

## Lifestyle Disease Risk Factors Among First Year Medical Students In Bareilly

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**Abstract:** Background & Objectives: Life style related risk factors are mainly implicated for increased burden of cardio-vascular diseases. Early identification of these risk factors especially among medical students is essential, considering their role as future physicians and role models in public health intervention. Prevalence of lifestyle related risk factors among the medical students of Rohilkhand Medical College and Hospital, Bareilly was studied. Methods: This cross sectional study was carried out among the first year medical students of Rohilkhand Medical College and Hospital, Bareilly after taking ethical clearance from institutional ethical committee and informed consent of students. A structured pretested questionnaire was used to collect detailed information about the subjects' self-reported behavioral and lifestyle associated risk factors for (Tobacco use, alcohol consumption, physical inactivity and type of diet), the measurement of subject's blood pressure and anthropometrical parameters. Results: Out of the 99 respondents, nearly 30.3% of students had a family history of hypertension while 41.4% had a family history of diabetes. Nearly one third were found to be overweight. The prevalence of hypertension was 24.2%. Nearly 14.1% respondents had a smoking habit while 8.1% consumed tobacco in smokeless form. About 10.1% students admitted that they had consumed alcohol during the last one year. Only one third of the respondents did regular physical exercise. A higher proportion of respondents (53.4%) were vegetarians. Most of students (83.8 %) added extra salt to their cooked food items. Also a higher proportion of respondents had an adverse food intake (56.6%). Conclusion: Early identification of lifestyle risk factors and their modification among medical students is required. [ Mahmood S E et al NJIRM 2013; 4(5) : 50-54]

**Key Words:** Prevalence, risk factors, medical students, lifestyle modifications

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**Introduction:** According to a WHO report from 2005, non communicable diseases (NCDs), especially cardiovascular disease, cancer, and Type II diabetes mellitus account for 53% of all deaths and 44% of Disability Adjusted Life Years (DALYs) in India.<sup>1</sup> Whereas unhealthy diet and a lack of physical exercise are leading causes of NCDs, there exists a number of risk factors such as high blood pressure, high serum cholesterol, inadequate intake of fruits and vegetables, excess weight, physical inactivity, and alcohol and tobacco use. It has been projected that in the next 10 years, India would be losing an estimated \$237 billion in the national income as a result of NCDs due to reduced economic productivity.<sup>1</sup> Adolescence is a significant period of growth and maturation, unique changes occur and many adult patterns are established during this period.<sup>2</sup> Medical students joining Medical Colleges represent this group.

Overweight and obesity during this period are associated with risk factors for obesity related diseases.<sup>3</sup> The present study is an endeavor to

study the health status of medical students joining the Medical College.

The literature on lifestyle disease risk factors of medical students was scarce; thereby the present study was undertaken to find out prevalence of lifestyle disease risk factors among the medical students of Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India.

**Material and Methods:** This three months (January –March 2012) cross sectional study was carried out among the first year medical students of Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India. The approval for this study was obtained from the institutional ethical committee and the consent of all the students was taken. All the first medical students who were present in the lecture theatre were surveyed and they comprised the study unit. A total of 99 out of 100 students participated in the study. A structured, self administered pretested questionnaire was used to collect detailed information about the subjects' self-reported

behavioral and lifestyle risk factors for non communicable diseases (Smoked and smokeless tobacco used, alcohol consumed, level of physical activity done and detailed dietary history were recorded), the measurement of subject's blood pressure and anthropometrical parameters. The measurements were taken by the authors themselves. The students were assured confidentiality of their responses.

Following Operational Definitions were put to use in the present study: Hypertension (using JNC 7 criteria)- mean systolic BP  $\geq$  140mmHg and/or mean diastolic BP  $\geq$  90mmHg or history of anti hypertensive treatment fifteen days before the survey.

Current smoker- someone who in the preceding month of survey, smoked in any form either daily or occasionally.

Current smokeless tobacco use- reported consumption of smokeless tobacco in any form in the preceding month of the survey either daily or occasionally.

Alcohol consumption- reported consumption of alcohol in the year preceding the survey.

Overweight- body mass index level of  $> 23$  Kg/m<sup>2</sup>.

Adverse food intake-consumption of adverse foods items at least twice a week

History of frequency of consumption of adverse foods items such as cheese, butter, fried local foods, red meat, eggs, chicken, fish, aerated soda or sugar, sweetened drinks, pizza, burger, French fries, bakery items, samosa, namkeen etc was also taken. <sup>4</sup>

For physical examination, standardized calibrated mercury column type sphygmomanometer; stethoscope, common weighing machine and measuring tape were used. During the course of the interview, two measurements of blood pressure on each study participant with a mercury column sphygmomanometer were made using a

standardized technique 30 minutes apart in sitting position.<sup>5</sup>

Body weight was measured (to the nearest 0.5kg) with the subject standing motionless on the weighing scale, feet about 15cm apart and weight equally distributed on each leg. Subjects were instructed to wear minimum outwear (as culturally appropriate) and no footwear while there weight was being measured.

Height was measured (to the nearest 0.5cm) with the subject standing in an erect position against a vertical surface, and the head positioned so that the top of the external auditory meatus was level with the inferior margin of the bony orbit (Frankfurt's plain).

Body Mass Index was calculated as weight in kilograms divided by weight in meters squared. The cutoff value for normal BMI for men and women was 23 kg/m<sup>2</sup>. <sup>6</sup>

Data entry and statistical analysis were performed using the Microsoft Excel and SPSS windows version 14.0 software. The test of significance (Pearson's Chi-square test) was applied to find out the results. The p values which were  $<0.05$  were considered as significant.

**Result:** The overall response rate was 99.9% (99/100). Out of the 99 respondents, 52.5% were males. Majority of the respondents (64.6%) were aged above 20 years and were Hindus (87.9%). Nearly 30.3% had a positive family history of hypertension while 41.4% had a positive family history of diabetes. Table 1

**Table 1: Distribution of respondents according to demographic characteristics and family history of hypertension and diabetes:**

| Characteristics   | Total (n=99) |
|-------------------|--------------|
|                   | No. (%)      |
| Gender            |              |
| Male              | 52 (52.5%)   |
| Female            | 47 (47.5%)   |
| Age group (years) |              |

|   |            |
|---|------------|
| < 20                                    | 35 (35.4%) |
| 20 and above                            | 64 (64.6%) |
| Religion                                |            |
| Hindus                                  | 87 (87.9%) |
| Muslims                                 | 7 (7.1%)   |
| Sikhs                                   | 5 (5.1%)   |
| Positive family history of hypertension |            |
| Present                                 | 30 (30.3%) |
| Absent                                  | 69 (69.7%) |
| Positive family history of diabetes     |            |
| Present                                 | 41 (41.4%) |
| Absent                                  | 58 (58.6%) |

About one third were found to be overweight. The prevalence of hypertension was 24.2%. Nearly 14.1% respondents had a smoking habit while 8.1% consumed tobacco in smokeless form. About 10.1% students admitted that they had consumed alcohol during the last one year. Only one third of the respondents did regular physical exercise. A higher proportion of respondents (53.4%) were vegetarians. Most of students (83.8 %) added extra salt to their cooked food items. Also a higher proportion of respondents had an adverse food intake (56.6%). Tobacco use, increased salt intake and an increased body mass index was found to be significantly higher among the males while lack of regular physical exercise and adverse food intake was significantly higher among the females. Table 2

**Table 2: Gender wise distribution of respondents according to modifiable risk factors:**

| Risk factors           | Males<br>(n=52) | Females<br>(n=47) | Total<br>(n=99) | p-value |
|------------------------|-----------------|-------------------|-----------------|---------|
|                        | No. (%)         | No. (%)           | No. (%)         |         |
| <b>Body mass index</b> |                 |                   |                 |         |
| Normal                 | 30<br>(30.3%)   | 36<br>(36.4%)     | 66<br>(66.7%)   | <0.05   |
| Increased              | 22<br>(22.2%)   | 11<br>(11.1%)     | 33<br>(33.3%)   |         |
| <b>Hypertension</b>    |                 |                   |                 |         |
| Present                | 13<br>(13.1%)   | 11<br>(11.1%)     | 24<br>(24.2%)   | >0.05   |
| Absent                 | 39<br>(39.4%)   | 36<br>(36.4%)     | 75<br>(75.8%)   |         |

| <b>Smoking status</b>                      |               |               |               |       |
|--|---------------|---------------|---------------|-------|
| Smokers                                    | 14<br>(14.1%) | 0 (0.0%)      | 14<br>(14.1%) | <0.05 |
| Non-smokers                                | 38<br>(38.4%) | 47<br>(47.5%) | 85<br>(85.9%) |       |
| <b>Current smokeless tobacco use</b>       |               |               |               |       |
| Present                                    | 8<br>(8.1%)   | 0 (0.0%)      | 8<br>(8.1%)   | <0.05 |
| Absent                                     | 44<br>(44.4%) | 47<br>(47.5%) | 91<br>(91.9%) |       |
| <b>Alcohol consumption</b>                 |               |               |               |       |
| Present                                    | 8 (8.1%)      | 2 (2.0%)      | 10<br>(10.1%) | >0.05 |
| Absent                                     | 44<br>(44.4%) | 45<br>(45.5%) | 89<br>(89.9%) |       |
| <b>Regular physical exercise</b>           |               |               |               |       |
| Present                                    | 24<br>(24.2%) | 11<br>(11.1%) | 35<br>(35.4%) | <0.05 |
| Absent                                     | 28<br>(28.3%) | 36<br>(36.4%) | 64<br>(64.6%) |       |
| <b>Diet</b>                                |               |               |               |       |
| Vegetarian                                 | 24<br>(24.2%) | 29<br>(29.3%) | 53<br>(53.5%) | >0.05 |
| Non vegetarian                             | 28<br>(28.3%) | 18<br>(18.2%) | 46<br>(46.5%) |       |
| <b>Add extra salt to cooked food items</b> |               |               |               |       |
| Yes  | 12<br>(12.1%) | 4 (4.0%)      | 16<br>(16.2%) | <0.05 |
| No   | 40<br>(40.4%) | 43<br>(43.4%) | 83<br>(83.8%) |       |
| <b>Adverse food intake</b>                 |               |               |               |       |
| Present                                    | 17<br>(17.2%) | 39<br>(39.4%) | 56<br>(56.6%) | >0.05 |
| Absent                                     | 18<br>(18.2%) | 25<br>(25.3%) | 43<br>(43.4%) |       |

**Discussion:** Nearly 30.3% of the medical students had a positive family history of hypertension while 41.4% had a family history of diabetes in our study. 33% had a family history of coronary artery disease in the study conducted among Pakistani medical students.<sup>7</sup>

About one third were found to be overweight in the current study. The prevalence of overweight was 11.7% in a study conducted among medical

students of Delhi.<sup>8</sup> Prevalence of overweight was reported to be 17.5% among undergraduate medical students by Gupta et al.<sup>9</sup> The prevalence of hypertension was 24.2% in the current study. Prevalence of hypertension according to the JNC VI criteria was observed to be 7.16% in the Delhi study by Chhabra et al.<sup>8</sup> Nearly 14.1% respondents had a smoking habit while 8.1% consumed tobacco in smokeless form in our study. Warren et al (2008) reported that in 47 out of 80 global health professional students' survey sites around the world, over 20% of the medical students currently smoked cigarettes; and that in 29 of 77 sites, over 10% of the medical students currently used other tobacco products.<sup>10</sup> About 10.1% students admitted that they consumed alcohol during the last one year in our study. Garg et al conducted a study among medical students and found that alcohol dependence was found in 6.09% of the students and majority of students started consuming alcohol after admission in the medical college(3). Substance use is reported between 32.5% to as high as 81.2% among medical students, interns and house physicians.<sup>11</sup>

Only one third of the respondents did regular physical exercise in this study. Physical inactivity was found in 43.5% of medical students of Tehran.<sup>12</sup> A higher proportion of respondents (53.4%) were vegetarians in our study. This is in contrast to the findings reported by the study conducted in Maharashtra were 61.11% of the medical students were non-vegetarians.<sup>13</sup> Most of students (83.8 %) added extra salt to their cooked food items in this study. About half of the students from a medical college in Delhi had a high salt intake by adding extra salt or by eating sauces and pickles.<sup>3</sup> A higher proportion of respondents had an adverse food intake (56.6%) in our study. Frequent consumption (at least once or more) of fast foods on a daily basis was reported by 32% of medical students in the Delhi study.<sup>3</sup> Tobacco use and increased salt intake was found to be significantly higher among the males in our study while lack of regular physical exercise and adverse food intake was significantly higher among the females. Similar gender differences regarding smoking was reported in a study conducted among

medical students of Myanmar.<sup>14</sup> Daily intake of non-vegetarian diet and cold drinks was significantly higher in boys compared to girls in the Maharashtra study.<sup>13</sup> This is in contrast to the findings reported in our study. Shaikh et al identified gaps in the knowledge regarding both modifiable and non-modifiable risk factors of hypertension among medical students from UAE.<sup>15</sup> The awareness regarding risk factors about lifestyle diseases should be improved among medical students. This will prevent the development of lifestyle risk factors among these future doctors. Early identification of lifestyle risk factors and their modification among medical students is required.

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