

ORIGINAL RESEARCH ARTICLE

A Cross-sectional study on Non-communicable Diseases Risk Factors in a Rural Population of Barabanki District, Uttar Pradesh

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Abstract:

Introduction: Considerable loss of potential productive years of life has been experienced over past few decades with a rising burden of NCDs (Non-communicable diseases) causing significant morbidity and mortality both in developed and developing economies. **Objectives:** To study the prevalence of various NCDs risk factors in a rural population of Barabanki district, Uttar Pradesh. **Material and Methods:** The present cross-sectional study was conducted in six randomly selected villages of Satrikh block in Barabanki district, Uttar Pradesh. A total 300 subjects (equal representation of males & females) aged 25 years and above were enrolled in the study. WHO STEPs- wise tool was used to collect information on behavioural risk factors like tobacco use, diet, physical activity, alcohol use, measured anthropometry and blood pressure. **Results:** The prevalence of daily smoked tobacco was 58.0% for males and 12.2% among females. Daily smokeless tobacco use was 54.5% and 37.8% for males and females respectively. The prevalence of current alcohol consumption was 20.5% among males while only 4.7% females stated about consuming alcohol. The mean number of servings of vegetables or fruits less than five per day was 92.7% for males and 96.0% for females. Among males, 20.5% had BMI ≥ 25.0 compared to 10.7% among women. The prevalence of measured hypertension i.e. >140 SBP and/or >90 DBP or on antihypertensive drugs was 29.8% and 29.5% among males & females respectively. **Conclusion:** The study revealed comparatively higher use of tobacco and alcohol among males while overweight and hypertension was somewhat higher among females.

Key words: Alcohol, BMI, Hypertension, Physical inactivity, Risk factors.

INTRODUCTION

Non-communicable diseases (NCDs) are one of the major emerging health problems affecting both males and females worldwide, and trending as major challenge for all health-care systems.¹ In the developing world, NCDs are projected to contribute more than 80 per cent of the global burden of morbidities and a 70 per cent of mortality by 2020.² Reviews from recent studies already points towards the increasing

burden of non-communicable diseases in some parts of rural India i.e. an estimated 50 per cent of all deaths and 62 per cent of the total disease burden in the last few decades are attributable to NCDs.³⁻⁵ NCDs, especially Cardiovascular disease, Diabetes mellitus, Hypertension, Obesity and Stroke, have emerged as a major public-health problem in India. The morbidity and mortality in the most productive phase of life is posturing serious encounters to

Indian economy.⁶ Targeting the risk factors for non-communicable diseases is recognized as an essential primordial and primary prevention strategy. High blood pressure, tobacco use, alcohol use, unhealthy diet, physical inactivity and obesity are the leading risk factors of NCDs globally.⁷ If these risk factors are managed properly, more than half of premature deaths due to NCDs in India could be prevented. Although various studies have examined

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the prevalence of risk factors for non-communicable diseases in urban India, but studies from rural India are quite sparse. Therefore the present work was conducted to study the prevalence of various NCDs risk factors in a rural population of Barabanki district, Uttar Pradesh.

MATERIALS AND METHODS

The present study was an observational cross sectional study conducted in the rural field practice area under the catchment of Rural Health Training Centre, Satrikh, Hind Institute of Medical Sciences,

Safedabad, Barabanki district. A maximum 300 subjects aged 25 years and above were enrolled in the study during the time frame of study between August 2016 to October 2016. Equal numbers of individuals were enrolled in the study from each of the six randomly selected villages (out of 16 villages under RHTC Satrikh). Prior to interview the selected individuals were explained in local language about the purpose of the study and informed consent was taken. Data was collected by structured interview method by using a pre-design and pre-tested questionnaire based on WHO STEPs approaches for

NCDs risk factors surveillance for STEP 1 and STEP 2 only.⁸ The questionnaire was suitably modified & translated to local language. It included question on socio-demographic status, data on tobacco & alcohol use, measures of dietary habit & physical inactivity. Standard procedure was followed as per STEPs protocol for anthropometric and blood pressure based measurements. The height was measured using adult portable *Stadio-meter* to the nearest 0.1cm. Digital weighing scale was used to measure weight of the individuals and was recorded in kilograms up to 0.1 kg. A constant tension tape was used to measure waist circumference to the nearest 0.1 cm. The blood pressure was measured using *OMRON* digital automatic blood pressure monitor. All measurements were done at domiciliary level. All data was compiled on MS Excel and statistical analysis was done using trial version of SPSS software.

RESULTS

The mean age of study subjects was 39 ± 8.2 years. Almost equal individuals from both genders were included in the study population. More than four-fifth of the study subjects were currently married. However, the proportions of illiterate were almost half for both males and females. About 43.7% of males & 24.8% of females were currently using any form of tobacco. Daily smokeless tobacco use was 54.5% & 37.8% for males & females respectively. However, the prevalence of daily smoke tobacco was 58.0% for males &

Table 1: Demographic factors and prevalence (%) of STEP 1 and STEP 2 risk factors by sex

Variable	Males (N=151)	Females (N=149)	Total (N=300)
Demographic variables			
Age groups (Years)			
25-34	39(25.8)	40(26.8)	79(26.3)
35-44	38(25.2)	33(22.1)	71(23.7)
45-54	31(20.5)	37(24.8)	68(22.7)
55-64	43(28.5)	39(26.2)	82(27.3)
Currently married	132(87.4)	126(84.6)	258(86.0)
Illiterates*	75(50.3)	74(49.0)	149(49.7)
Behavioural risk factors			
Current tobacco use			
Any form of tobacco*	66(43.7)	37(24.8)	103(34.3)
Smoking *	40(58.0)	5(12.2)	45(40.9)
Smokeless	36(54.5)	14(37.8)	50(48.5)
Alcohol Intake*	31(20.5)	7(4.7)	38(12.7)
Eating <5 servings of fruits and vegetables per day	140(92.7)	143(96.0)	283(94.3)
Physical activity			
Strenuous	16(10.6)	20(13.)	36(12.0)
Mild	134(88.7)	125(83.9)	259(86.3)
Sedentary	1(0.7%)	4(2.7)	5(1.7)
Clinical risk factors			
Overweight	31(20.5)	16(10.7)	47(15.7)
Hypertension	45(29.8)	44(29.5)	89(29.7)

*Chi-square test $p < 0.05$ (Males vs Females)

#WHO-Asia Pacific Criteria was used

12.2% among females. The proportion of study subjects currently consuming alcohols was 20.5% & 4.7% among males & females respectively. Mean serving of fruit & vegetables less than 5 per day was quite high (92.7% among males & 96.0% among females). With respect to physical activity, majority of the study subject were having mild physical behaviour (88.7% & 83.9% of males & females respectively). Overweight individuals were quite higher among males (20.5%) as compared to females (10.7%). The prevalence of measured hypertension, i.e. >140 SBP and/or >90 DBP or on

antihypertensive drugs was 29.8% and 29.5% among males & females respectively. Significant difference was observed in respect to tobacco consumption (smoked tobacco), alcohol intake and obesity among males & females ($p < 0.05$). [Table No. 1]

Significant difference was observed in mean weight and BMI (Body Mass Index) among males and females respectively (Mean BMI: $26.87 \pm 3.88 \pm SD$ kg/m^2 and 25.33 ± 3.02 kg/m^2 , respectively for males and females). The mean systolic & diastolic blood pressure (mm of Hg) was found to be 127.57 ± 3.84 and 2.40 ± 7.81 among

males and females respectively. [Table No. 2]

On analysing the association between biosocial variables and behavioural NCDs risk factors; it was significantly found that the prevalence of tobacco use was highest in age group 35-44 years; and subjects in this age group consume about two and half times more tobacco as compared to younger age-group (25-34 years) [$p = 0.03$; OR:2.56; CI(1.28-5.10)]. Apart from that, prevalence of various other risk factors was higher in older age groups (≥ 35 year) but the association was statistically non-significant. Also the consumption of tobacco and

Table 2: Select NCD risk factors by sex

Variable	Males (N=151)	Females (N=149)	Total (N=300)
Height (cm)	148.32±7.03	148.70±10.21	148.32±8.74
Weight (kg)*	60.40±10.54	56.52±7.98	58.77±9.55
BMI (kg/m ²)*	26.87±3.88	25.33±3.02	26.10±3.56
Waist circumference (cm)	90.39±10.86	88.51±10.73	89.46±10.82
Systolic blood pressure (mm Hg)	127.43±14.61	127.70±13.05	127.57±3.84
Diastolic blood pressure (mm Hg)	82.12±7.73	82.68±7.90	82.40±7.81

Values are Mean±SD; * Independent t-test $p < 0.05$ (Males vs Females)

Table 3: Association of bio-social variables with behavioural NCD risk factors

Demographic Variable	Current tobacco use		Current alcohol use		<5 Servings of fruits and vegetables	
	Prevalence N (%)	OR (95% CI)	Prevalence N (%)	OR (95% CI)	Prevalence N (%)	OR (95% CI)
Age group (Years)						
25-34	20(25.3)	Reference	10(12.7)	Reference	75(94.9)	Reference
35-44	33(46.5)	2.56(1.28-5.10)*	9(12.5)	1.00(0.38-2.62)	67(94.4)	0.89(0.21-3.71)
45-54	23(33.8)	1.50(0.73-3.07)	5(7.4)	0.54(0.17-1.68)	65(95.6)	1.15(0.24-5.35)
55-64	27(32.9)	1.44(0.73-2.87)	14(17.1)	1.42(0.59-3.41)	76(92.7)	1.71(0.41-7.11)
Marital Status						
Married	94(36.4)	Reference	33(12.8)	Reference	243(94.2)	Reference
Others**	9(21.4)	0.47(0.21-1.03)	5(11.9)	0.92(0.33-2.51)	40(95.2)	1.23(0.27-5.60)
Education						
Literate	47(31.1)	Reference	21(13.9)	Reference	144(95.4)	Reference
Illiterate	56(37.6)	1.33(0.82-2.14)	17(11.4)	0.79(0.40-1.57)	139(93.3)	0.67(0.25-1.82)

* $p < 0.05$; CI, Confidence interval; OR, odds ratio

** (Unmarried/divorced/separated/widow)

alcohol was higher among unmarried/divorced/separated/widow study subjects as compared to married but the association was statistically non-significant. The proportion of individual consuming tobacco was higher among illiterate subjects while the alcohol consumption was higher among literate group. With respect to mean serving of fruits and vegetables, the consumption was comparatively low among married and illiterate subjects; however the association was statistically insignificant. [Table No. 3]

DISCUSSION

The aim of the present study was to assess the various risk factors of NCD's in a rural population of Barabanki. About 48.5% of the study subjects were consuming tobacco in smokeless form. This was quite less as reported by *Krishana. A et al.*,⁹ and *Chaya et al.*¹⁰ Also the prevalence of smoking was higher much as compared to other Indian studies.^{9,10,11,12,13,14} Similar to

the findings as reported by *Bhagayalaxmi et al.*, the consumption of both smokeless tobacco and smoking was higher in males as compared to females.¹¹ About 12.7% reported consuming alcohol in the present study. This was quite comparable to the finding as reported by *Thankappan et al.*,¹² and *Venkatacharan J et al.*,¹⁵; however it was much less as reported in few other Indian studies.^{9,13,14,16,17} In contradiction to that the proportion was quite higher as reported by *Chaya et al.*,¹⁰ and *Sogarbal et al.*[18] In our study majority of the individuals were found to be engaged in mild physical activity, similar findings were also reported in other studies.^{9,10,16} The proportion of individuals taking unhealthy diet (less than 5 mean serving fruits & vegetables) was found to be 94.3%, similar findings was also reported by *Mishra et al.*,¹⁶ who found 68% of the individuals taking unhealthy diet. The prevalence of hypertension was found to be 29.7% which was comparable to other studies.^{10,11,12} However, it is much

higher as compared to the findings reported by *Saxena et al.*,¹⁹ and *Bukela et al.*²⁰ In our study population about 15.7% of the individuals were overweight, which is quite less as compared to other studies.^{12,15,16} These variations in the prevalence of various NCD's risk factors might be due to difference in baseline characteristics of the study population or might be attributed to the method of assessment of various parameters and the criteria used for assessing various NCD's risk factors.

CONCLUSION

The findings of study emphasize the need of community-based IEC (Information Education Communication) intervention along with the provision of comprehensive package health services so as to reduce the risk of NCDs. The population at risk of NCDs must be involved at all level of prevention through full community participation.

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