

# Non Communicable Diseases Risk Factors among Students of a Government Medical College in Kolkata

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## ABSTRACT

**Background:** Non communicable diseases are increasing -both in developed and developing countries. These diseases usually occur after exposure to different risk factors for long period of time. By modifying these risk factors disease load can be minimized in the community.

**Methods:** Observational descriptive cross sectional study was conducted among undergraduate students of a medical college of Kolkata. Data about personal characteristic and behavioural risk factors were collected by a pre designed questionnaire. Then Blood pressure and height, weight and waist circumference were measured according to standard procedure.

**Result:** Among students 19% were smoking tobacco products, 1.7% chew tobacco products and 16.7% have consumed alcohol in last three months. Fifteen percent students were not involved in any type of physical exercise and 66% students did physical exercise for less than 150 minutes per week. One third (35%) students were overweight or obese. Family history of hypertension, diabetes and coronary heart diseases was present in 40.50%, 33.6% and 37.5% of the study subjects respectively.

**Conclusion:** Large proportion of students was exposed to different risk factors of non communicable diseases. Early intervention is necessary to modify the behavioural risk factors for prevention of NCD in the future.

**Key words:** Non communicable diseases, risk factors, students, medical college

## INTRODUCTION

Worldwide Non communicable diseases (NCDs) are the leading causes of death, killing more people each year than all other causes combined. <sup>[1]</sup> In 2016, 71% of

all death were due to NCDs, principally cardiovascular diseases, diabetes, cancer and chronic respiratory diseases. <sup>[2]</sup> Nearly 80% of NCD deaths occur in low- and middle-income countries. In India NCD was estimated to account for 63% of all death. Risk of premature death between 30-70 years is 23% in India. <sup>[3]</sup> NCDs are caused, to a large extent, by four behavioural risk factors: tobacco use, unhealthy diet, insufficient physical activity and the harmful use of alcohol. <sup>[1]</sup> Non communicable diseases are increasing -both in developed and developing countries. These diseases occur after long latent period. The populations are usually exposed to the risk factors for long period. <sup>[4]</sup> The common behavioral risk factors like tobacco and alcohol use, sedentary life style, unhealthy dietary practices are very important risk factors for many non communicable diseases like hypertension, stroke, ischemic heart diseases etc. These risk factors are modifiable and most effective intervention in modifiable risk factors is primordial prevention. Health care workers have great role in this primordial prevention from early years of life. Medical officer is the team leader of health team in every level of health care. So, doctors should act as a role model to young population. The medical students are the future team leaders of the health care team. In this background the present study was conducted to study the risk factors of non communicable diseases among the medical students in a government Medical College of Kolkata.

## MATERIALS AND METHODS

Present study was conducted among undergraduate medical students in a Medical College of Kolkata. Out of total 600 undergraduate students enrolled in the College at the time of study 50% was selected randomly for the study. Students were explained the objective of the study and cooperation was sought. After obtaining consent from the study population they were included in the study. At first anthropometric measurement (height, weight, waist circumference) and blood pressure measurement was done. Then the questionnaire was handed over to the student for collection of personal behavioral data. That part was self administered. Confidentiality and anonymity of the data was maintained. Weight was measured using a weighing scale to the nearest 0.1 kg and height was recorded on vertical stadiometer to the nearest 0.1 cm. Body Mass Index (BMI) was calculated by using Quetelet's formula i.e. body weight in kilograms/ height in meter square. Waist circumference (WC) was measured at the midpoint between lower rib margin and iliac crest at the end of expiration and hip circumference (HC) was measured at the maximal circumference over the buttocks using unstretchable tape.

For blood pressure measurement two readings were taken at interval of 5 minutes in sitting position for every student and average of these 2 readings were noted and classified as provided in JNC VII.

All the data were entered in Microsoft excel data sheet and data were analysed with SPSS 17.0 software. Frequencies and percentages were calculated.

## RESULTS

Total no of students included in the study was 300-among them 30% were female and rest 70% male. About three fourth (74.7%) were staying in hostels or in private mess and rest were staying with their families. Mean age of the students was 20.74 years, range 18-26 years and standard

deviation 1.62 years. Overwhelming majority (94%) was Hindu and rests were Muslim, Sikh and Buddhist.

Table1.Soco demographic characteristic of the study subjects (n=300)

Variable	Number	Percentage
Sex		
Male	210	70
Female	90	30
Religion		
Hindu	282	94.0
Muslim	16	5.4
Other	2	00.6
Accommodation type		
Day scholar	76	25.3
Boarding	224	74.7

Table 2.Distribution of risk factors in the study subjects (n=155)

Variable	Number	Percentages
Body mass index		
Underweight (< 18.5 kg/m <sup>2</sup> )	27	9.0
Normal (18.5–24.9 kg/m <sup>2</sup> )	168	56.0
Overweight (25–29.9 kg/m <sup>2</sup> )	91	30.3
Obese (≥30 kg/m <sup>2</sup> )	14	4.7
Waist circumference		
Normal	242	80.7
High	58	19.3
Blood Pressure		
Normal	73	24.33
Pre hypertensive	199	66.3
Hypertensive	28	9.33
Family History		
hypertension	122	40.50
Diabetes	101	33.6
Coronary heart diseases	112	37.5
Physical Activity		
No exercise	45	15
<150minutes /wk	198	66.
≥150minutes/wk	57	19
Alcohol consumption		
Yes	49	16.3
No	251	83.7
Smoking Habit		
Yes	57	19.0
No	243	81.0

**Smoking:** Currently 19% students were smoking tobacco products and 1.7% chew tobacco products.27.3% students have used tobacco products any times in their life. One interesting observation was that only 6.7% students have started using tobacco products before 18 years of age.

**Alcohol:** 16.7% students have consumed alcohol in last three months. More than one fourth students (26.7%) have consumed alcohol any time in their life. Only 3.7% students consumed alcohol before 18 years.

**Physical exercise:** 15% students were not involved in any type of physical exercise. Brisk walking was the commonest (73.3%)

type of physical exercise. Other type of physical exercise were yoga(15%), outdoor games like football (2.7%) and cricket (5.6%), table tennis (2.3%), cycling (16.7%), dancing, swimming and others. 66% student do physical exercise for less than 150 minutes per week (30 minutes per day, 5 days a week). When going up and down about half of the student prefer elevator -51.3% and 48% respectively. 27.7% students used to surf internet two hours or more in a day.

**Nutritional status and Diet:** In the present study 56% students had normal body BMI. About one third (30.3%) students were overweight and 4.7% were obese. In 19.3% students' waist circumference was high.

Majority of the students were non-vegetarian (90%). Majority (79.3%) consumed vegetable daily. More than half (51%) consumed fruits less than three times in a week. 61% consumed fish three times or more in a week and corresponding percentages for mutton, chicken and egg were 8.3%, 26.7% and 57.0% respectively. Only 50.7% consumed milk on daily basis. 37% student used extra salt to served food. More than one third (35%) student consumed fast food 3 or more times in a week. 40.67% boys and 15.78% girl add extra salt sometimes in food. 38.27% boys and 59.89% girl never add extra salt to food. 71% student used mustard oil as cooking oil and 23% student used refined vegetable oil and rest (4%) used other type of cooking oil.

In 40.50% students there was family history of hypertension. Corresponding percentages for diabetes and coronary heart diseases was 33.6% and 37.5% respectively.

## DISCUSSION

Chronic non communicable diseases have a long latent period. The risk factors must be present for long time to initiate the disease process. Disease process can be prevented or modified by controlling the risk factors. It is better to prevent the emergence of risk factors. In this study we have studied the non communicable disease risk factors in the young medical students.

This young population also we found they were exposed to many risk factors. Many of them also had family history of hypertension, diabetes and ischaemic heart disease. Risk factors like tobacco and alcohol use, sedentary life style, unhealthy dietary practices are very important for these diseases. In the present study 19% were tobacco user and 16.3% were alcohol user. In a study among students from a campus use of tobacco (2.4%) and alcohol (2.5%) were very low. [5] Here majority of the students were female. In another study in a medical college in West Bengal. The rates for Tobacco use (5.0%) and alcohol use (6.0%) were also low. [6] In another medical college in West Bengal the rates were higher in senior year student than junior students. [7] Other studies had also reported higher rate in senior students. [8] This speaks for the need for primordial prevention for risk factors of non communicable diseases.

Other important risk factors are physical inactivity. Fifteen percent were not involved in any physical exercise and about two third were involved in physical exercise for less than 150 minutes in a week. Even in School children also 26.4% were not involved any exercise. [9] Physical inactivity was reported more in senior in the Delhi study. [8] This increase may be due to influence of other student in the college over the years. Other studies [10] also reported high rate (40.3%) of physical inactivity.

Obesity and overweight is an important non communicable diseases risk factors and Obesity is linked to an increased risk of hypertension, many NCDs (such as diabetes, coronary heart disease, stroke, and cancers. 35% of the present study population was overweight or obese. High percentage of overweight and obese was also reported by other study. [7,11] But in Kanpur college students only 9.8% were pre obese/obese. [5] Dietary pattern of the students are not encouraging. Consumption of fruit and vegetable was less. More than one third (35%) student consumed fast food

3 or more times in a week. 40.67% boys and 15.78% girl add extra salt in food. Manna et al, also reported this type of dietary practices in their study in Kolkata. [6]

History of hypertension, diabetes, heart diseases was present in more than one third of the study population. Even some students were also hypertensive and many were prehypertensive. In India hypertension is showing an increasing trend. [2] Different studies have showed history of these conditions in substantial proportions. [6,7]

## CONCLUSION

Large proportions of students were exposed to different risk factors of non communicable diseases. Early intervention is necessary to modify the behavioural risk factors. Even primordial prevention in school level should be introduced so that they do not take up the unhealthy life style practices.

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