons consumed fruits and vegetables 5 or more times per day¹⁰, adequate fruit vegetable consumption was 23%⁸. Disparity in findings might be due to more awareness in developed countries.

Almost all (97.52%) of them were engaged in moderate intensity activity and only 2.47% of the respondents had done low physical activity. The finding of the study inconsistent with the findings of study which showed 11.6% of respondents were engaged in a moderate level of physical activity, 43.3% exhibited low physical activity¹², 38.9% did not participate in any physical activity⁵ and nearly half of respondents (48.8%) insufficiently (≤ 5 days per week) involved in moderate physical activity⁴. The reason of the difference in finding might be study site and population. This study is confined to hospital based and diseased population, where the respondents may be aware about preventive measures. Regarding tobacco use approximately one third of (31.18%) the respondents were using tobacco; among them 28.57% were current user. About 61.9% of respondents were exposed to tobacco for more than 10 years and 73.33% stopped taking tobacco more than 3 years prior to the study. About 69.84% were using smoked tobacco and

74.50% used less than 10 sticks per day. More than one third (35.14%) of the hypertensive clients consumed alcohol and one third (33.33%) of them were current user which was higher than other study, that was 17.4% current drinkers².

About 32.7% of hypertensive clients adhered to all four healthy lifestyle patterns (i.e. Diet pattern, physical activity, tobacco use and alcohol consumption), whereas, 58.9% of respondents were adhere to three healthy lifestyle pattern, and few of them (7.9%) and (0.5%) had two and one lifestyle pattern respectively. In contrast, with the study in which only 3% of the respondents had all four healthy living characteristics, 13.8% had three healthy living characteristics and 34.2%, 39.6%, and 9.4% had two, one and zero healthy living characteristics respectively¹⁰. Similarly, another study showed only 14.5% of adolescent, adult, and senior health plan members meet recommended guidelines for four common healthy lifestyle factors and only 10.8% of adults and 12.8% of seniors met all five behavior-related factors⁹. The contrasting result might have been brought by difference in study population. This study population was confined to specific disease population than above mentioned studies.

In this study, there was significant statistical association between dietary pattern and economic status ($p = 0.018$) and ethnicity ($p = < 0.001$). Study result supported by other study that, socially adjudged higher caste group (Brahman and Chhetri) and upper lower class people ($p = 0.014$) had significantly high prevalence of inadequate amount of fruits and vegetables consumption⁴. Likewise, the findings of the study showed that approximately one third of (31.18%) of the respondents were using tobacco; among them 28.57% were current user, showing significant association ($p < 0.001$) between tobacco consumption and sex of hypertensive clients which is supported by various studies; i.e. the overall prevalence of current smoking was 18.5%², history of current smoking was 38.7%⁶ and 5.2% of the respondents reported current cigarette smoking and it was statistically significant with sex ($p < 0.001$)³. Similarly, the alcohol consumption was statistically significant with

educational status ($p = 0.032$) which is consistent with the findings of the study which showed, people without formal schooling, had significantly high indulgence to alcohol than others ($p = 0.0001$)⁴.

CONCLUSION

More than one third of the hypertensive clients are taking recommended diet, but almost all of them are physically active. Few of the hypertensive clients are current tobacco user. Almost all of the clients either did not drink alcohol or drank the recommended standard

drinks per day. Only one third of the respondents adhered to all four healthy life style pattern (Diet, Physical activity, Tobacco use and Alcohol consumption). There is significant association between dietary pattern and economic status and ethnicity. Tobacco use is significantly associated with sex.

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REFERENCES

- Acharya R, Chalise HN. Life style of patient before and after diagnosis of hypertension in Kathmandu. Health. 2011 Aug 10;3(08):490. [FullText]
- Aryal KK. Non communicable diseases risk factors: STEPS Survey Nepal 2013. Nepal Health Research Council (NHRC); 2014. [FullText]
- Awosan KJ, Ibrahim MT, Essien E, Yusuf AA, Okolo AC. Dietary pattern, lifestyle, nutrition status and prevalence of hypertension among traders in Sokoto Central market, Sokoto, Nigeria. International journal of nutrition and metabolism. 2014 Jan 31;6(1):9-17. [FullText]
- Dhungana RR, Devkota S, Khanal MK, Gurung Y, Giri RK, Parajuli RK et al. Prevalence of cardiovascular health risk behaviors in a remote rural community of Sindhuli district, Nepal. BMC cardiovascular disorders. 2014 Dec; 14(1):92. [PubMed]
- Haenle MM, Brockmann SO, Kron M, Bertling U, Mason RA, Steinbach G, Boehm BO, Koenig W, Kern P, Piechotowski I, Kratzer W. Overweight, physical activity, tobacco and alcohol consumption in a cross-sectional random sample of German adults. BMC public health. 2006 Dec;6(1):233. [DOI]
- Kalra S, Narain S, Karki P, Ansari JA, Ranabhat K, Basnet N. Prevalence of risk factors for coronary artery disease in the community in eastern Nepal-a pilot study. JAPI. 2011 May;59:1-2. [PubMed]
- Kasper DL, Fauci AS, Hauser SL, Longo DL, Jameson JL & Loscalzo J. Harrison's Principles of Internal medicine (19th ed.) United States of America: Mc Grew Hill Education;2015.
- Pikala M, Kaleta D, Bielecki W, Maniecka-Bryla I, Drygas W, Kwasniewska M. Awareness of cardiovascular prevention methods among residents of post-communist Polish provinces with highest mortality rates. Central European journal of public health. 2011 Dec 1; 19(4):183. [FullText]
- Pronk NP, Anderson LH, Crain AL, Martinson BC, O'Connor PJ, Sherwood NE, Whitebird RR. Meeting recommendations for multiple healthy lifestyle factors: prevalence, clustering, and predictors among adolescent, adult, and senior health plan members. American journal of preventive medicine. 2004 Aug 1; 27(2):25-33. [FullText]
- Reeves MJ, Rafferty AP. Healthy lifestyle characteristics among adults in the United States, 2000. Archives of Internal Medicine. 2005 Apr 25;165(8):854-7. [DOI]
- Twayana RS, Adhikari B, Humagain S, Koju R, Panjiyar R, Rana PVS. Assessment of risk factors for coronary artery disease in patients admitted to college of medical sciences, Bharatpur, Chitwan, Nepal- A Prospective Observational Study. Journal of Cardiology and Clinical Research.2016;4(1):1053 [FullText]
- Vaidya A, Aryal UR, Krettek A. Cardiovascular health knowledge, attitude and practice/behaviour in an urbanising community of Nepal: a population-based cross-sectional study from Jhaukhel-Duwakot Health Demographic Surveillance Site. BMJ open. 2013 Oct 1;3(10):e002976. [DOI]
- WHO. Global status report on Non Communicable Diseases. (2014). Geneva: WHO. [FullText]
- WHO. Healthy lifestyle. (2017). Available from: http://apps.who.int/ris/bitstream/10665/108180/1/EUR_ICP_LVNG_01_07_02 [FullText]
- WHO. Non communicable diseases. Fact sheet. Geneva: WHO. (2017). [FullText]