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Original Research Article

Cardiovascular Risk Behaviour Assessment among First Year Medical Students and House Surgeons of a Medical College in South India

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ABSTRACT

Context: Chronic diseases in India accounted for 53% of all deaths. Out of which 24% were due to cardiovascular diseases alone. Lifestyle related behavioural risk factors are mainly implicated for increase in cardiovascular diseases among medical professionals, and a related research among medical students is essential.
Aims: To assess the cardiovascular risk behaviour among first year medical students and house surgeons of K.V.G Medical College, Sullia and to compare the same among both groups.
Settings and Design: A cross-sectional study was done during June 2012 to August 2012 among 58 first year medical students and 60 house surgeons of K.V.G Medical College, Sullia, D.K., Karnataka.
Methods and Material: A self administered structured questionnaire was used to obtain information.
Statistical analysis: It was done using SPSS version 17. Binary logistic regression analysis was applied.
Results: The study subjects were 60 house surgeons belonged to 21-25yrs age group and 58 first year medical students belonged to 17-20yrs age group. Consumption of at least 3 servings of fruits or vegetables per day was less among house surgeons. Frequent consumption of soft drinks was significant among house surgeons (p=0.001). Low physical activity and high sedentary activity (p=0.002) was reported more among first year students. Current smoking and alcohol users were found only among house surgeons.
Conclusion: Modifiable cardiovascular risk behaviours are more prevalent among house surgeons compared to first year medical students. Health education is essential to target these risk behaviours by encouraging all the future doctors to adopt healthy lifestyle.

Key words: Cardiovascular, risk behaviours, medical students, house surgeons.

INTRODUCTION

According to WHO, Cardiovascular diseases (CVD) are the number one causes of death globally. More people die annually from CVD than from any other cause. An estimated 17.3 million people died from CVD in 2008, representing 30% of all global deaths. Of these deaths, an estimated 7.3 million were due to coronary heart disease and 6.2 million were due to stroke. Low-

and middle-income countries are disproportionally affected with over 80% of CVD deaths and occur almost equally in men and women. By 2030, almost 23.6 million people will die from CVD, mainly from heart disease and stroke. These are projected to remain the single leading causes of death. [1]

According to WHO, Chronic diseases in India accounted for 53% of all deaths. Out of which 24% were due to CVD alone. [2]

The largest-ever study of deaths the 'Million Deaths Study' conducted by Centre for Global Health Research (CGHR) at the University of Toronto in collaboration with the Registrar General of India (RGI) and the Indian Council of Medical Research (ICMR), shows that heart diseases have replaced communicable diseases as the biggest number one killer in rural & urban India. About 25% of deaths in the age group of 25- 69 years occur because of heart diseases. In urban areas, 32.8% deaths occur because of heart ailments, while this percentage in rural areas is 22.9. If all age groups are included, heart diseases account for about 19% of all deaths. It is the leading cause of death among males as well as females. The proportion of deaths caused by heart disease is the highest in south India (25%) and lowest in the central region (12%). [3]

The major CVD are Coronary heart disease, Cardiomyopathy, Hypertensive heart disease, Heart failure, Cor pulmonale, Cardiac dysrhythmias, Inflammatory heart diseases, Valvular heart disease, Stroke and cerebrovascular disease and Peripheral arterial disease.

A small set of modifiable risk factors account for the great majority of deaths and for a significant proportion of the disease burden due to Chronic Non-Communicable Diseases. Among these factors are smoking, physical inactivity and dyslipidemias (associated mainly with excessive consumption of fats of animal origin). [4]

Cardiovascular diseases are increasing nowadays among the medical professionals. Lifestyle related behavioural risk factors are mainly implicated for this increased burden, and research related to these risk factors among medical students is essential, considering their role as future physicians and role models in public health intervention programs.

Thus, the following study was carried out with an objective to assess and to compare the cardiovascular risk behaviour among first year medical students and house surgeons of a medical college in South India.

MATERIALS AND METHODS

A comparative cross-sectional study was conducted among the first year MBBS students and house surgeons of K.V.G. Medical College and Hospital, Sullia Taluk, Dakshina Kannada district of Karnataka. The study period was June 2012 to August 2012.

During the study period, out of 100 students getting admission every year, only 58 students were present and out of 69 house surgeons, only 60 house surgeons were present in K.V.G Medical College and were included as study subjects.

A self administered anonymous structured questionnaire was used to obtain information about cardiovascular risk behaviour including diet, physical activity sedentary activity and smoking and alcohol habits from first year medical students and house surgeons.

According to USDA food guide pyramid for adults the minimum recommendation is intake of 3 servings of vegetables and 2 servings of fruits per day. One serve of vegetables is half cup of cooked vegetables or 1 cup of salad vegetables or 3/4 cup of vegetable juice.

One serve of fruits is one medium apple, orange, banana or 1/2 cup of chopped, cooked, canned fruit or 3/4 cup of fruit juice. [5]

Frequent consumption of carbonated soft drinks and fast foods is taken as either ≥once every day or 4-6 days in the past week. Regular physical activity is brisk walking for 30min or exercise in spare time everyday or 4-6 days in a week. Low physical activity is less than 4 days in a week. Sedentary activity is sitting, reading, watching television, playing video games and using computer continuously for more than 4 hours. Current smokers are those who have smoked at least 100 cigarettes in their lifetime and currently smoke cigarettes. Current alcoholics are those who have taken alcohol in the last 30 days and are currently drinking alcohol. [6]

Data was collected after obtaining ethical approval from the authority of the college.

The data analysis was done using SPSS (Statistical Package for the Social Sciences) for Windows, version 17. Binary logistic regression analysis was applied to find the association between various risk behaviours and class of students.

RESULTS

60 house surgeons were belonged to 21-25yrs age group with 31 males and 29 females and 58 first year medical students were belonged to 17-20yrs age group with 25 males and 33 females [Table 1].

Diet-related risk behaviour

The minimum recommendation according to the food guide pyramid of intake of 3 servings of vegetables and 2 servings of fruits was reported by 61.1% and 56.7% of total subjects respectively. The odds of consuming at least 3 servings of vegetables per day were 1.259 times higher among the first year medical students than the house surgeons. The odds of consuming at least 2 servings of fruits per day were 1.531 times higher among the first year medical students [Table 2].

Table 1: Class and gender distribution of medical students.

Class	Gender		Total
	Female	Male	
First year	33 (56.8)	25 (43.2)	58 (49)
House surgeons	29 (48.3)	31 (51.7)	60 (51)
Total	62 (52.5)	56 (47.5)	118 (100)

Table 2: Binary logistic regression analysis showing the association between class of medical students and various cardiovascular risk behaviours.

Variable	Class		Adjusted odds ratio (95% C.I)	P value
	First year (58)	House surgeons (60)		
Vegetables >3times/day	37 (63.7)	35 (58.3)	1.259 (0.599-2.642)	0.543
Fruits >2times/day	36 (62.0)	31 (51.6)	1.531 (0.735-3.187)	0.255
Frequent Soft drink	1 (1.7)	20 (33.3)	28.5 (3.674-221.086)	0.001*
Frequent Fast foods	11 (18.9)	16 (26.6)	1.554 (0.650-3.712)	0.321
High salt intake	20 (34.4)	26 (43.3)	1.453 (0.690-3.058)	0.325
Regular physical activity	31 (53.4)	37 (61.6)	1.401 (0.673-2.916)	0.367
Low physical activity	27 (46.5)	17 (28.3)	2.203 (1.028-4.723)	0.042*
Nil physical activity	0	6 (10.0)	0	-
High Sedentary activity	30 (51.7)	14 (23.3)	3.520 (1.599-7.752)	0.002*
Current smokers	0	3 (5.0)	0	-
Current alcohol users	0	12 (20.0)	0	-

* Significant at 5% level of significance

Frequent consumption of carbonated soft drinks was reported by 18.8% of total subjects and of fast foods by 22.8% of total subjects. Frequent consumption of soft drinks was significantly high among house surgeons [OR = 28.5, $p<0.05$] as compared with first year students. Odds of frequent intake of fast foods like samosa, panipuri,

etc., were 1.554 times higher among house surgeons. Frequently high salt intake by adding extra salt or by eating items, such as papad, sauces/pickles and others, was reported more among house surgeons [OR =1.453] [Table 2].

Physical and sedentary activity

Regular physical activity was reported by 56.7% of total subjects. It was reported more among house surgeons [OR=1.401]. Low physical activity was reported significantly more among first year students [OR=2.203, $p<0.05$]. Nil physical activity was reported by 6 house surgeons [Table 2].

About 37.2% of total subjects reported spending more than 4hrs in sedentary activities on a typical day. It was significantly more among first year students than the house surgeons [OR=3.520, $p<0.05$] [Table 2].

Smoking and alcohol use

There were 3 current smokers and 12 current alcohol users among 60 house surgeons and all were males [Table 2]. Three male house surgeons and 2 female house surgeons reported that they have tried smoking few times but never smoked regularly. Four male house surgeons and 3 female house surgeons reported as having alcoholic drinks occasionally.

DISCUSSION

In the present study consumption of at least 3 servings of vegetables and 2 servings of fruits per day was reported less among house surgeons. Frequent consumption of soft drinks, fast foods and high salt intake was reported more among house surgeons in the present study. In the study by Rustagi N *et al.* consumption of carbonated soft drinks either once or more on daily basis was present in 23.7% students and 32.0% reported frequent consumption of fast foods in past week. [6] Poor food habits and excess salt intake by medical students was also reported by Skemiene L *et al*. This is a matter of concern as staying in the medical college did not reduce the cardiovascular risk behaviour among students. [7]

Low physical activity and >4hrs of sedentary activity was reported more among first year students. In the study by Rustagi N *et al.*, large proportion of students were either not carrying out or were involved in only occasional physical activity in past week. [6] Low physical activity and long hours of sedentary work was reported in other studies too carried out among university students (22%–62%). [8,9] Breaks during continued sedentary activity (i.e., standing up, walking down the hall, and others), regardless of physical activity level or energy expenditure of breaks have been reported to reduce a number of individual CVD risk factors like high blood pressure, high cholesterol, etc. [10,11] The importance of performing light activities (e.g., walking/standing) in between long sedentary hours must be emphasized among medical students.

In the present study current smoking and alcohol users were found only among house surgeons. In the study by Rustagi N *et al.*, consumption of alcohol was present in 28.8% students but only small proportion of students (7%) was current tobacco users. [6] Smoking was reportedly increased among medical students between the year of entry and the final year in some studies. [12,13]

Limitations of the study: This study did not compare the cardiovascular risk behaviour in the same group of medical students at the time of entry into a medical college and when they pass out as house surgeons to know whether the medical college life affects their risk behaviour. Other forms of tobacco consumption and stress due to studies among medical students were not included in the study.

CONCLUSION AND RECOMMENDATION

Modifiable cardiovascular risk behaviours such as improper diet, low physical activity, high sedentary activity, smoking and alcohol use are more prevalent among house surgeons compared to first year medical students. The practices of future physicians are determined by the perceptions and behaviour they acquire today. Early intervention in medical students has a positive effect on their health behaviour. This will ensure that students will become good prevention oriented physicians. Promotion of supportive environment and health education is essential to target these risk behaviours. Our study encourages 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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