



## RISK FACTORS OF NON COMMUNICABLE DISEASES (NCDs) AMONG MEDICAL PROFESSIONALS: A CROSS-SECTIONAL STUDY IN A TERTIARY HEALTH CARE INSTITUTION, KOLKATA

### Community Medicine

**Dr Sukesh Das**

Assistant Professor, Department of Community Medicine, College of Medicine and Sagore Dutta Hospital, Kamarhati, Kolkata-700058

**Dr Nivedita Das \***

Associate Professor, Department of Community Medicine, College of Medicine and Sagore Dutta Hospital, Kamarhati, Kolkata-700058 \*Corresponding Author

### ABSTRACT

**Introduction:** There is growing burden of Non communicable diseases (NCDs) and its risk factors globally especially in developing countries like India. Medical professionals are vulnerable for the presence of such risk factors and consequently NCDs.

**Objectives:** To assess the prevalence of risk factors for NCDs among medical professionals of a tertiary health care institution, Kolkata.

**Methods:** A cross-sectional study was conducted among 72 doctors of a Government Medical College, West Bengal. A self-administered questionnaire was used to collect data and measurements viz. Weight, Height, Waist Circumference and BP were taken.

**Results:** About one fifth of the study subjects were current smokers. More than one fourth(26.4%) study subjects were current alcohol drinker. More than half (61.1%) of the physicians indulged in physical activity below recommended level. More than nine-tenth had unhealthy diet. Less than one-third(30.5%) of the physicians had normal blood pressure, 16.7% were hypertensive and 52.8% were pre-hypertensive. Alarmingly, four-fifth of the study subjects were overweight or obese; 73.6% were obese. And almost half of them(45.8%) had central obesity— significantly more among female faculties(p=.00).One-fifth of the physicians reported as diabetic.

**Conclusion:** Risk factors for NCDs were present among the doctors in alarming proportions.

### KEYWORDS

Non communicable diseases (NCDs), Physicians, Risk factors, STEPS

#### INTRODUCTION

Non communicable diseases (NCDs) are increasing among in both developed and developing countries. Now-a-days, NCDs i.e. cardiovascular diseases, cancers, diabetes mellitus, chronic obstructive pulmonary diseases, mental disorders etc are global public health priority. NCDs kill 41 million people each year equivalent to 71% of all deaths globally.[1] Cardiovascular diseases, cancer, respiratory diseases and diabetes account for 32.4 million i.e. around 80% of total deaths due to NCDs.[1] Each year 15 million people die from a NCD between the ages of 30 and 69 years; over 85% of these premature deaths occur in low and middle income countries.[1] It has been projected that by the year 2020, NCDs are expected to account for 73% of deaths and 60% of the global disease burden.[2] India is experiencing a rapid transition with a rising burden of NCDs causing significant morbidity and mortality, both in urban and rural population with considerable loss in potentially productive years. According to WHO, around 63% of deaths in India in 2016 were attributed to NCDs. [3]

The prevalence of several behavioral risk factors for NCDs viz. physical inactivity, addiction to tobacco and alcohol, unhealthy diet, stress etc is showing an upward trend in recent years. Along with these, metabolic risk factors viz. raised blood pressure, overweight and obesity, increased cholesterol level are also playing aggravating role in the several NCDs and their consequences including premature death. Physical inactivity is the fourth leading risk factor of early death in the world.[4] Globally, 23% of adults and 81% of adolescents do not meet the WHO global recommendations on physical activity.[5] Alcohol is responsible for more than 5.3% of all deaths worldwide i.e. around 3 million a year.[6] And tobacco accounts for over 7.2 million deaths every year.[7] According to WHO, core risk factors (smoking, alcohol, unhealthy diet and physical inactivity) have the greatest impact on NCD mortality and morbidity and there is evidence that their modification is possible and effective in primary prevention in both developed and developing countries.[2]

Medical professionals are vulnerable group for NCDs because of their work pressure, stress, long working hours, sedentary lifestyle and others. With this backdrop and the fact that not many studies have been done among medical professionals on risk factors of NCDs in India especially West Bengal, this study was conducted to assess the prevalence of risk factors of NCDs among physicians of a tertiary health care institution, Kolkata.

#### Materials and methods:

**Study Type:** Observational analytical study

**Study Design:** Cross-sectional

**Study Setting:** College of Medicine and Sagore Dutta Hospital, Kamarhati

**Study Population:** Doctors in the departments of Phase I, Phase II and Phase IIIa of MBBS curriculum of this tertiary health care institution.

**Exclusion criteria:** Those faculties were excluded who refused to give informed consent and were on leave during the period of data collection.

**Study duration:** Two months.

**Study period:** 19.11.2018 to 18.01.2019.

**Sample Design:** Complete enumeration

**Sample size:** Out of the total 92 doctors of the departments accessed, 15 refused to give consent & 5 were on leave during the period of data collection. So total study subjects for the study were 92--(15+5)= 72.

#### Operational definitions:

##### 1. Classification of Blood Pressure(JNC 7):[9]

Normal(SBP<120 & DBP<80 mm Hg);Pre-hypertension(SBP 120-139 or DBP 80-89 mm Hg);Hypertension(SBP =>140 or DBP =>90 mm Hg)

##### 2. Classification of BMI: [10]

Normal(18.5-22.9);Overweight(23-24.9);Obese(=>25)

##### 3. Abdominal obesity:[11]

Waist circumference -- Male =>90 cm;Female =>80 cm

##### 4. Recommended physical activity:[12]

At least 150 min/wk of moderate activity or 75 min/wk of vigorous activity or 600 MET-Min

**5. Current smoker:** smoked in last 30 days

**6. Current drinker:** drank in last 30 days

#### Study Tools:

1. A pre-tested, structured questionnaire based on WHO STEPS questionnaire for risk factors of NCDs.[8]
2. Stadiometer for measurement of height
3. Sphygmomanometer.
4. Weighing machine (Bathroom scale).
5. Stethoscope.

**Study procedure:** Written informed consent was taken from the study participants. Interview of the study subjects was taken with self-administered questionnaire. Anthropometric measurements i.e. Height, Weight, Waist circumference as well as Blood pressure of the study participants were taken.

**Ethical clearance:** Before conducting the study, approval from the Institutional Ethics Committee was taken. Apart from that, written informed consent was taken from each of the study participants.

**Data Analysis:** Data was entered in Excel Spreadsheet, then analyzed using SPSS software version 20.0

**RESULTS:**

Among the study subjects 63.9% were male, the rest were female and 41.7% were in 26-35 years age-group while only 13.9% were of 56 years or more.

About one fifth of the faculties were current smokers, more among male compared to female(26.1% vs 7.7% respectively). Among the smokers 85.7% were daily smokers. More than one fourth(26.4%) study subjects were current alcohol drinker, more among male. More than half (61.1%) of the faculties indulged in physical activity below recommended level i.e. less than 600 MET-minutes/Week—similar in both male and female. More than nine-tenth of the faculties had unhealthy diet i.e. less than 5 servings of fruits and/or vegetables/day and more than half (55.5%) take salt at more than recommended level. Less than one-third(30.5%) of the faculties had normal blood pressure, 16.7% were hypertensive and 52.8% were pre-hypertensive. Alarmingly, four-fifth of the study subjects were overweight or obese; 73.6% were obese—more among female than male doctors(61.5% vs 52.2%). And almost half of them(45.8%) had central obesity—significantly more among female faculties(p=.00). One-fifth of the faculties reported themselves as diabetic.

**DISCUSSION:**

In the current study 19.4% of the study subjects were smokers, compared to 1-15% in other studies while 25% were alcohol drinkers compared to 3-36% in other studies.[13-17] And 61.1% were physically inactive i.e. physical activity less than 600 MET min/wk in the current study similar to other studies which reported 60-77% doctors as physically inactive.[14-17] The study from Mangalore reported 20% of low physical activity, though.[13] Mean physical activity in the current study was 680.6 MET min/wk, compared to much better scenario(1227.2 MET min/wk) in the above mentioned study.[13] Only 7% of the study subjects take fruits/vegetables as per recommendation which is consistent with the study from Mangalore. [13] Other studies also reported inadequate fruits/vegetables intake among physicians.[14,15,17] In the present study more than half

doctors(55.5%) take salt more than recommended while other studies also reported excess salt intake in among physicians in varying range.[12-14]

In the current study, 81.9% were overweight or obese (73.5% obese), other studies reported 50-80% in this regard.[13-17] Using South East Asian classification of BMI might be one factor for higher prevalence of overweight/obesity in this study. Mean BMI in the current study was 28.4(11.0), higher than other studies.[13,14,17] Central obesity among the doctors was 45.8% in this study, significantly more among female than male(p=.00); other studies reported in the range of 33-60%.[13,14,16] In the present study, 16.7% were hypertensive and 52.8% were pre-hypertensive. Other studies reported prevalence of hypertension in the range of 2-22%.[13,14,16,17] Mean SBP & DBP were 123.4(13.1) and 79.7(8.1) respectively in this study, which were consistent with studies from Mangalore and Nigeria.[13,14] In this study one-fifth reported as diabetic, while other studies reported 5-15% as diabetic.[13,16,17]

**CONCLUSION:**

Presence of risk factors for NCDs were fairly common among the doctors who are supposed to be aware of their adverse consequences. Health promotion programmes in the institutions would play significant role to incorporate healthy lifestyle among the health personnel.

**Table 1: Distribution of faculties according to socio-demographic profile. n=72**

Socio-demographic characteristics	Frequency	Percentage
Age group(Years)		
26-35	30	41.7
36-45	18	25.0
46-55	14	19.4
56-65	10	13.9
Gender		
Male	46	63.9
Female	26	36.1
Religion		
Hindu	47	65.3
Muslim	25	34.7
Residence		
Rural	4	5.6
Urban	68	94.4
Type of family		
Nuclear	51	70.8
Joint	21	29.2
Marital status		
Married	62	86.1
Unmarried	8	11.1
Divorced/separated	2	2.8

**Table 2: Distribution of study subjects according to different risk factors of NCDs. n=72**

Risk factors		Male (%)	Female(%)	Total (%)	Chi square test p
Behavioral risk factors	<b>1.Tobacco use</b>				
	Current Smokers	12(26.1)	2(7.7)	14(19.4)	.11
	Non-smokers	34(73.9)	24(92.3)	58(80.6)	.069
	<b>1.a.Smoked daily in last 30 days</b>				
	Yes	10(83.3)	2(100.0)	12(85.7)	
	No	2(6.7)	0(0.0)	2(14.3)	--
	<b>1.b.Current Smokeless tobacco user</b>				
	Yes	4(8.7)	2(7.7)	6(8.3)	
	No	42(91.3)	24(92.3)	66(91.7)	--
	<b>2.Current alcohol drinker</b>				
	Yes	16(34.8)	3(11.5)	19(26.4)	.06
	No	30(65.2)	23(88.5)	53(73.6)	.049
<b>2.a.Frequency of alcohol intake</b>					
Daily	0	2/72(2.8)	2/72(2.8)		
Weekly	4/72(5.5)	0	4/72(5.6)		
Monthly	12/72(16.7)	0	12/72(16.7)	--	
<b>3.Physical inactivity</b>					
Yes(<600 MET-minutes /week)	28(60.9)	16(61.5)	44(61.1)		
No(<600 MET-minutes /week)	18(39.1)	10(38.5)	28(38.9)	.95	
<b>4.Unhealthy diet &lt;5 servings of fruits and/or vegetables/day</b>					
Yes	43(93.5)	24(92.3)	67(93.1))		
No	3(6.5)	2(7.7)	5(6.9)	1.0	

Physiological and metabolic risk factors	<b>4.a.Daily intake of salt</b>				
	>5 gm/day	24(52.2)	16(61.5)	40(55.5)	
	<=5 gm/day	22(47.8)	10(38.5)	32(44.5)	.44
	<b>1.Raised blood pressure</b>				
	Yes (Hypertension)*	8(17.4)	4(15.4)	12(16.7)	
	No	38(82.6)	22(84.6)	60(83.3)	
	i.Pre-hypertension	22/46(47.8)	16/26(61.5)	38(52.8)	
	ii.Normal	16/46(34.8)	6/26(23.1)	22(30.5)	1.0
	<b>2.Overweight/obesity</b>				
	<b>BMI</b>				
	Higher than normal (=>23.0)	35(76.1)	24(92.3)	59(81.9)	
	i.Overweight(23-24.9)	11/46(23.9)	8/26(30.7)	19(26.4)	
	ii.Obese(=>25)	24/46(52.2)	16/26(61.5)	40(73.5)	
	Normal(18.5-22.9)	11(23.9)	2(7.7)	13(18.1)	.16
	<b>2.a.Waist-circumference</b>				
	Higher than normal	14(30.4)	19(73.1)	33(45.8)	
	(M =>90 cm;F =>80 cm)^^				
	Normal( M <90 cm;F<80 cm)	32(69.6)	7(26.9)	39(54.2)	.00
	<b>3.Raised blood glucose (n=66)**</b>				
	Diabetic	8(19.1)	5(20.8)	13(19.7)	
	Non-diabetic	34(80.9)	19(79.2)	53(80.3)	.86

M= male, F= female

^^Substantially increased risk:(Waist Circumference - M >102cm;F >88cm) = 12, female=10,male=2 \*Known hypertensives and under medication:10 faculties \*\*6 faculties never measured blood sugar

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**Table 3: Average measurements i.e. Mean(Standard Deviation) of different parameters of the study subjects. n=72**

Characteristics	Male Mean(SD)	Female Mean(SD)	Total Mean(SD)
No of servings of fruits and/or vegetables/day	1.2(.6)	1.3(.5)	1.3(.5)
Intake of salt/day(mg)	5.8(.9)	7.1(.8)	6.2(.7)
Physical activity (MET-minutes /week)	812.2(854.6)	447.7(623.8)	680.6(789.9)
BMI(Kg/M2)	28.8(13.5)	27.7(4.0)	28.4(11.0)
Waist circumference(Cm)	89.9(7.6)	92.5(7.9)	90.8(7.7)
SBP(mm Hg)	125.6(14.8)	119.5(8.8)	123.4(13.1)
DBP(mm Hg)	79.7(8.5)	79.7(7.9)	79.7(8.1)
Pulse Rate/minute	79.7(8.0)	78.9(6.6)	79.4(7.4)

SD= Standard Deviation

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