International Journal of Community Medicine and Public Health
Yasmin S et al. Int J Community Med Public Health. 2019 Jul;6(7):2816-2820
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: http://dx.doi.org/10.18203/2394-6040.ijcmph20192610

Original Research Article

A study on prevalence of risk factors of non-communicable diseases among undergraduate medical student

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Received: 22 May 2019
Revised: 06 June 2019
Accepted: 07 June 2019

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ABSTRACT

Background: Non communicable diseases (NCDS) also referred to as "lifestyle diseases" are the leading cause of death globally. Most of the NCD risk factors are behaviorally acquired which are due to change in lifestyle during adolescent age groups With this in mind the present study was conducted with the following objective to determine the prevalence of risk factors of NCDS among medical undergraduates of a district of West Bengal.
Methods: Cross-sectional observational study among 96 medical students of a medical college in a district of West Bengal using WHO STEPS questionnaire. Analysis of results was done by percentage and proportion.
Results: A total of 96 students were interviewed and examined. Mean age was 19.3 years.12.5% were current smokers, 8.3% were alcohol users. 53.1% did no exercise. 46.5% female and 37.7% male had mild to moderate risk of high BMI, 51.2% female had abnormal waist circumference. 46.5% girls had abnormal waist hip ratio. 34.8% female and 35.8% males were pre hypertensive while 4% boys were hypertensive. Out of 22 students who had undergone blood test, 4.5% were early diabetic. 13.6% had borderline risk and 4.5% high risk for blood cholesterol.
Conclusions: A high prevalence of risk factors for non-communicable diseases was found in the present study which emphasizes the need of interventions to reduce these risk factors among these future doctors.

Keywords: Non-communicable diseases, Risk factors, Lifestyle, Anthropometry

INTRODUCTION

Non communicable diseases (NCDS) also referred to as "lifestyle diseases" are the leading cause of death globally. According to WHO NCDs, including heart disease, stroke, cancer, diabetes and chronic lung disease, are collectively responsible for almost 70% of all deaths worldwide.[1] The rise of NCDs has been driven by primarily four major risk factors: tobacco use, physical inactivity, the harmful use of alcohol and unhealthy diets.[2]

Death from NCDS is on the rise, with developing world being hit hardest. Majority of these diseases are preventable illnesses. So interventions targeting the main risk factors (e.g. smoking, alcohol intake, physical inactivity etc.) could have a significant impact on reducing the burden of non-communicable diseases.

Most of the NCD risk factors are behaviorally acquired which are due to change in lifestyle during adolescent age groups.[3]

As the major NCDs risk factors are well documented, exposure to modifiable risk factors start in younger ages hence screening medical college students is definitely justified who will also be our future medical expert.[4] With this in mind the present study was conducted with

the following objective to determine the prevalence of risk factors of NCDS among medical undergraduates of a district of West Bengal.

METHODS

Study design and setting

This was a cross-sectional institution based observational, descriptive type of study conducted in March 2017 to May 2017 in Midnapore Medical College Paschim Medinipur, West Bengal.

Study participants

Study participants were medical undergraduate students.

Sample size: 96.

Sampling technique

Out of students of 5 different batches of the college, a particular batch was chosen randomly and students from that batch were chosen as study participants. All students of the particular batch present on the day of data collection were included in the study.

Study tools

Pre-designed, Pre-tested, semi-structured interview schedule based on WHO Steps approach, BP machine, stadiometer, bathroom type weighing machine, laboratory blood reports

Study technique

After obtaining permission from higher authority the students were told about the study objectives importance and the procedure of the study. They were encouraged to participate in the study. After obtaining consent students were interviewed with the help of pre designed semi structured questionnaire regarding socio demographic factors like age, gender, religion, family history of NCDs etc. then anthropometry and BP was recorded, weight was recorded in nearest 500 g by standard bathroom scale, height was recorded in nearest 0.1 cm by stadiometer, waist and hip circumference were measured in cm by measuring tape, BP was recorded by sphygmomanometer and classified according to JNC-8. BMI was calculated from height and weight measurements. For analysis of BMI, South Asia Pacific guidelines were followed.[5] Students having more than 3 risk factor were motivated to undergo blood tests and those who consented their laboratory tests were done. This study was in accordance with Helsinki declaration. Waist and Hip circumference were measured in cm using non- stretchable measuring tape. Following South Asia Pacific guidelines for males >90 cms and for females >85 cms were taken as abnormal to calculate central obesity. Waist hip ratio >1.0 for men and >0.85 for women were taken as abnormal.

Operational definition[6]

Current tobacco user: Someone who at the time of survey used tobacco either daily or occasionally.

Current alcohol user: Those who consumed 1 or more (30 ml) of any type of alcohol in the year preceding the survey.

Fruits and vegetables: 100 gm was considered as one serving. WHO recommends consumption of at least 400 grams of vegetables and fruits per day as adequate.

Adequate physical activity: Recall for one week. Physical activity of moderate intensity at least 30 minutes per day in any sphere of their daily routine activity (working hours, travelling, leisure time) for 5 days in a week i.e., ≥150 minutes/week was considered as adequate.

Students who had 3 or more risk factors were considered as at risk and advised for biochemical investigation. For biochemical investigations fasting blood sugar and serum cholesterol were taken

Statistical analysis

Data were entered into an MS Excel sheet. Data were analyzed by appropriate statistical techniques. Tables and diagrams were constructed.

Ethical issues and necessary approval

The study obeyed the ethical standards for an observational study and approved by the Institutional Ethics Committee, Informed written consent was obtained from each of the study participant.

RESULTS

A total of 96 students were interviewed and examined. Table 1 denotes the socio-demographic profiles of the study population. The mean age of the participants was 19.3 years Range varied from 18 to 22 years. 41.7% of the students were of 19 years of age. 53 were male (55.2%), 85.4% were Hindus. 80.4% were staying in the hostel. Majority of the participants were hailing from upper socioeconomic class as per modified BG Prasad socio economic scale January 2018.[7] 70.4% were from nuclear family. Positive family history of hypertension (54.2%), cardio vascular diseases (10.4%), diabetes mellitus (40.6%), obesity (20.8%), and dyslipidemia (07.3%) were present.

Table 2 depicts the lifestyle related findings 53.1% did no exercise. 12.5% were current smokers, 8.3% were alcohol users. 85.4% were non vegetareans.95.8% skipped meals.

Although 68.85 had vegetables only 17.7% had adequate fruits. 66.7% had history of intake of adverse food habit.

Table 3 shows 46.5% female and 37.7% male had mild to moderate risk of high BMI, 51.2% female and only 1.8% male had abnormal waist circumference. None of the boys but 46.5% girls had abnormal waist hip ratio. 34.8% female and 35.8% males were pre hypertensive while 4% boys but no girls were frank hypertensive according to JNC-8 criteria.

Table 1: Sociodemographic variables and family history of non communicable diseases among medical undergraduates (n=96).

Variables			
Mean age in years		19.3	
		No	%
Residence	Rural	33	34.3
	Urban	63	65.7
Type of student	Boarder	81	84.4
	Day Scholar	15	15.6
Religion	Hindu	82	85.4
	Muslim	12	12.5
	Christianity	2	2.1
Gender	Male	53	55.2
	Female	43	44.8
Family type	Nuclear	28	70.8
	Joint	68	29.2
Socio-economic status*	Class I	72	75.0
	Class II	17	17.7
	Class III	07	07.3
Positive family history#	Hypertension	52	54.2
	Cardio vascular diseases	10	10.4
	Diabetes mellitus	39	40.6
	Obesity	20	20.8
	Dyslipidemia	07	07.3

#= Multiple response; *B. G. Prasad Scale, Jan 2016.

Table 2: Distribution of the students according to life style related risk factors.

Variables		No	%
Physical exercise	No exercise	51	53.1
	<150 mins/week	29	30.2
	≥150 mins/week	16	16.7
Current alcohol user	No	88	91.7
	Yes	08	08.3
Current smoker	Yes	12	12.5
	No	84	87.5
Primary diet	Vegetarian	14	14.6
	Non vegetarian	82	85.4
Skipped meals	Yes	92	95.8
	No	04	04.2
Snacks in between meals	1-5 times/day	13	13.5
	Occasionally	73	76.0
	No	10	10.4
Intake of vegetables	≥2 servings/day	66	68.8
	No or <2 servings/day	30	31.2
Intake of fruits	No or <2 servings/day	17	17.7
Adverse food intake	≤3 times/week	64	66.7
	>3 times/week	32	33.3

Table 3: Distribution of study population according to anthropometric measurements, blood pressure with gender.

Variables		Male (n=53)	Female (n=43)	Total	Percentage
		N (%)	N (%)		(%)
Body mass index (kg/m^2)	Underweight (<18.5)	04 (07.1)	04 (09.3)	8	8.3
	Acceptable (18.5-23)	26 (49.0)	15 (34.8)	41	42.7
	Mild-moderate risk (23.1-27.5)	20 (37.7)	20 (46.5)	40	41.7
	Higher high risk (≥27.6)	03 (05.7)	04 (09.3)	7	7.3
Waist circumference	Normal	51 (96.2)	21 (48.8)	72	75.0
	Abnormal	02 (01.8)	22 (51.2)	24	25.0
Waist:hip ratio	Normal	53 (100.0)	23 (53.5)	76	79.2
	Abnormal	00 (00.0)	20 (46.5)	20	20.8
Blood pressure	Normal	30 (56.6)	28 (65.2)	58	60.4
	Pre hypertension	19 (35.8)	15 (34.8)	34	35.4
	Increased	04 (07.5)	00 (00.0)	4	4.2

Table 4: Medical students and their biochemical parameters (n=22).

Variables		No	%
Fasting blood sugar	Normal (70-100 mg/dl)	21	95.5
	Early diabetes (101-125 mg/dl)	01	04.5
Blood cholesterol	Desirable (<200 mg/dl)	18	81.9
	Borderline (200-239 mg/dl)	03	13.6
	High risk (≥240 mg/dl)	01	04.5
Blood triglyceride	Desirable (<150 mg/dl)	19	96.4
	Borderline (150-199 mg/dl)	01	04.5
	High risk (≥200 mg/dl)	02	09.1

Table 4 shows the laboratory report of 22 students undergoing blood test. 4.5% were early diabetic. 13.6% had borderline risk and 4.5% high risk for blood cholesterol. 9.1% had high risk of blood triglyceride.

DISCUSSION

In the present study a high prevalence of risk factors for non-communicable diseases was found which calls for interventions. High prevalence of behavioral, biological and biochemical risk factors for non-communicable diseases.

In our study 34.8% female and 35.8% males were pre hypertensive while 4% boys were hypertensive, while a similar study conducted among medical students of south Kolkata only 13.6% boys and 6.3% girls had elevated BP.[4] Although it that study inadequate intake of fruit was 96.4% and inadequate intake of vegetable was 90.9% which is quite high in comparison to our study where the values are respectively 31.2% and 17.7%.

A similar study conducted in Nepal among dental and medical students nearly 40% of respondent had family history of one or more chronic non-communicable diseases (NCDs) like hypertension, diabetes, dyslipidemia, or thyroid disorder. In our present study it is 40.6%.[8]

In our study 46.5% female and 37.7% male had mild to moderate risk of high BMI while in the study from Nepal only 11% male and 14.5% female were either pre-obese (over weight) or obese.[8]

In the study conducted in Tamil Nadu 30% of the medical students had the habit of regular physical activity while in present study it is only 16.7%.[9]

Among the 96 students 22 students who had more than 3 risk factors had undergone blood test and the laboratory report states 4.5% were early diabetic. 13.6% had borderline risk and 4.5% high risk for blood cholesterol. 9.1% had high risk of blood triglyceride, which is quite alarming. In the similar study conducted in Tamil Nadu in 2017 the rates are higher fasting sugar (>100 mg) was present for 17.9% males and 2.4% females, cholesterol (>200 mg) was present for 19.8% male and 3.5% female and also triglyceride (>175 mg) was present for 22.6% male students and 6.6% female students.[9] This variation can be due to different study settings and study tools.

Recommendations

So we see that NCD risk factors were quite prevalent in this study, following recommendations Students are suggested to have a balanced diet and increase fruits & vegetable intake, reduce intake of salty foods and junk

foods. Hostel canteen authorities were requested to prepare healthy food especially vegetable items regularly for the students. Regarding physical activities they were encouraged to practice yoga or any other form of exercise at least 30 minutes on daily basis esp. female students. Habit of using stairs was encouraged. Students having abnormal value were advised attend medicine OPD.

CONCLUSION

A high prevalence of risk factors for non-communicable diseases was found in the present study which emphasizes the need of interventions to reduce these risk factors. There is huge scope to curb the modifiable risk factors among our future doctors by encouraging the students to modify their behavior related life styles such as smoking habits, alcohol use etc. peer groups were encouraged to help their friends with risk factors. Periodic screening of the students at regular intervals is required for our future doctors as evident from the present study to curb the epidemic of non-communicable disease.

Limitations of the study

In the present study, all patients were interviewed so there may be subjective variation or conscious falsification regarding sensitive questions like addiction which cannot be verified. Recall bias might be present.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Yasmin S, Panja TK, Baur B. A study on prevalence of risk factors of non-communicable diseases among undergraduate medical student. Int J Community Med Public Health 2019;6:2816-20.