Original Article

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# Cardiovascular Health Risk Behavior Among Undergraduate Students of Purbanchal University School of Health Sciences, Morang, Nepal

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## ABSTRACT

***Introduction:*** *Cardiovascular diseases (CVDs) are listed as one of the main causes of mortality and morbidity. Lifestyle-related behavioral risk factors are mainly implicated in the increased burden of cardiovascular diseases. The study aims to assess the cardiovascular health risk behavior among undergraduate students.*

***Methods:*** *A descriptive cross-sectional study was conducted from March to August 2020 among 180 undergraduate university students. Data was collected online through a web link using an edited WHO-NCD stepwise approach questionnaire and analyzed using SPSS. Ethical clearance was obtained from the IRC of Purbanchal University School of Health Sciences.*

***Results:*** *The majority (96.7%) of respondents were female, nearly half (47.2%) were from nursing, and most (81.7%) were unmarried and had a single family (76.7%). Among them, 5.4% were occasional smokers. Most (72.2%) of the students started to consume alcohol. Although 81% of them thought that lowering salt intake in their diet was very important, 74.4% of students often eat processed foods high in salt. Almost all (95%) of students said that extra salt or salty sauce in their diet could cause health problems. However 65% of them were not doing anything regularly to control salt intake, and 77% of the students did not practice any physical exercise. Few (5.6%) and (2.2%) students had raised blood pressure and total cholesterol levels, respectively.*

***Conclusion:*** *The undergraduate students have insufficient physical activity, inadequate fruit intake, and use of high levels of salt and salty products. Therefore, intervention is required to reduce these high-risk behaviors, related to cardiovascular diseases in the future.*

***Keywords:*** *Cardiovascular Disease, Health Risk Behavior, Undergraduate Students*

## INTRODUCTION

As a routine surveillance or registry system is absent, the actual burden and trend of CVDs in Nepal are unknown. However different data from various sources do indicate that the problem is common and increasing for many CVDs, especially coronary heart disease (CHD) and its risk factors. As a result, the present dangers of NCDs place a double burden on low- and middle-income countries.[1] Chronic conditions take a long time to develop. The four most prevalent non-communicable diseases (NCDs) are malignancies, chronic respiratory diseases, diabetes mellitus, and cardiovascular diseases. It happens to people of all ages. More than 36 million people die from NCDs each year, making them the leading cause of mortality and disability worldwide. NCDs threaten not only the health but also the economic and political security of countries all over the world.[2]

Like many developing countries, Nepal is combating a double burden of disease, communicable and non-communicable diseases, with CVDs being the most common among the latter. The speedily increasing CVD death rate is projected to rise to 23 million by 2030.[3] Over three-quarters of NCD deaths occurred in low- and middle-income countries, with about 46% of deaths occurring before the age of 70.[4] Globally, the distribution of various risk factors associated with high mortality rates is hypertension (16.5%) and high blood glucose (6%) Among the behavioral risk factors, tobacco use (9%), physical inactivity (6%), and overweight and obesity (5%) are the major risk factors for global death.[5] Studies done, particularly in the last decade, have shown that conventional risk factors are present in a high proportion of the Nepalese population.[6] Nepal has to deal with its limited resources and the increasing problem of NCDs, including CVDs. Tracking NCDs at an early age is very important to prevent their occurrence at a later age[7] Thus, this study aims to assess CVD health risk behaviors among university students.

## METHODS

A total of 180 undergraduate students of the Purbanchal University School of Health Sciences participated in a cross-sectional descriptive study from March to August 2020. A modified WHO-NCD Stepwise Approach questionnaire was used to collect data through a web link. There are three steps to it; however, only Step I was applied in this study. It includes basic and in-depth questions about smoking, drinking, eating fruits and vegetables, and engaging in physical activity. The online survey questionnaire was divided into two sections: one contained socio-demographic data, and the other contained a modified version of the WHO NCD stages instrument.

The Institutional Review Committee (IRC) of the School of Health Science at Purbanchal University provided ethical approval. Each subject gave their informed consent before beginning the study. Throughout the whole study, confidentiality and privacy were maintained. Google's sample size calculator was used to calculate the sample using the following parameters: Precision - 5%, Prevalence - 40%, Population size - 350, Confidence Interval - 95%, and estimated sample size (n) was 180.[8] The sample was selected using a web-based, convenient, non-probability sampling technique. Students who were available and willing to participate at the time of data collection via a web connection were included in the study, while those who were reluctant to participate were eliminated. SPSS version 20 was used to analyze the data.

## RESULTS

The result has been presented as socio-demographic characteristics of respondents and Health risk behaviors of students.

**Table 1: Socio-demographic Characteristics of Students (n = 180)**

| Characteristics | Number | Percentage |
|---|---|---|
| **Age** | | |
| ≤ 20 years | 43 | 23.9 |
| 21-24 years | 102 | 56.7 |
| ≥ 25 years | 35 | 19.4 |
| **Mean age ±SD** | **22.37±2.51 years, (range: 18-27 years)** | |
| **Gender** | | |
| Male | 6 | 3.3 |
| Female | 174 | 96.7 |
| **Program** | | |
| BSN | 85 | 47.2 |
| PBNS | 68 | 37.8 |
| BPH | 19 | 10.6 |
| B. Pharmacy | 8 | 4.4 |
| **Year of Study** | | |
| First year/semester | 51 | 28.3 |
| Second year/semester | 53 | 29.4 |
| Third year/semester | 47 | 26.1 |
| Fourth year/semester | 29 | 16.1 |
| **Types of family** | | |
| Single | 138 | 76.7 |
| Joint | 42 | 23.3 |
| **Marital status** | | |
| Unmarried | 147 | 81.7 |
| Married | 33 | 18.3 |
| **History of Raised Blood Pressure** | 10 | 5.6 |
| **History of Raised Total Cholesterol** | 4 | 2.2 |

Table 1 shows that more than half (56.7%) were in the age group 21-24 years. The mean age of students was 22.37±2.51 years. Almost all (96.7%) of the students were female, studying in their second year/semester (29.4%), and from BSN (47.2%). Most (81.7%) of the students were unmarried and from a single family (76.7%). Few (5.6%) and 2.2% of the students had a history of raised blood pressure and total cholesterol, respectively.

**Table 2: Smoking and Alcohol Consumption Behavior of Students (n = 180)**

| Variables | Number | Percentage |
|---|---|---|
| **Smoking** | | |
| Currently smoking | 0 | 100 |
| Past smoker | 1 | 1.8 |
| Occasional smoking | 3 | 5.4 |
| **Someone smokes at home** | 152 | 84.4 |
| Yes | 28 | 15.6 |
| No | | |
| **Someone smokes in closed areas in workplace/study areas** | 113 | 62.8 |
| | 46 | 25.6 |
| Yes | 21 | 11.7 |
| No | | |
| Don't work/study in a closed area | | |
| **Alcohol** | | |
| **Ever consumed any alcohol** | 130 | 72.2 |
| Yes | 50 | 27.8 |
| No | | |
| **Consumed alcohol within 12 months** | 31 | 17.2 |
| Yes | 49 | 82.8 |
| No | | |
| **Consumed alcohol within 30 days** | 10 | 5.6 |
| Yes | 170 | 94.4 |
| No | | |
| **Stop drinking due to health reasons** | 8 | 4.4 |
| Yes | 172 | 95.6 |
| No | | |

Table 2 shows that no students were regular smokers, but 5.4% of the students were occasional smokers. Around 69% stated that someone smokes in closed areas at the workplace/study areas/home. That means 69% were passive smokers. Likewise, 72.2% ever consumed alcohol in their lifetime, and among them, 17.2% consumed alcohol within 12 months, whereas 4.4% stopped alcohol intake due to health issues.

**Table 3: Dietary Behavior of Students (n = 180)**

| Variables | Number | Percentage |
|---|---|---|
| **In a typical week, days of fruit intake** | 132 | 73.3 |
| 1-2 days | 48 | 26.7 |
| 3-4 days | | |
| **Frequency of adding salt or eating salty sauce** | 11 | 6.1 |
| Always | 33 | 14.4 |
| Often | 107 | 59.4 |
| Sometimes | 26 | 14.4 |
| Rarely | 3 | 1.7 |
| Never | | |
| **Frequency of eating processed food high in salt** | 10 | 5.6 |
| | 134 | 74.4 |
| Always | 22 | 12.2 |
| Often | 7 | 3.9 |
| Sometimes | 7 | 3.9 |
| Rarely | | |
| Never | | |
| **Perceived amount of salt or salty sauce you consume** | 81 | 45.0 |
| | 56 | 31.1 |
| Too much | 33 | 18.3 |
| Just the right amount | 10 | 5.6 |
| Too little | | |
| Far too little | | |
| **Perceived importance of low salt intake in diet** | 81 | 45.0 |
| Very important | 56 | 31.1 |
| Somewhat important | 33 | 18.3 |
| Not at all important | 10 | 5.6 |
| Don't know | | |
| **Perceived disadvantages of high intake of salt or salty sauce in diet** | 171 | 95.0 |
| Yes | 6 | 3.3 |
| No | 3 | 1.7 |
| Don't know | | |
| **Currently, decreasing the amount of salt in the diet** | 63 | 35.0 |
| | 117 | 65.0 |
| Yes | | |
| No | | |

Table 3 shows that the majority of students (73.3%) eat fruit one to two days per week, and on an average day, 75% of them consume fruit three times. About 6% of the students always add salt or salty sauce to their food, whereas 14.4% of the students often use

that, and 59.4% use it sometimes. The majority (74.4%) of the students often eat processed food high in salt. Likewise, 45%of the students thought that they were consuming too much salt in their daily lives. Similarly, 81% of students thought that lowering salt intake in their diet was very important, and almost all (95%) of students said that too much salt or salty sauce in their diet could cause health problems. However, 65% of them were not doing anything regularly to control their salt intake.

**Table 4: Physical Activity-Related Behavior of Students (n = 180)**

| Behavior Related to Physical Activities | Number | Percentage |
|---|---|---|
| **Performing vigorous activity for at least 10 minutes daily** | | |
| Yes | 40 | 22.2 |
| No | 140 | 77.8 |
| **Daily walking or use of a bicycle at least 10 minutes** | | |
| Yes | 121 | 67.2 |
| No | 59 | 32.8 |

Table 4 shows that 22.2% of the students were doing vigorous-intensity activity for at least 10 minutes daily. Whereas about 67% of students walked or used a bicycle for at least 10 minutes.

## DISCUSSION

This study was conducted to assess the cardiovascular health risk behavior of undergraduate students. More than half (56.7%) were in the age group 21-24 years, with a mean age of 22.37±2.51 years. The majority (96.7%) of the students were female, studying in their second year/semester (29.4%), and from BSN (47.2%). Most (81.7%) of the students were unmarried and had single families (76.7%), which was found to be similar to the study by Robinson et.al. conducted in 2019.[9]

Only 5.4% of the students were occasional smokers and 69% were passive smokers, as they had been working/living in closed areas at the workplace/study areas/home where someone smoked. Most (72.2%) of the students have started alcohol consumption, and the study was supported by the study conducted in Pokhara[8], among them, 17.2% consumed alcohol within 12 months, whereas 4.4% stopped alcohol intake due to health conditions. Most (73.3%) of the students eat fruit one to two days per week, and on a typical day, 75% of the students take fruit three times. This result was supported by the study conducted in Lebanon.[10]

Almost all (95%) of students said that too much salt or salty sauce in their diet could cause health problems. However, 65% of them were not doing anything regularly to control their salt intake. Most (77%) of the students did not practice any physical exercise. This result was contrary to the study conducted in a community of Sindhuli;[11] it may be due to the unawareness of its effect on the present study respondents.

## CONCLUSION

The findings of this study concluded that undergraduate students have insufficient physical activity, inadequate fruit intake, and use of high levels of salt and salty products, including alcohol intake. Therefore, intervention is required to maintain healthy habits of life, such as the sensitization of physical activity and healthy eating choices, contributing to the adhesion of a healthy lifestyle.

## LIMITATIONS

Due to time constraints, the study was carried out on a convenient sample and only used step one of the WHO survey instruments. Anthropometric measurement couldn't be possible due to the covid-19 lockdown. There could also be a possibility of respondents and information bias since the results of our study are based on a self-administered questionnaire.

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