

Cardiovascular Health Risk Behavior among Medical Students in a Teaching Hospital

Giri S,¹ Sharma SR,¹ Timalisina S,¹ Yadav V,¹ Koirala S,¹ Kumar A,¹ Neupane S,¹ Neupane M¹

¹Institute of Medicine, Tribhuvan University Teaching Hospital, Kathmandu, Nepal.

ABSTRACT

Background: Medical students are the health care providers of tomorrow. The health behaviors that are acquired in early life and in medical school will influence their future acceptance and practice of preventive strategies including their interaction with patients. The main objective of our study was to assess the health behavior and perceptions of medical students in relation to cardiovascular diseases.

Methods: A cross sectional descriptive study was done among 159 medical students of Institute of Medicine, Tribhuvan University Teaching Hospital in Kathmandu, Nepal from September 2010 to December 2010. Data collection was done using a self administered questionnaire.

Results: The mean age was 22.9 ± 2.5 yrs and a male:female ratio of 2.1:1. Thirty Five (22%) were current smokers, 56 (35%) indulged in episodic heavy drinking, 25 (15.7%) were overweight, 34 (21%) engaged in recommended amount of physical activity, 58 (33%) regulated fat consumption and 46 (28%) regulated salt consumption. Regarding developing cardiovascular disease in the future, 85(53%) showed concern but only 33 (38%) of these adopted preventive practices. 101 (64%) believed that their medical school life had a harmful effect on their health.

Conclusions: Our study shows a high prevalence of cardiovascular risk behaviours among the medical students. This highlights the urgency that we must take to promote preventive knowledge and practices among medical students. This will help them to become prevention oriented clinicians in future to counter the increasing burden of cardiovascular diseases in this part of the world.

Keywords: cardiovascular diseases; health behavior; medical students.

INTRODUCTION

Cardiovascular diseases (CVD) are the leading causes of morbidity and mortality worldwide.¹ Low and middle income countries contribute significantly to the global burden of CVD accounting for 78% of all deaths attributable to this cause.² Countries such as India, Pakistan, Bangladesh, Sri Lanka and Nepal comprising of 20 percent of the world's population have a very high prevalence of CVD.³

In Nepal, few community based studies have suggested a very high prevalence risk factors of CVD in the

general population that includes diabetes mellitus, hypertension, overweight, inadequate physical activity, and tobacco consumption.^{4,5} One way of combating this rising epidemic of CVD is by raising the public health awareness about this disease. The role of health professionals will be crucial in this regard.⁶ Since, medical students of today are the health care providers of tomorrow, their perceptions and behavior regarding the prevention of diseases will strongly influence their future clinical practice.⁷ Emphasizing prevention during medical training can help reduce the mortality and

Correspondence: Dr. Smith Giri, Institute of Medicine, Tribhuvan University Teaching Hospital, Maharajgunj, Kathmandu, Nepal. Email: smithgiri963@gmail.com, Phone: 9841551336.

morbidity of CVD in the world.⁸ Unfortunately, such programs focusing on preventive aspects of medicine are not seen in the medical curricula of the Universities in Nepal.

Although studies regarding the health perceptions and behavior of medical students regarding CVD have been conducted in the developed world,^{7,9,10} few studies have been conducted in Nepal. Hence this study was conducted to determine the prevalence of risk factors of cardiovascular disease among the medical students of Institute of Medicine, Kathmandu, Nepal.

METHODS

A cross sectional descriptive study was conducted among the undergraduate medical students of Institute of Medicine, Tribhuvan University Teaching Hospital in Kathmandu, Nepal from September 2010 to December 2010 using interval sampling technique. A sample size of 165 was calculated assuming a prevalence of the risk factors of 50% with a 95% confidence interval, a desired precision of 0.05 and 10% inflation to account for non-respondents and incomplete questionnaires. Ethical approval was taken from the Institutional Review Board of Institute of Medicine.

A semi-structured questionnaire was designed by the investigators based on a review of similar studies. An informed verbal consent was taken from the potential participants after explaining in detail about the purpose of the study. The questionnaire was pretested in a few students of Institute of Medicine (10% of the estimated sample size) which was not included in the final data for analysis.

Current smokers were defined as those engaging in cigarette consumption within the last 30 days. Current episodic heavy drinking was defined as 5 or more drinks of alcohol on at least one occasion on 1 or more of the 30 days preceding the survey. Adequate fruit and vegetable consumption was defined as consumption of 5 or more servings of fruits and vegetables in the past 30 days preceding the survey. As per the World Health Organization (WHO) recommendations; a BMI between 25.0 and 29.9 was considered overweight while that of below 18.5 as underweight.¹⁵ Recommended physical exercise was defined as moderate exercise of 30 minutes at least five days a week (150 minutes a week). Vigorous physical activity was defined as activities that caused sweating and hard breathing for at least 20 minutes on 3 or more of the 7 days preceding the survey. Activities including push-ups, sit-ups and weight lifting were defined as strengthening exercise. These definitions were based on the Youth risk behavior surveillance that was conducted in the United States in the year 1995.¹²

Data was analyzed using the Statistical package for social sciences (SPSS 17.0). Comparison groups were made based on year of study, age, sex and a positive family history. Pearson chi-square-test and Fisher's exact test was used to identify differences between categorical variables. A p value of less than 0.05 (two-sided) was considered to be statistically significant.

RESULTS

Out of the 165 medical students who were invited for the study, 159 agreed to participate. The mean age of the study population was 22.9± 2.5 yrs (Table 1). Total 108 (67.9%) were males with a male to female ratio of 2.1:1. The mean body weight was 60.56±9.52 Kilograms and the mean height was 165.3±7.5 centimeters. Out of the 159 students, 11 (6.9%) were underweight of which the majority were females (73%). Total 25 (15.7%) were overweight out of which one student was obese (BMI>30). The mean BMI was 22.11 ±2.79 (Figure 1).

Table 1. Distribution of the study population by age group

Age group	Number of students (%)
< 20 yr	30 (18.9)
20-25 yr	102 (64.2)
>25 yr	27 (17)

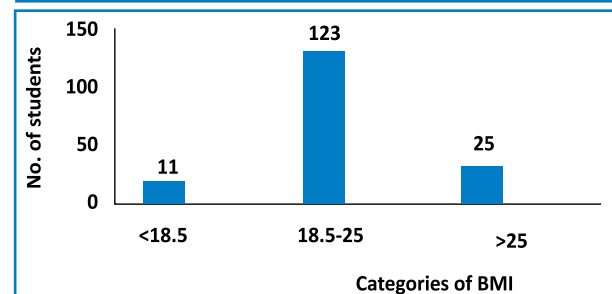


Figure 1. Distribution of the study population according to BMI categories

Total 35 (22%) were current cigarette smokers while 56 (35.2%) admitted to a heavy alcohol consumption. Only 58 (36.5 %) students were taking adequate amount of fruits and vegetables on a regular basis. Nine students (5.7%) had a family history of coronary artery disease (Angina/MI). Regarding physical exercise, only 34 students (21.4%) were doing the recommended amount of physical activity, i.e. moderate exercise for at least 30 minutes a day for at least 5 days a week. 33 (20.8%) engaged in some form of strengthening exercise. Approximately, 58 (33.3%) students tried to regulate their fat consumption and only 46 (28.9%) tried to regulate their salt consumption (Table 2).

About developing cardiovascular diseases in future, 85 (53.5%) showed concern. However of those students who

were concerned, 62% were not taking any precautionary measures. For those who were not concerned about developing cardiovascular diseases in future, the most common reasons cited were: no need to be concerned at this age (32%), never thought about it before (30%) and I don't have any risk factors for cardiovascular disease (15%) (Table 4). Total 101 (64%) students believed that their life as a medical student had an adverse affect on their health. Also 103 (65%) felt reported to be stressed out due to their medical studies (Table 3).

Table 2. Prevalence of cardiovascular health behavior indicators and risk factors in the study population

Risk factor/Health behaviour	n (%)
Current cigarette consumption	35 (22)
Current episodic heavy drinking	55 (34.6)
Hypertension (BP >140/90 mm of Hg)	2 (1.2)
Inadequate fruit consumption	101 (63.5)
Recommended physical exercise	34 (21.4)
Vigorous physical activity	22 (13.8)
Strengthening exercise	33 (20.8)
Family history of CAD	9 (5.7)
Regulation of salt consumption	46 (28.9)
Regulation of fat consumption	53 (33.3)

Table 3. Health related perceptions of the study population

Statement	Yes n (%)	No n (%)
Are you concerned about developing CVD in future?	85 (53.5)	74 (46.5)
If yes, are you taking any measures to prevent it? (n=85)	33 (38.8)	52(61.2)
Do you feel stressed due to your medical studies?	104 (65.4)	55 (34.6)
Do you think your life as a medical student has affected your health adversely?	102 (64.15)	57 (35.85)

Table 4. Reasons for not being worried about developing cardiovascular disease in future (n=74)

Reason for not being worried	n (%)
No need to be worried at this age	32 (43.2)
Never thought about this	22 (29.7)
I don't have any risk factors	11 (14.9)
Others	9 (12.2)

Males were more likely to smoke (27% vs 11%.: p value-0.023) and to indulge in heavy drinking (42.6% vs 19.6%: p value-0.03) than females. However females were more likely to be stressed out (78.4% vs 58.3%: p value-0.012) than males. Those who were concerned about developing cardiovascular disease in future

were more likely to restrict their fat intake (42.35% vs 23.28%: p value-0.009), and to believe that their life as a medical student affected their health (74.11% vs 52.05%: p value-0.003).

DISCUSSION

Our study assessed the cardiovascular risk factors, health behavior and perceptions of the medical students in a University Teaching Hospital of Nepal. We found a very high prevalence of physical inactivity, smoking, heavy alcohol consumption, inappropriate fruit and vegetable consumption and a high level of perceived stress. The prevalence of overweight students was also very high. However, the prevalence of a positive family history of coronary artery disease was quite low (5.7%).

Smoking is one of the most important risk factors for developing cardiovascular disease. In our study the prevalence of current cigarette smoking was 22% (male 27% vs female 11%) which was higher than seen in the general Nepali youth.¹³ A study by Sreeramareddy et al showed similar prevalence of smoking among medical students in Nepal.¹⁴ The lower prevalence of smoking among female students could be attributed to the social taboos associated with female smoking in this part of the world.

The prevalence of current episodic alcohol drinking was found to be 34.6%. This was similar to the findings suggested by Shyangwa PM et al in a study in Dharan, Nepal.¹⁵ The level of physical activity among the medical students was not satisfactory. Only about 21% were doing the recommended amount of physical activity which was markedly lower than what is reported by American studies.^{7,9} However it was similar to the findings suggested by a study in Pakistan.¹⁶

Blood pressure (BP) levels was known to only 64% of the students. Among these students, only two (1.9%) reported to have high blood pressure. However a similar study among medical students in India, found a much higher prevalence.¹⁷ The low prevalence in our study could be because we were taking self reported values without measuring blood pressure on our own and also because many students (36%) were unaware of their blood pressure.

In our study, 15.7% of the students were overweight. This was similar to the prevalence reported by Raza et al in a similar study among Pakistani medical students.¹⁸ However it was much lesser than what was reported among US medical students.⁹ Vaidya et al have reported a 32% prevalence of overweight among adult males in Dharan, Nepal.⁵ The lower prevalence in our case could be attributed to the younger age of the students.

Adequate fruit and vegetable consumption, defined as consumption of 5 or more servings of fruits and vegetables in the past 30 days preceding the survey, was only seen in 36% of the students. This was much lower than the findings suggested by Nisar et al, and Bertias et al, in Pakistan and Greece respectively.^{19,20} Also, only 28% and 33% of the students were regulating their salt and fat consumption respectively. These findings reflect poor dietary awareness among our medical students in comparison to those of other countries.

Only about half of the students, were concerned about developing cardiovascular disease in future. Out of these, 61% were not taking any precautionary measures despite being worried about CVD. About 65% of the students reported to be stressed out due to medical studies. This was in accordance to the findings suggested by a study among medical students in India.¹⁷ Also a significant proportion of the students (65%) believed that their medical life had an adverse affect on their health.

Among the students who were not worried about developing cardiovascular disease in future the most common reasons cited were: no need to be worried at this age, never have thought about it, I don't have any risk factors etc. These were similar to the findings suggested in a study by Aslam et al in Pakistan.¹⁶

Such a high prevalence of cardiovascular risk factors among the medical students implies that they do not believe in the fundamental aspects of preventive medicine. Our study population is not a representative sample of the overall medical students of Nepal. Nevertheless our findings reflect an alarming situation that must be promptly addressed. Our study highlights the urgent need of a proper prevention oriented training of the medical students so that they will become better prevention oriented clinicians of tomorrow.

CONCLUSIONS

Our study shows a high prevalence of inappropriate dietary behavior, physical inactivity, substance abuse, and lack of awareness among the medical students. This highlights the urgency that we must take to promote preventive knowledge and practices among medical students. This will help them to become prevention oriented clinicians in future to counter the increasing burden of cardiovascular diseases in this part of the world.

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