Original Article

Cardiovascular Risk Behavior among Students of a Medical College in Delhi

N Rustagi, DK Taneja, P Mishra, GK Ingle

Maulana Azad Medical College, New Delhi, India

ABSTRACT

Background: Life style related behavioural risk factors are mainly implicated for increased burden of cardio- vascular diseases. Research related to these risk behaviours especially among medical students is essential, considering their role as future physicians and role models in public health intervention programmes. **Objective:** To evaluate the burden of cardiovascular risk behaviours among students of a medical college of Delhi, India. **Materials and Methods:** A cross sectional study was carried out among undergraduate medical students of a medical college in Delhi. Self administered questionnaire was used to collect information on identification data and risk behaviours in relation to cardiovascular diseases. Binary logistic regression analysis was done to calculate adjusted odds ratio to assess association between risk behaviours and covariates. **Results:** The minimum recommendation of taking at least five servings per day of fruits and vegetables was complied only by 12% of students. 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. Consumption of alcohol was present in 28.8% students but only small proportion of students (7%) was current tobacco users. Large proportions of students (42.6%) were either not carrying out or were involved in only occasional physical activity in past week. **Conclusions:** Unhealthy behavioural practises are present and may progress as student advance through medical college. Developing strategies targeting at these risk behaviours and determining factors is necessary to promote healthy life style among medical students.

Keywords : Cardio vascular, risk behaviors, medical college, students

Introduction

Chronic diseases in India accounted for 53% of all deaths in 2005, out of which 29% were due to cardiovascular diseases (CVDs) alone.[1] Lifestyle-related behavioral 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 the objective of evaluating the prevalence of cardiovascular risk behaviors among students of a medical college in Delhi.

Access this article online

Quick Response Code:

Website: www.ijcm.org.in

DOI: 10.4103/0970-0218.80794

Materials and Methods

A cross-sectional study was conducted among undergraduate students of a medical college in Delhi, from November 2009 to February 2010. Through systematic random sampling, 50% of total 923 students in ongoing semesters (1st, 3rd, 5th, 7th, and 9th) were contacted using a pre-tested, structured, anonymous, and self-administered questionnaire. Out of 461 students, 433 responded giving a response rate of 93.9%. Consumption of fruits and vegetables, fast foods, carbonated drinks and salt was assessed for last 7 days. Physical activity (which increases heart rate and makes one short of breath for some time) carried out in last week and hours spent in sedentary activity on a typical day was assessed. Students with physical activity of at least 30 min/day for 2 or less

Address for correspondence:
Dr. Neeti Rustagi, 9/63, Sector-3, Rajender Nagar, Sahibabad, Ghaziabad, Uttar Pradesh – 201 005, India. E-mail: drneeti2003@yahoo.com

Received: 20-07-10, **Accepted:** 04-02-11

days in the past week were classified as inactive and for 3 or more days as active. Sedentary behavior was dichotomized as students spending 4 h or less and more than 4 h on a typical day as more than 4 h/day of sedentary behavior is associated with significantly higher odds of metabolic syndrome[2,3] and elevated waist circumference, low high-density lipoprotein cholesterol, and high blood pressure.[3] Consumption of any form of tobacco (smoking/smokeless) or alcohol in past 30 days was also enquired. Nonresponders or participants who chose "don't know" option or those who had a missing response for the covariates (age/gender) or desired risk factor were excluded from the analysis. SPSS version 16 was used and binary logistic regression was applied to assess the association between risk behaviors and age, gender, and semester of students.

Results and Discussion

Majority of the students (91.2%) belonged to 17–22 years age group with mean age of 20 (±3.6) years. The proportion of males (62.4%) was higher than females (37.6%).

Table 1: Consumption of fruits or vegetables in past week among medical students (N = 430)

Semester	N	Fruits or vegetables consumption 3 or more times/day	Adjusted odd ratios	*P* value
1st	84	48 (57.1)	1	
3rd	86	36 (41.8)	0.52; 0.28–0.97	<0.05
5th	88	29 (33.0)	0.39; 0.18–0.85	<0.05
7th	89	40 (44.9)	0.67; 0.28–1.62	>0.05
9th	83	20 (24.1)	0.27; 0.11–0.70	<0.05

Figures in parenthesis are in percentage

Diet-related risk behavior

The minimum recommendation of taking at least 5 servings/day of fruits and vegetables[4] was complied only by 12% of students. The odds of consuming at least 3 servings of fruits or vegetables per day decreased significantly with increase in semester of students except for those in the 7th semester [Table 1]. Frequent (either once or more on daily basis in past week) consumption of carbonated soft drinks was reported by 23.7% students and of fast foods by 32.0% students. Consumption of soft drinks was significantly high in 7th semester students [odds ratio (OR) = 3.20; 1.11–9.23) as compared with other semesters. Intake of fast foods significantly increased with increase in semester of students [Table 2]. High salt intake by adding extra salt or by eating items, such as sauces/ pickles, and others, was reported by 53.0% of students but showed no association with any covariates. Age and gender of students showed no significant association with intake of any dietary factors except for soft drinks where intake was significantly low among girls (11.2%) as compared with boys (31.2%) (OR = 0.26; 0.14–0.46).

Seemingly, fruits and vegetables consumption is gradually replaced with fast foods or ready to eat foods as student progress through the medical college. Poor food habits and excess salt intake by medical students was also reported by Škėmienė L *et al*.[5] This is a matter of concern as stay in the medical college did not promote healthy behavior among students.

Physical and sedentary activity

Physical activity for at least 30 min/day for 5 or more days was reported by 35.8% students, while occasional or nil physical activity was reported by 42.6% students. About 25.6% students reported spending more than 4 h in

Table 2: Soft drinks and fast food consumption in past week among medical students (N = 430)

Semester	N	Soft drink intake one or more time per day	Adjusted odds ratios	*P* value	Frequent intake of fast foods	Adjusted odds ratios	*P* value
1st	84	18 (21.4)	1		20 (23.8)	1	
3rd	86	19 (22.1)	1.3; 0.6–1.8	>0.05	23 (26.7)	1.2; 0.6–2.6	>0.05
5th	88	19 (21.6)	1.7; 0.6–4.3	>0.05	33 (37.5)	2.6; 1.1–6.1	<0.05
7th	89	29 (32.6)	3.2; 1.1–9.2	<0.05	33 (37.1)	3.2; 1.2–8.5	<0.05
9th	83	17 (20.5)	2.1; 0.7–6.4	>0.05	29 (34.9)	4.1; 1.5–11.1	<0.05

Figures in parenthesis are in percentage

Table 3: Activity pattern among students in past week (N1 = 422; N2 = 426)

Semester	Physical activity among students*				Sedentary activity among students**			
	N1	Inactive	Adjusted odd ratios	*P* value	N2	More than 4 h	Adjusted odd ratios	*P* value
1st	83	16 (8.7)	1		84	13 (15.5)	1	
3rd	86	26 (14.2)	1.8; 0.9–3.8	>0.05	86	14 (16.3)	1.1; 0.5–2.5	>0.05
5th	88	35 (19.1)	3.0; 1.3–7.2	<0.05	88	24 (27.3)	2.6; 0.9–6.8	0.05
7th	83	48 (26.2)	6.7; 2.5–17.7	<0.05	86	32 (37.2)	4.5; 1.6–13.8	<0.05
9th	82	58 (31.7)	12.9; 4.7–35.9	<0.05	82	26 (31.7)	3.2; 1.1–9.7	<0.05

*Respondents for physical activity (N1) = 422. ** Respondents for sedentary activity (N2) = 426. Figures in parenthesis are in percentage

Table 4: Tobacco and alcohol use among students in last 30 days (N = 423)

Semester	N	Current tobacco users	Adjusted odd ratios	*P* value	Current alcohol users	Adjusted odd ratios	*P* value
1st	84	1 (1.2)	1		9 (10.7)	1	
3rd	84	10 (11.9)	12.1; 1.5–97.9	<0.05	14 (16.7)	1.87; 0.75–4.67	>0.05
5th	87	11 (12.6)	11.5; 1.3–105.9	<0.05	24 (27.6)	4.28; 1.52–12.01	<0.05
7th	88	15 (17.0)	14.1; 1.4–137.9	<0.05	30 (34.1)	6.06; 1.92–19.12	<0.05
9th	80	25 (31.3)	37.9; 3.9–369.1	<0.05	45 (56.3)	16.42; 5.09–53.0	<0.05

Figures in parenthesis are in percentage

sedentary activities on a typical day. Number of students who were inactive in past week and those spending more hours in sedentary activities significantly increased with increase in semesters of students [Table 3].

Low physical activity and long hours of sedentary work was reported in other studies too carried out among university students (22%–62%).[6,7] Breaks during continued sedentary activity (ie, 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.[8,9] The importance of performing light activities (eg, walking/standing) in between long sedentary hours must be emphasized, especially among students of senior semesters.

Tobacco and alcohol use

Only 7.0% of students used any form of tobacco, while 28.8% of students consumed alcohol in past 30 days. Use of both tobacco and alcohol significantly increased with increase in semester of students and significantly more number of boys than girls consumed tobacco (boys, 9.1%; girls, 3.7%; OR = 0.31; 0.12–0.81) and alcohol (boys, 33.5%; girls, 21.2%; OR = 0.60; 0.36–0.98). Tobacco smoking and alcohol consumption reportedly increased among medical students between the year of entry and the final year[10,11] [Table 4].

Conclusion

Modifiable cardiovascular risk behaviors are widely prevalent among medical students and increase with years spent in the medical college. Promotion of supportive environment for strengthening student-based approaches and strategic delivery of health education is essential to target these risk behaviors among our future doctors.

References

1. Reddy KS, Shah B, Varghese C, Ramadoss A. Responding to the threat of chronic diseases in India. Lancet 2005;366:1744-9.
2. Ford ES, Kohl HW, Mokdad AH, Ajani UA. Sedentary behaviour, physical activity, and the metabolic syndrome among U.S. adults. Obes Res 2005;13:608–14.
3. Sisson SB, Camhi SM, Church TS, Martin CK, Tudor-Locke C, Bouchard C, *et al*. Leisure Time Sedentary Behaviour, Occupational/Domestic Physical Activity and Metabolic Syndrome in U.S. Men and Women. Metab Syndr Relat Disord 2009;7:529–36.
4. Antonio A. Measuring intake of fruits and vegetables. Background paper for the Joint FAO/ WHO Workshop on fruits and vegetables for Health. 1-3 September 2004, Kobe, Japan.
5. Škemiene L, Ustinavičiene R, Piešine L, Radišauskas R. Peculiarities of medical students' nutrition. Medicina (Kaunas) 2007;43:145-52.
6. Brandão MP, Pimentel FL, Silva CC, Cardoso MF. Risk factors for cardiovascular disease in a Portuguese university population. Rev Port Cardiol 2008;27:7-25.
7. Irwin JD. The prevalence of physical activity maintenance in a sample of university students: A longitudinal study. J Am Coll Health 2007;56:37-41.
8. Hu FB, Li TY, Colditz GA, Willett WC, Manson JE. Television watching and other sedentary behaviours in relation to risk of obesity and type 2 diabetes mellitus in women. JAMA 2003;289:1785–91.
9. Healy GN, Dunstan DW, Salmon J, Cerin E, Shaw JE, Zimmet PZ, *et al*. Breaks in sedentary time: beneficial associations with metabolic risk. Diabetes Care 2008;31:661–6.
10. Ramakrishna GS, Sankara Sarma P, Thankappan KR. Tobacco use among medical students in Orissa. Natl Med J India 2005;18:285-9.
11. Singh SK, Narang RK, Chandra S, Chaturvedi PK, Dubey AL. Smoking habits of the medical students. Indian J Chest Dis Allied Sci 1989;31:99-103.

How cite this article: Rustagi N, Taneja DK, Mishra P, Ingle GK. Cardiovascular risk behavior among students of a Medical College in Delhi. Indian J Community Med 2011;36:51-3.

Source of Support: Nil, **Conflict of Interest:** None declared.