ORIGINAL RESEARCH ARTICLE

Magnitude of behavioural risk factors for cardiovascular diseases among college going young adults (18-25 years) in Mysuru, Karnataka, India

Lakshmi Malavika Nair1, Madhu B.2*, Srinath K. M.3, Anup Gopinath4, Kavita Yadav5

1Final year MBBS student, JSS Medical College, JSS University, Mysuru, Karnataka, India
2Department of Community Medicine, 3Department of General Medicine, JSS Medical College, JSS University, Mysuru, Karnataka, India
3Department of Community Medicine, PK Das Institute of Medical Sciences, Vaniamkulam, Kerala, India
4Department of Community Medicine, PK Das Institute of Medical Sciences, Vaniamkulam, Kerala, India
5Consultant Research Associate, Centre for Policy Research, Chanakyapuri, Dharam Marg, New Delhi, India

Received: 21 October 2016
Accepted: 26 November 2016

*Correspondence:
Dr. Madhu B.,
E-mail: drmadhusri@gmail.com

ABSTRACT

Background: Sedentary lifestyle and unhealthy diet patterns increase the risk of cardiovascular disease (CVD). Estimating the magnitude of behavioural risk factors is vital for planners and policy makers to formulate appropriate and locally suitable interventions. The objective of this study was to estimate the magnitude and pattern of behavioural risk factors for cardiovascular diseases among college students (medical, dental, pharmacy, engineering and arts and science colleges) in Mysuru.

Methods: A cross sectional study was carried out among students of medical, dental, pharmacy, engineering and arts and science colleges in Mysuru using snow-balling technique. Based on CDC-BRFSS (Behavioral Risk Factor Surveillance System) and Cardiovascular Risk Assessment Questionnaire developed by Metagenics, New Zealand, a self-administered questionnaire was developed according to the local cultural and food practices, which was used to collect information on dietary pattern, exercise pattern, tobacco and alcohol consumption. Statistical analysis was performed using SPSS software (version 22) and P value of <0.05 was considered as significant.

Results: In the study, 45.8% of 970 study participants lead a sedentary lifestyle and 13.1% exercise in the gym regularly. Majority of students from Arts and Science College lead a sedentary lifestyle. Dietary pattern assessment revealed that 71% of the students consumed fried food frequently (highest among medical students - 82.4%). Medical and dental students also consumed the maximum amount of sweets i.e. 60.9% and 67.1% respectively. Non-vegetarian food was frequently consumed by 30% of medical and dental students. 47% of the current smokers were MBBS students. 37.8% of the students who consumed alcohol admitted to binge drinking.

Conclusions: Unhealthy behavioural risk factors for CVDs are higher among medical students, despite the fact that they know most about the detrimental effects of these practices. Developing strategies targeting these behavioural risk factors to improve the health status of college students play a crucial role in protecting the youth from cardiovascular diseases in future.

Keywords: Behavioural risk factors, Cardiovascular risk factors, Mysuru, Young adults
INTRODUCTION

Cardiovascular diseases (CVDs) are the leading cause of death globally: more people die annually from CVDs than from any other cause. An estimated 17.3 million people died from CVDs in 2008, representing 30% of all global deaths.¹ Of these deaths, an estimated 7.3 million were due to coronary heart disease and 6.2 million were due to stroke.² Low- and middle-income countries are disproportionately affected: over 80% of CVD deaths take place in low- and middle-income countries and occur almost equally in men and women.³

The study focuses on college students of 5 different colleges in Mysuru, each college offering a different course. Most students start smoking and consuming alcohol in their first year in college. There also seems to be an increasing trend in sedentary lifestyle among college students, and a lack of interest in taking care of their health. Indian young adults constitute more than 22% of the total country’s population and are particularly vulnerable to the risk of CVDs.⁴ ⁵ ⁶ ⁷

Most cardiovascular diseases can be prevented by addressing modifiable risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity, high blood pressure, diabetes and raised lipids. The gravity of the situation can be understood by looking at the fact that even medical students are ignorant of, or choose to ignore, the consequences of their unhealthy lifestyle. To develop and target prevention efforts for young adults at risk of obesity and future chronic disease, we must understand the health-risk behaviors of this group. Very few college based studies have been conducted regarding prevalence of behavioural risk factors among college going young adults in the 18-25 years age group in Mysuru city. Thus, the study was intended to provide an insight as well as early recognition of these lifestyle risk factors among college going young adults which would help in planning awareness programs that could perhaps keep cardiovascular diseases at bay in their future.

Objectives of the study

- To estimate the prevalence of behavioural risk factors among young adults in the age group of 18 to 25 years.
- To identify the difference in behavioural risk factors across various colleges.
- To identify the sex wise difference in behavioural risk factors.

METHODS

A college based cross sectional study was done in 5 colleges of Mysuru district. Colleges offering different courses were selected in order to assess the difference in magnitude and pattern of behavioural risk factors among students pursuing different career paths. The sample size for the study was calculated to be 1000 by using the formula \(4pq/d^2\), where \(p\), the prevalence of behavioral risk factors among college students was taken to be 10%, \(q = 100-p\) and ‘d’ the absolute error was taken to be 2%. Students from different study disciplines were recruited using snowball sampling, a purposive non-probability approach in which the researcher recruits a few volunteers who, on their turn, recruit other volunteers. In this manner, a total of 970 students were recruited to participate in the survey. The study was conducted on 210 Medical students, 152 Dental students, 169 Pharmacy students, 214 Engineering students and 225 commerce students and the health – risk behaviors among these categories of students were compared. College students aged between 18 to 25 years, who gave informed consent and who were willing to participate in the study were included. Those individuals who were not present at the time of interview were excluded from the study.

A questionnaire was used to collect data on demographic and behavioral risk factors. Socio-demographic factors like Age, Sex, Education, Religion and Native state were obtained from the participant.

The Health–risk behaviours were assessed based on the questionnaire of Behavioral Risk Factor Survey (BRFSS) developed by CDC Atlanta and Cardiovascular Risk Assessment Questionnaire developed by Metagenics, New Zealand.

Physical activity

In the physical activity section of the questionnaire, respondents were asked questions about the frequency and duration of physical activity performed in a usual week. Questions were also asked to find out if they exercised in a gym regularly, if yes, for how long. Respondents were classified into sedentary and non-sedentary categories.

Diet

Questions were asked about the frequency of consumption of fried food, fish and non-vegetarian food. Questions about the amount of sweets and processed foods like biscuits and cakes were also asked. Frequency of consumption of nutritious foods like fruits and vegetables were also included in the questionnaire, along with excess salt intake in the form of pickle.

Tobacco consumption

Questions were asked to find out if they were a current or previous smoker, age at which they first started consuming tobacco, and if they had tried to quit smoking. Quantity and frequency was also noted.
**Alcohol consumption**

Age when they first started consuming alcohol was noted, along with frequency, participation in binge drinking, and increase in tolerance. Participation in binge drinking was defined as having five or more alcoholic beverages on an occasion during the past 30 days.6

**Ethical aspects**

Ethical clearance for the study was obtained from Institutional Ethics Committee of the JSS Medical College, Mysuru. Permission from the heads of the institutions were obtained before the interview. Free and informed consent was obtained from the participant for the questionnaire based interview.

**Statistical analysis**

Data entry was done using Excel sheet. Descriptive statistics like percentage (rates) was estimated for each of the variable. Chi-square test was used to compare the prevalence of risk factors across different weight categories across different courses. All statistical analysis were performed using SPSS software (version 22).

**RESULTS**

Table 1 shows the Socio-demographic characteristics of the study subjects. Among the 970 study participants, 48.9% (474) were aged between 20 and 22 years. The gender distribution was almost equal, 51% were males, and 49% were females. 44% of the students were from Kerala, 32% from Karnataka, and 22.6% from all other states.

Table 2 shows sex wise exercise pattern among study subjects. The data showed that nearly 60% of the girls lead a sedentary life, twice as much compared to the boys (33%).

Table 3 shows course wise exercise pattern among study subjects which revealed that more than 50% of engineering, commerce and pharmacy students lead a sedentary lifestyle, while only 25% of MBBS students lead an inactive life. The data also reveals that hardly 15% of the students exercise in the gym regularly, despite having a well-equipped gymnasium in all of the selected colleges. 70% of the study subjects who utilized the gym did so for at least 30 minutes.

Table 4 shows sex wise distribution of dietary pattern. Analysis of preferences of sweets and processed food items like cakes and biscuits reveal that 45% of the study subjects are less inclined to add it to their diet on a daily basis. The data also demonstrates that fish was not consumed by a large number of respondents (81.8%). The study also shows that 60% of the students do not consume any fruits. However, 60% of the students said they consume 1-2 servings of vegetables every day. 70% rarely drank soft drinks. 54% have salty foods like pickle regularly. Nearly 55% of the students consume non-vegetarian food regularly.

**Table 1: Socio-demographic characteristics of the study subjects(N=970).**

| Variables          | Number | %     |
|--------------------|--------|-------|
| **Age**            |        |       |
| 18-19              | 413    | 42.58 |
| 20-22              | 474    | 48.87 |
| 23-25              | 52     | 5.36  |
| Not answered       | 31     | 3.20  |
| **SEX**            |        |       |
| Male               | 496    | 51.13 |
| Female             | 474    | 48.87 |
| **Place of origin**|        |       |
| Kerala             | 427    | 44.02 |
| Karnataka          | 310    | 31.96 |
| Andhra Pradesh (undivided) | 94 | 9.69  |
| Northern, Central and Western India * | 72 | 7.42  |
| Tamil Nadu         | 45     | 4.63  |
| North East India** | 12     | 1.23  |
| Not answered       | 10     | 1.03  |
| **Course studying**|        |       |
| MBBS               | 210    | 21.65 |
| BDS                | 152    | 15.67 |
| Pharmacy           | 169    | 17.42 |
| Engineering        | 214    | 22.06 |
| Commerce           | 225    | 23.19 |
| **Year**           |        |       |
| First year         | 221    | 22.78 |
| Second year        | 218    | 22.47 |
| Third year         | 199    | 20.51 |
| Fourth year        | 99     | 10.20 |
| Intern             | 29     | 2.99  |
| Not answered       | 204    | 21.03 |
| **Religion**       |        |       |
| Hindu              | 767    | 79.07 |
| Christian          | 59     | 14.23 |
| Muslim             | 138    | 6.08  |
| Others ***         | 3      | 0.3   |
| Not answered       | 3      | 0.3   |

Northern, Central and Western India includes the states of Bihar, Chattisgarh, Goa, Gujarat, Haryana, Jharkhand, Maharashtra, Madhya Pradesh, New Delhi, Odisha, Punjab, Rajasthan, Uttar Pradesh, and West Bengal; **North East India includes the states of Manipur, Meghalaya, Mizoram, Sikkim, and Tripura; ***Others includes Buddhism, Jainism, and Sikhism religions.

Table 5 shows course wise distribution of dietary pattern. It is observed nearly 80% of medical students eat fried food frequently. Medical and Dental students also consumed the most amounts of sweets, processed foods and biscuits (60 and 70 % respectively). Alarming, over 50% of the students do not consume fruits at all, highest
being Engineering and Commerce students, where the percentage is approximately 66%. Further, 30% of Dental and Pharmacy students do not consume vegetables at all. Over 50% of Commerce students consumed pickle daily. Lastly, analysis shows that 30% of students of Medical and Dental colleges consume non-vegetarian food on a daily basis.

Table 2: Sex wise exercise pattern among study subjects (N=970).

| Physical activity parameters | Male  | Female | Total       | Chi square value | p-value |
|------------------------------|-------|--------|-------------|------------------|---------|
| Sedentary                   | 168 (33.9) | 276 (58.2) | 444 (45.77)  | 77.423           | < 0.001 |
| Once a week                 | 93 (18.8)  | 90 (19.0)  | 183 (18.86)  |                  |         |
| 2-3 times a week            | 111 (22.4) | 57 (12.0)  | 168 (17.32)  |                  |         |
| 4-5 times a week            | 57 (11.5)  | 21 (4.4)   | 78 (8.04)    |                  |         |
| 5+ times a week             | 64 (12.9)  | 25 (5.3)   | 89 (9.17)    |                  |         |
| No data                     | 3 (0.6)    | 5 (1.1)    | 8 (0.82)     |                  |         |
| Total                       | 496       | 474       | 970          |                  |         |

Table 3: Course wise exercise pattern among study subjects (N=970).

| Physical activity parameters | MBBS n (%) | BDS n (%) | Pharmacy n (%) | Engineering n (%) | Commerce n (%) | Total n (%) | Chi square value | p-value |
|------------------------------|------------|-----------|----------------|------------------|----------------|-------------|------------------|---------|
| Sedentary                   | 54 (25.7)  | 83 (54.6) | 70 (41.4)      | 109 (50.9)       | 128 (56.9)     | 444         | 132.221          | <0.001  |
| Once a week                 | 36 (17.1)  | 20 (13.2) | 38 (22.5)      | 41(19.2)         | 48 (21.3)      | 183        |                  |         |
| 2-3 times a week            | 67 (31.9)  | 17 (11.2) | 28 (16.6)      | 32 (15.0)        | 24 (10.7)      | 168        |                  |         |
| 4-5 times a week            | 27 (12.9)  | 19 (12.5) | 15 (8.9)       | 10 (4.7)         | 7 (3.1)        | 78         |                  |         |
| 5+ times a week             | 26 (12.4)  | 13 (8.6)  | 10 (5.9)       | 22 (10.3)        | 18 (8.0)       | 89         |                  |         |
| Not answered                | 0          | 0         | 8 (4.7)        | 0                | 0              | 8          |                  |         |
| Total                       | 210        | 152       | 169            | 214              | 225            | 962        |                  |         |

Table 4: Sex wise distribution of dietary pattern (N=970).

| Dietary pattern     | Sex Male (n=496) | Female (n=474) | Total | Chi square value | P-value |
|---------------------|------------------|----------------|-------|-----------------|---------|
| **Fried food**      |                  |                |       |                 |         |
| Less than once a week| 123 (24.8)       | 156 (32.9)     | 279   | 20.490          | < 0.001 |
| 1-2 times a week    | 208 (41.9)       | 214 (45.1)     | 422   |                 |         |
| 3-6 times a week    | 122 (24.6)       | 66 (13.9)      | 188   |                 |         |
| Everyday            | 43 (8.7)         | 38 (8)         | 81    |                 |         |
| **Vegetables**      |                  |                |       |                 |         |
| Usually none        | 104 (21)         | 93 (19.6)      | 197   | 15.697          | 0.003   |
| 1-2 serves/day     | 284 (57.3)       | 304 (64.1)     | 588   |                 |         |
| 3-4 serves/day     | 90 (18.1)        | 49 (10.3)      | 139   |                 |         |
| 5 or more/day      | 18 (3.6)         | 27 (5.7)       | 45    |                 |         |
| **Soft drink**      |                  |                |       |                 |         |
| Less than 500 ml/week| 289 (58.3)       | 408 (86.1)     | 697   | 95.945          | < 0.001 |
| 500 ml – 1 litre/week| 151 (30.4)       | 52 (11)        | 203   |                 |         |
| 1-2 litre/week     | 56 (11.3)        | 13 (2.7)       | 69    |                 |         |
| **Non vegetarian food** |                |                |       |                 |         |
| Never               | 104 (21)         | 100 (49)       | 204   | 18.850          | < 0.001 |
| Rarely              | 102 (20.6)       | 126 (26.6)     | 228   |                 |         |
| Sometimes           | 165 (33.3)       | 179 (37.8)     | 344   |                 |         |
| Often               | 125 (25.2)       | 69 (14.3)      | 194   |                 |         |
Table 5: Course wise distribution of dietary pattern (N=970).

| Dietary pattern          | Course | MBBS | BDS | Pharmacy | Engineering | Commerce | Total | Chi square value | p-value |
|--------------------------|--------|------|-----|----------|-------------|----------|-------|------------------|---------|
| Fried food               |        |      |     |          |             |          |       |                  |         |
| Less than once a week    |        | 37   | 17.6| 36       | 23.7        | 48       | 28.4  | 75               | 35      | 83              | 36.9    | 279 | 43.520 |
| 1-2 times a week         |        | 101  | 48.1| 61       | 40.1        | 79       | 46.7  | 80               | 37.4    | 101             | 44.9    | 422 |         |
| 3-6 times a week         |        | 46   | 21.9| 35       | 23          | 31       | 18.3  | 41               | 19.2    | 35              | 15.6    | 188 |         |
| Everyday                 |        | 26   | 12.4| 20       | 13.2        | 11       | 6.5   | 18               | 8.4     | 6               | 2.7     | 81  |         |
| Sweets and processed foods |    |      |     |          |             |          |       |                  |         |
| Usually none             |        | 82   | 39  | 50       | 32.9        | 73       | 43.2  | 117              | 54.7    | 115             | 51.1    | 437 | 31.258 |
| 1-2 serves daily         |        | 109  | 51.9| 79       | 52          | 82       | 48.5  | 88               | 41.1    | 89              | 39.6    | 447 |         |
| More than 2 serves daily |        | 19   | 9   | 23       | 15.1        | 14       | 8.3   | 9                | 4.2     | 21              | 9.3     | 86  |         |
| FISH                     |        |      |     |          |             |          |       |                  |         |
| Rarely                   |        | 177  | 84.3| 113      | 74.3        | 136      | 80.5  | 196              | 91.6    | 171             | 76      | 793 | 64.774 |
| 1-2 times a week         |        | 30   | 14.3| 21       | 13.8        | 18       | 10.7  | 14               | 6.5     | 35              | 15.6    | 118 |         |
| 3-6 times a week         |        | 1    | 0.5 | 14       | 9.2         | 8        | 4.7   | 4                | 1.9     | 14              | 6.2%    | 41  |         |
| Everyday                 |        | 2    | 1   | 4        | 2.6         | 2        | 1.2   | 0                | 2.2     | 5               | 2.2     | 13  |         |
| Fruit                    |        |      |     |          |             |          |       |                  |         |
| Usually none             |        | 106  | 50.5| 93       | 61.2        | 92       | 54.4  | 141              | 65.9    | 149             | 66.2    | 581 | 31.643 |
| 1-3 pieces               |        | 88   | 41.9| 41       | 27          | 58       | 34.3  | 63               | 29.4    | 58              | 25.8    | 308 |         |
| 4 or more pieces         |        | 16   | 7.6 | 18       | 11.8        | 17       | 10.1  | 9                | 4.2     | 18              | 8.8     | 78  |         |
| Vegetables               |        |      |     |          |             |          |       |                  |         |
| Usually none             |        | 29   | 13.8| 29       | 19.1        | 47       | 27.8  | 50               | 23.4    | 42              | 18.7    | 197 | 40.064 |
| 1-2 serves               |        | 140  | 66.7| 93       | 61.2        | 97       | 57.54 | 129              | 60.3    | 129             | 57.3    | 588 |         |
| 3-4 serves               |        | 36   | 17.1| 27       | 17.8        | 17       | 10.1  | 27               | 12.6    | 32              | 14.2    | 139 |         |
| 5 or more serves         |        | 5    | 2.4 | 3        | 2           | 7        | 4.1   | 8                | 3.7     | 22              | 9.8     | 45  |         |
| Salt savouries           |        |      |     |          |             |          |       |                  |         |
| Daily                    |        | 28   | 13.3| 44       | 28.9        | 54       | 32    | 83               | 38.8    | 121             | 53.8    | 330 | 114.079 |
| 3-4 times a week         |        | 57   | 27.1| 26       | 17.1        | 33       | 19.5  | 40               | 18.7    | 45              | 20.1    | 201 |         |
| Once a week              |        | 24   | 11.4| 12       | 7.9         | 22       | 13    | 14               | 6.5     | 18              | 8.6     | 90  |         |
| Occasional               |        | 101  | 48.1| 70       | 46.1        | 57       | 33.7  | 77               | 36      | 41              | 18.2    | 346 |         |
| Non veg food             |        |      |     |          |             |          |       |                  |         |
| Never                    |        | 47   | 22.4| 13       | 8.6         | 28       | 16.6  | 90               | 42.1    | 26              | 11.6    | 204 | 140.657 |
| Rarely                   |        | 36   | 17.1| 29       | 19.1        | 30       | 17.8  | 51923.8          | 82(36.4) | 228            |         |     |
| Sometimes                |        | 64   | 30.5| 65       | 42.8        | 74       | 43.8  | 56               | 26.2    | 85              | 37.8    | 344 |         |
| Often                    |        | 63   | 30  | 45       | 29.6        | 37       | 21.9  | 17               | 7.9     | 32              | 14.2    | 194 |         |

Table 6 shows pattern of consumption of tobacco among study subjects. 91% of the respondents never smoked. Of the 9% regular smokers, most started during college. Only about 8% of the regular smokers smoked more than 20 cigarettes in a day. However, 55% of the smokers smoked more than 100 cigarettes (10 Indian packs) in their lifetime. Further, 40% of the smokers smoked everyday. 7% of the total study subjects (n=970) reported being a victim of passive smoking. 55.5% have tried to quit.

Table 7 shows course wise distribution of tobacco consumers. Nearly 50% of the smokers are students of the medical college. Of the 71 students who reported being a victim of passive smoking, over 90% were boys.

Table 8 shows pattern of consumption of alcohol among study subjects. Nearly 75% of the students started consuming alcohol after entering PUC and college. Of the 135 participants who consumed alcohol, 37% admitted to binge drinking (more than 4 drinks at a time on a frequent basis). 62% confirmed an increased tolerance to the effects of alcohol. 60% of the binge drinkers are medical students.
Table 6: Pattern of consumption of tobacco among study subjects (N=970).

| Tobacco Status                  | Number | Percentage |
|---------------------------------|--------|------------|
| Current Smoker                  | 64     | 6.59       |
| Previous Smoker                 | 24     | 2.47       |
| Never                           | 882    | 90.92      |

| Age                              | Number | Percentage |
|----------------------------------|--------|------------|
| Secondary school till 14        | 6      | 6.81       |
| Higher secondary 15-16          | 7      | 7.95       |
| PUC 17-18                       | 37     | 42.04      |
| College 19-20                   | 30     | 34.09      |
| 21+                             | 4      | 4.54       |

| ≥20 cigarettes/day              | Number | Percentage |
|---------------------------------|--------|------------|
| Yes                             | 7      | 7.95       |
| No                              | 81     | 92.04      |

| At least 100 cigarettes in the lifetime | Number | Percentage |
|----------------------------------------|--------|------------|
| Yes                                    | 49     | 55.68      |
| No                                     | 23     | 26.13      |
| Not sure                               | 16     | 18.18      |

| Smoking frequency                   | Number | Percentage |
|-------------------------------------|--------|------------|
| Everyday                            | 36     | 40.90      |
| Some days                           | 35     | 39.77      |
| Not at all                          | 9      | 10.22      |
| Not sure                            | 8      | 9.09       |

| Tried to quit                       | Number | Percentage |
|-------------------------------------|--------|------------|
| Yes                                 | 49     | 55.68      |
| No                                  | 31     | 35.22      |
| Not sure                            | 8      | 9.09       |

| Total                               |        |            |
|-------------------------------------|--------|------------|
|                                     | 88     | 100        |

| Passive smoking                     | Number | Percentage |
|-------------------------------------|--------|------------|
| Yes                                 | 71     | 7.31       |
| No                                  | 899    | 92.68      |

| Total                               |        |            |
|-------------------------------------|--------|------------|
|                                     | 970    | 100        |

Table 7: Course wise distribution of tobacco consumers (n=88).

| Tobacco status   | Course | Total   | Chi square value | p-value |
|------------------|--------|---------|------------------|---------|
|                  | MBBS   | BDS     | Pharmacy         | Engineering | Commerce |
| Current smoker   | 30 (46.9) | 6 (9.4) | 8 (12.5)        | 2 (3.1)     | 18 (28.1) | 64 |
| Previous smoker  | 4 (16.7) | 1 (4.2) | 7 (29.2)        | 3 (12.5)    | 9 (37.5)  | 24 |

Table 8: Pattern of consumption of alcohol among study subjects (n=135).

| Age when they started consuming alcohol | Number (n=135) | Percentage |
|----------------------------------------|----------------|------------|
| Secondary school (till 14)             | 7              | 5.18       |
| Higher Secondary (15-16)               | 14             | 10.37      |
| PUC (17-18)                            | 47             | 34.81      |
| College (19-20)                        | 55             | 40.74      |
| 21+                                    | 12             | 8.88       |

| Binge drinking                        | Number (n=135) | Percentage |
|----------------------------------------|----------------|------------|
| Yes                                    | 51             | 37.77      |
| No                                     | 82             | 60.74      |

| Tolerance                              | Number (n=135) | Percentage |
|----------------------------------------|----------------|------------|
| Yes                                    | 84             | 62.22      |
| No                                     | 50             | 37.03      |
DISCUSSION

Cardiovascular diseases are the leading cause of morbidity and mortality in the world as well as in India. Risk factors for the occurrence for CVDs include both non-modifiable and modifiable risk factors. Modification of behavioural risk factors can act as a primary prevention thereby reducing the risk of CVD.

The study revealed that about 45% of the students lead a sedentary lifestyle. Analyzing the data across various colleges revealed that only 25.7% of MBBS undergraduates lead an inactive life, while in the other colleges, the percentage for the same was around 40-50%. In a study conducted in Delhi among college students, 42.6% of the students reported occasional or nil physical activity. The minimum recommendation of taking at least 5 servings/day of fruits and vegetables was complied by less than 10% of the students. In the study conducted in Delhi, the percentage was almost the same (12%). Consumption of fast foods was significantly higher among boys (75%) as compared to girls (63%). It was also significantly higher among medical college students (nearly 80%). There was also a stark difference between males and females when it came to soft drink intake: 41.7% of the boys drank more than 500 ml of soft drink in one week, while only 13.7% of the girls did so. High salt intake by adding extra salt or by eating items, such as sauces/ pickles, and others, was reported by 54.7% of students, most of whom were commerce students (over 70% of them consumed salt savouries frequently). Nearly 60% of students from all the colleges consumed non-vegetarian frequently, except engineering college, where 42.1% students were vegetarian. Fish was not a popular food item in any of the colleges, which could be due to the fact that Mysuru is not a coastal city, and the availability and choice of fish based foods is relatively less. However, it was noticed that students of the dental college and college of commerce consumed the most amount of fish, which could be attributed to the fact that a vast majority of the students were from Kerala, where fish is part of the staple diet in most households.

Cheap and easily available fast foods are readily replacing a healthy and balanced diet with plenty of fruits and vegetables. Unhealthy diet is a significant focus point when it comes to medical college students. A similar conclusion was reached by a study conducted among medical college students by Škėmienė L et al, as well as by a study conducted in Delhi. MBBS undergraduates seem to be universally least bothered about eating healthy, which is a serious cause of concern.

Tobacco use

Only 6.6% of the students were current smokers, of which nearly 50% were medical students. Further, 7% of the students were passive smokers, 91.5% of them being boys. Again, nearly 50% of passive smokers were medical students. This could be due to the fact that most of the students stay in the college hostel, and students sharing rooms with smokers end up being victims of passive smoking.

Alcohol use

Alcohol consumption was reported by around 14% of the students, 37% of whom admitted to indulging in binge drinking in a frequent basis. Alcohol consumption is significantly higher among students elsewhere: the youth risk behavior surveillance in United States reported that nearly 40% of the students consumed alcohol, while a similar study conducted in Delhi reported that the percentage for the same was about 30%. Prevalence of behavioural risk factors is on the rise, and the younger generations are spiraling into a bleak future of disease and disability. There is gross lack of awareness about the health benefits of exercise, as most of the students lead a sedentary life. An exception to this is seen in the medical college, where nearly 25% of the students partook in some sort of physical activity. Another noteworthy prevalence noticed exclusively among medical students is the higher percentage of students who consume alcohol. A nationwide behavioural risk factor surveillance system in India for the young individuals, targeted at college going students, similar to the behavioural risk factor surveillance system of the United States (BRFSS) is necessary to plan and implement strategies for reducing the burden of non-communicable diseases. It is vital that students should be advised on how to take care of their health, and the importance of doing so.

ACKNOWLEDGEMENTS

The authors would like to acknowledge the support and funding by ICMR to carry out this study.

Funding: ICMR STS 2014
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. WHO. Global status report on noncommunicable diseases 2010 [Internet]. WHO. [cited 2015 Dec 10]. Available from: http://www.who.int/nmh/publications/ncd_report2010/en/
2. WHO. Global atlas on cardiovascular disease prevention and control [Internet]. WHO. [cited 2015 Dec 10]. Available from: http://www.who.int/cardiovascular_diseases/publications/atlas_cvd/en/.
3. Gupta E, Mahanta TG, Sarma R. Prevalence of Behavioural Risk Factors of Cardiovascular Diseases among High School students in Urban Dibrugarh, Assam. Int J Sci Res. 2013;2(5):438-40.

4. Remington PL, Smith MY, Williamson DF, Anda RF, Gentry EM, Hogelin GC. Design, characteristics, and usefulness of state–based behavioural risk factor surveillance: 1981-87. Public Health Rep. 1988;103(4):366-75.

5. Clinic Testing Tools. Cardiovascular Risk Assessment Questionnaire. Metagenics [Internet]. [cited 2014 Nov 11]. Available from: https://www.merridycasson.com/wp-content/uploads/2015/03/CDV-Questionnaire.pdf.

6. Wechsler H, Nelson TF. Binge drinking and the American college student: What is five drinks? Psychol Addict Behav. 2001;15(4):287-91.

7. Rustagi, DK Taneja, Mishra P, Ingle GK. Cardiovascular Risk Behavior among Students of a Medical College in Delhi. Indian J Community Med. 2011;36(1):51-3.

8. Agudo A. Joint FAO/WHO Workshop on Fruit and Vegetables for Health (2004: Kobe J. Measuring intake of fruit and vegetables [electronic resource]. 2005 [cited 2015 Dec 10]; Available from: http://www.who.int/iris/handle/10665/43144.

9. Skemiene L, Ustinaviciene R, Piesine L, Radisauskas R. Peculiarities of medical students’ nutrition. Medicina (Kaunas). 2007;43(2):145-52.

10. Chyen D, Eaton DK, Flint KF, Harris WA, Hawkins J, Kann, L, et al. Youth Risk Behavior Surveillance: United States, 2011. US Department of Health and Human Services, Centers for Disease Control and Prevention; 2012.

Cite this article as: Nair LM, Madhu B, Srinath KM, Gopinath A, Yadav K. Magnitude of behavioural risk factors for cardiovascular diseases among college going young adults (18-25 years) in Mysuru, Karnataka, India. Int J Community Med Public Health 2017;4:65-72.