Cardiovascular Health - Behaviour of Medical Students in Karachi

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Introduction

Low and middle income countries, including the South Asian countries of Pakistan and India, contribute significantly to the global burden of cardiovascular disease (CVD), accounting for 78% of all deaths attributable to this cause.1

An effective strategy for controlling this emerging epidemic is by increasing public awareness about CVD. Role of health professionals is paramount in creating awareness.2 It is therefore important to assess the health perception and behaviour of medical students towards CVD prevention. The rationale for this is three fold: 1) the medical students of today will be the future health care providers of tomorrow, 2) the perceptions and behaviour that are held or acquired during training can influence their future acceptance and practice of preventive strategies and 3) they come in contact with a large number of patients and their beliefs can influence the interaction with the patients.3,4

The importance of emphasizing prevention during medical training is increasing.5 This preventive training may very well serve to greatly reduce the mortality and morbidity of CVD in the world.6 Unfortunately, almost no such programmes focusing on the preventive aspects of medicine exist in the curricula of the health institutions in Pakistan. Though studies have been conducted in the developed world on the health perceptions and behaviour of medical students,3,4,7 none to our knowledge, have been carried out in Pakistan

Methods

The target population for the survey was all medical students currently enrolled in the MBBS program at the Aga Khan University, Karachi, Pakistan. At the time of data collection in December 2003, 406 students constituted the total population. Only the students giving verbal consent were included in the study.

The stratified random sample size was calculated with Stat Calc (EpiInfo version 6.0). A sample size of 220 was chosen based on a 95% confidence interval and 10 % inflation to account for non-respondents and incomplete questionnaires.

The data collection tool was a self-administered questionnaire designed by the investigators based on a review of similar studies. It consisted of socio-demographic data and information concerning life style patterns, behavioral risk factors and health promoting perceptions and practices. There was no information which could compromise the anonymity of the respondents. The questionnaire was pre-tested on 15 students, not included in the final sample, and was refined accordingly.

Smokers were defined as those who smoked more than one cigarette daily and had been smoking for at least 3 months. Stress was defined as reporting moderate to severe degrees of stress due to studies along with at least one other stress factor affecting their health. As per World Health Organization (WHO) recommendations; a BMI between 25.0 and 29.9 is overweight while that below 18.5 is underweight. Our minimum threshold of physical activity was defined as moderate exercise of 30 minutes at least three days a week.

The questionnaires were given to the subjects who were asked to return the filled questionnaires within 3 days to the investigators. Those who failed to do so were followed up thrice at intervals of three days apart to retrieve the questionnaire, failing which they were labeled as non-respondents.

The Statistical Package for Social Sciences (SPSS) (Version 10.0.1, copyright SPSS; 1989-99) was used for data collection and analysis. Comparison groups were made based on perception of health change since enrolling, sex and family history. Pearson c2-test and Fisher's exact test were used to identify differences between categorical variables. A p value of less than 0.05 (two-sided) was considered as statistically significant.

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Results

Complete data was obtained for 203 students resulting in a response rate of 92%. There were 51.7% males. The mean age of the students was 20.6 (± 1.7) years. The mean height and weight were 168.1 (± 9.2) cm and 60.0 (± 12.2) kg respectively. Based on the self reported values, the Body Mass Index (BMI) was calculated which had a mean of 21.1 (± 2.9).

Table Health risk factors, behavior and perceptions of medical students (n=203)

	N	%
Physical exercise		
<1/week	49	24.1
1-2/week	91	44.8
> 3/week	63	31.1
Recommended exercise	56	27.6
CVD concern		
Yes	125	61.6
No	66	32.5
Unsure	12	5.9
Taking precautions (of those concerned (n=125)		
Yes	68	54.4
No	57	45.6
Strss due to studies		
None	15	7.4
Mild	40	19.7
Moderate	114	56.2
Severe	34	16.7
Medical college life's effect on health		
None	61	30.0
Harmful	94	46.3
Beneficial	30	14.8
Unsure	18	8.9

n = number of respondents.
CVD = cardiovascular diseases

There were a total of 7.9% smokers (Table). Personal blood pressure values were known by 62.1% and cholesterol values by 5.4% of the students. A total of 31.5% students regulated their daily fat intake and 16.3% regulated their daily salt consumption.

Regarding fruit consumption, 36% consumed two or less units of fruit per week.

No physical activity was reported by 24.1% students. Overall, 27.6% of the students engaged in the recommended amount of physical activity i.e. exercising on three or more occasions per week for at least 30 minutes every time. The degree of stress from studies was reported to be moderate by 56.2% and severe by 16.7% of the students.

About developing CVD in the future, 61.6% showed concern. However, of those concerned, 45.6% took no precautionary measure.

A harmful effect on their health status due to their lifestyle since joining medical college was reported by 46.3% students. Those with a harmful perception were more likely to smoke (14.9% v 0.0%, p=0.008), more likely to be stressed (60.6% v 29.5%, p=0.001) and less likely to do the recommended exercise (20.2% v 53.3%, p=0.002) as compared to other group.

Males (Figure 1) were more likely to smoke (14.3% v 1.0%, p<0.001), more likely to exercise (36.2% v 18.4%, p=0.005) and more likely to adopt preventive practices (65.1% v 43.5%, p=0.016) as compared to females. As per BMI values, 17.1% of the males were overweight and 8.6% were underweight. No females were overweight while 31.6% were underweight (p<0.001).

A family history of coronary artery disease (CAD) was reported by 33.5% students. These students (Figure 2) were more likely to regulate their fat consumption (42.6% v 25.9%, p=0.016), more likely to be stressed ((60.3% v 41.5%, p=0.011) and more likely to be concerned for developing CVD in the future (80.9% v 51.9%, p<0.001) as compared to those with no history. However, family history was not a modifying factor in terms of actual precautions taken.

The common reasons for being unconcerned about developing CVD in the future were: no need to be concerned at this age (38.3%) and never thought about this matter (37.0%). Out of those concerned, 54.4% took preventive actions namely: exercise (54.9%), diet regulation (37.4%), regular medical checkups (3.3%) and others (4.4%).

Discussion

This study assessed the health risk factors, perceptions and behaviour of Pakistani medical students towards CVD. We found out that, on the whole, the health behaviour of our medical students needs significant improvement. The low prevalence of overweight is encouraging. However, increased prevalence of CAD family history coupled with inappropriate dietary intake, physical inactivity, high proportion of male smokers, poor screening practices and lack of awareness call for urgent action by the concerned authorities. Also females and those with a family history need to be targeted more vigorously.

Smoking is a very well established risk factor for CVD. The prevalence of smoking was comparable to US medical students3,4 and was lower as compared to the Pakistani general population (20-30%).8 The low smoking prevalence among females may be attributed to the social taboos placed on female smoking in the Islamic world, as exemplified by a Saudi study.9 The prevalence of overweight was much lower as compared to western studies.10 However, a considerable number were underweight , a significant majority of them being females. This may be attributed to the anorexic behavior of female students at this institution.11 Since the BMI was based on self-reported values, it must be interpreted with a degree of caution.

The reported physical activity of medical students is not satisfactory. The current physical activity guidelines recommend moderate physical activity for at least 30 minutes on most and preferably all days of the week.12 At our lower threshold of three days of physical activity, only about a third of the students fulfilled the criteria which is about half of what is reported by American studies.3,4 This needs to be improved upon by promoting the importance of

exercise. Stress is a well documented risk factor for CVD13 and its high prevalence is a cause of concern. The proportion regulating dietary fat intake was lower as compared to US medical students. Fiber content, especially fruit based, can reduce the risk of CAD by 14%.14 With one-third students taking two or less fruits per week, the requirement is by no means fulfilled.

The current recommendations are to screen all adults aged over 18 for hypertension15 and over 20 for dyslipidemia.16 In the US studies, blood pressure was known by 97% and cholesterol values by an average of 45% students as compared to 62.1% and 5.4% respectively in our study.3,4 The low cholesterol awareness may partly be attributable to the expensive nature of the investigation. This reflects on the low priority of screening practices by medical students to healthy practices by not getting these routine checkups. Cholesterol screening must be made a part of initial health investigations, at least for those with a family history, at admission.

A significant discrepancy was noted between concern about developing CVD and the actual actions taken to prevent it. This reflects that though attitudes may be positively inclined they do not necessarily translate into practice. The need is to convince the students about the long term benefits of prevention not only for themselves but for the community as a whole since CVD is known to manifest at an earlier age in South Asians.17

About half of all students reported a harmful effect on their health due to their current lifestyle. This implies that the students are aware of the implications of their practices and need guidance to change their health behavior positively. The causes of this harmful effect resulting in poor health behaviour, needs to be ascertained and addressed.

The reasons for not adopting preventive practices point towards the actual nature of the problem. The misconception of no need of prevention at their current age must be removed. Multiple lines of evidence point towards the importance of primary prevention in children and young

adults and it is for this group that primary prevention holds the most promise.18 More awareness can be created by making preventive medicine a part of the curriculum and by emphasizing on these issues during clinics, ward rounds and lectures.

The practices of future physicians are determined by the perceptions and behaviour they acquire today. Physicians who themselves do not practice prevention are unlikely to recommend it to their patients.19 Thus, it is important for medical colleges to assess the health perceptions and behaviour of medical students towards preventive medicine. Early intervention in medical students has a positive effect on their health behaviour.20 This will ensure that students become good prevention oriented physicians. This is even truer for Pakistan, where due to lack of insurance services and poverty, primary prevention will remain the method of choice to control the emerging CVD epidemic.

This study stresses on the urgent need of proper prevention oriented training of the future health professionals. However, the study population is very restricted and not very representative. Our study underscores the need of similar studies across the health institutions of the country to generate a knowledge base regarding CVD and to formulate the national health education strategy accordingly.

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Abstract

Objective: To assess the health behaviour and perceptions of medical students towards cardiovascular disease.

Methods: This descriptive cross-sectional survey was conducted on 203 Pakistani medical students enrolled in a private medical college in Karachi, Pakistan using systematic random sampling. It was based on a self-administered questionnaire.

Results: Eight percent smoked, 9% were overweight, 33% had a family history of coronary artery disease, 32% regulated dietary fat intake, 28% exercised regularly, 62.1% knew personal blood pressure and 5.4% personal cholesterol levels. Regarding developing cardiovascular disease in the future, 62% showed concern but only 54% of these adopted preventive practices. About 46% believed medical college life had a harmful effect on their health. Gender, family history and personal health status perception were behavior modifying influences ($p<0.05$). Reasons reported for their behavior were: no need of prevention at their age (38.3%) and never thinking about these issues (37.0%).

Conclusions: The study shows a high prevalence of coronary artery disease family history, inappropriate dietary intake, physical inactivity; poor screening practices and lack of awareness. The results underscore the urgent need to promote preventive knowledge and practices among medical students, if they are to become prevention oriented physicians and counsel patients on preventive strategies to counter the rapidly increasing burden of cardiovascular diseases effectively (JPMA 54:492;2004).