ORIGINAL ARTICLE

Lifestyle Related Risk Factors for Non-Communicable Diseases among Adults of Etawah District

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Abstract

Background: Non-communicable diseases (NCDs) are also known as chronic diseases, as they tend to be of long duration. Detection, screening, treatment and palliative care, are key components of the response to NCDs. **Aim& Objective:** To find out the prevalence of risk factors of non-communicable diseases. **Settings and Design:** It was a community based cross sectional study in urban and rural areas of district Etawah. **Methods and Material**: Present study was conducted among persons aged between 25-64 years. WHO STEPS approach was used. **Statistical analysis used**: Qualitative data were expressed in the percentages and tested by chi square test. **Results**: In the study almost half of the subjects were males. Current tobacco use, alcohol use, insufficient use of fruits and vegetables and physical inactivity were found in 33.9%, 15.9%, 88.8% and 53% of the subjects respectively. Overweight, obesity, increased waist circumference, raised systolic and diastolic blood pressure were found in 37.1%, 16.1%, 37.7%, 14.6% and 19.3% respectively. The prevalence of self-reported diabetes and hypertension (HTN) were 3.6% and 10.2% respectively. **Conclusions:** There is considerable prevalence of NCDs in the district. Majority of having insufficient use of fruits and vegetables and physical inactivity. Most of them were overweight and increased waist circumference.

Keywords

Non-Communicable Diseases; Hypertension; Diabetes; Obesity.

Introduction

In recent years, the world's leading killers are the Non communicable diseases (NCDs) such as cardiovascular diseases (CVD), diabetes, chronic obstructive pulmonary disease (COPD), hypertension (HTN) and cancers. But the world is not doing enough for their prevention and control. Non communicable diseases (NCDs) have become an emerging pandemic globally with developing countries having

disproportionately higher rates.(1) the current health system in India has many limitations in dealing with NCDs. Therefore, it is essential to have proper surveillance systems for NCDs and their risk factors. Primary prevention is the key to control the global epidemics of NCDs. The aim must be to deter these epidemics wherever possible and to control them as early as possible where they are entrenched. For planning and evaluation programs, the essential element is the surveillance of NCDs and their risk factors. The basis of NCD prevention is the detection of the major common risk factors and their prevention and control. Cardiovascular diseases followed by cancers, chronic respiratory diseases and diabetes account for over 80 percent of all premature NCD deaths.(2) So, we should focus on measures of preventing and controlling of modifiable risk factors of CVDs, cancers, chronic respiratory diseases and diabetes.

Aims & Objectives

1. To study the prevalence of risk factors of non communicable diseases.
2. To study the Socio-demographic profile of study participants.

Material & Methods

Study Type: This was a community based cross sectional study. **Sample Size:** The sample size by taking the prevalence of daily smokeless tobacco consumption as 12%.(3) Using the formula given below with an absolute error of 4%,

n=4pq/L2.Where n= sample size, p= prevalence of daily smokeless tobacco consumption=12%, q= 1-p and L= allowable error= 4%.

n = (4×12×88) / (4×4) = 264.

Study Population: Therefore, 264 individuals, each from urban and rural areas of district Etawah were included in the study. The study is based on the WHO STEPS approach.(4)

Inclusion criteria: Persons aged between 25-64 years and who are residing in district Etawah for a minimum of six-months.

Exclusion criteria: Seriously ill individuals.

Working Definition: Current daily smokers were defined as those who were currently smoking cigarettes, bidis or hookah daily.

Current smokers defined as a person who continued to smoke at the time of study or occasional.

Past smokers are defined as a person who had quit smoking.

Current daily smokeless tobacco users were defined as those who were currently using chewable tobacco products, gutka, naswar, khaini or zardapaan daily.

Current alcohol drinkers were defined as those who reported to consuming alcohol within the past one year.

One serving of vegetable was considered to be l cup of raw green leafy vegetables, 1/2 cup of other vegetables (cooked or chopped raw) or 1/2 cup of vegetable juice.

One serving of fruit was considered to be l medium size piece of apple, banana or orange, l/2 cup of chopped, cooked, canned fruit or 1/2 cup of fruit juice, not artificially flavoured.

General Physical Activity Questionnaire (GPAQ)

Low moderate, and high PA levels were defined as <600, 600-2999, and ≥3000 metabolic equivalent task (MET) min per week respectively.

Throughout a week, including activity for work, during transport and leisure time, adults should do at least

-150 minutes of moderate-intensity physical activity OR

-75 minutes of vigorous-intensity physical activity OR

An equivalent combination of moderate and vigorous intensity physical activitybachieving at least 600 MET-minutes. Sedentary behaviour defined as more than 120 minutes per day.

Classification used for BMI was World Health Organization Western Pacific Regional Organization (WHO-WPRO) for Asians will be based on weight in kg by height in meter2 as

<18.5 = underweight,

18.5 — 22.9 = normal weight,

23 -27.4= overweight,

≥27.5 = obese.

Increased waist Circumference was defined as men ≥ 90 cm; women ≥ 80 cm.

Hypertension was defined as BP > 140/90 or currently on antihypertensive drugs.

Diabetes was defined as FBS>125 mg/dl, Self-reported diabetes, on antidiabetic drug.

There are total 8 blocks in district Etawah. Of these, two blocks were randomly selected. From the above selected blocks, two villages from each block were selected randomly. From landmark like school, the house on right side was taken then right to it was taken. Similarly, for urban areas there are 36 municipal wards in district Etawah. Of these two wards were selected randomly. 132 respondents were taken from each ward.

Statistical analysis- The collected data were entered in MS-Excel and analysed and statistically evaluated using SPSS-23 version (SPSS Inc. version 23.0, Chicago). Qualitative data were expressed in the percentages and tested by chi square test.

Results

[Table 1] shows that out of the study subjects, almost half of them (256) were males and rest females. Out of 528 subjects, 91 (35.5%) males and 119 (43.8%) were females in the age group of 25-35 years. No formal schooling education was observed in 9.8% males and 32.7% females. It was found that 5.1% males and 3.3% females were unemployed. Majority of study subjects belong to upper lowerclass socioeconomic status.(5)

[Table 2] shows that out of 528 study subjects, overall prevalence of behavioural risk factors for chronic non communicable diseases which includes current tobacco use, use of alcohol, insufficient use of fruits and vegetables and physical inactivity was 33.9%, 15.9%, 88.8% and 53.0% respectively. The overall prevalence of other risk factors for chronic NCD which includes overweight, obesity, increased waist circumference, raised systolic blood pressure and raised diastolic blood pressure was 37.1%, 16.1%, 37.7%, 14.6% and 19.3% respectively. Table 3 shows that out of 528 subjects the prevalence of self-reported diabetes and known hypertension was 3.6% and 10.23% respectively. Prevalence of self-reported diabetes was 3.9% and 3.3% among males and females respectively. Prevalence of known hypertensives was 12.1% and 8.5% among males and females respectively. Prevalence of hypertension among hypertensive patients diagnosed during the present study was 23.8%. Prevalence of hypertension was 26.9% and 20.9% among males and females respectively. Prevalence of diabetes diagnosed with raised blood sugar among males and females was 4.7% and 6.6% respectively.

Discussion

Hypertension

The overall prevalence of hypertension in the present study was 27.46%. The prevalence of hypertension among males and females was 32.4 and 22.8% respectively. In the present study among hypertensives, 10.2% were known hypertensives and 23.8% were diagnosed hypertensives during the study. The known hypertensives among males were 12.1% and among females were 8.5%. Similarly, diagnosed hypertensives among males and females were 26.9% and 20.9% respectively.

The prevalence of HTN in the present study was similar to the studies conducted by Bhagyalaxmi in Gujarat 2013 which showed overall prevalence 29.10% and among males and females it was 35% and 23.40% respectively, Thankappan in Kerala (2010) which showed the overall prevalence of 32.7% and among males and females it was 33.9% and 31.60% respectively.(6,7)

The prevalence of HTN, in the present study was higher than the previous studies done by Bhardwaj *et al*. which showed prevalence of 14.8% and 15.9% among men and women respectively, Mishra *et al*. which showed overall prevalence of 12.6%, out of which the prevalence among males and females was 11.7% and 13.7% respectively and Kinra found prevalence of 20.0% and 22.0% among men and women respectively. This could be attributed probably due to difference in socioeconomic background. (8,9,10)

Diabetes

The prevalence of self-reported diabetes in the present study was 3.6%. The findings are almost similar to the study conducted by Tondare MB which showed the prevalence of 3.42%.(11) In our study prevalence of self-reported diabetes among males and females was 3.9% and 3.3% respectively. Study done by Kinra showed almost similar results where the prevalence of self-reported diabetes was 6.0% and 5.0% among men and women respectively.(10) The prevalence of the present study was lower than the studies conducted by, Thankappan where the total prevalence was 16.2% and among men and women was 14.3% and 17.8% separately.(7) The prevalence of self -reported diabetes was 21.9% in a study done by Vijaykarthikeyan.(12) The difference could be attributed to varying geographical locations, varying age and population compositions and difference in lifestyle patterns of subjects among different studies.

The prevalence of alcohol use in the present study was 15.9%, it was lower than the study conducted by Koppad in Karnataka in which the prevalence was 23.0%.(13) The prevalence of alcohol use in present study was higher than the study conducted by Prabhakaran in Andhra Pradesh which showed the prevalence of 4.9%.(14) This could be attributed to different areas, different people, easy availability of

products and people adopting it as a method of stress relaxation.

The prevalence of alcohol use in the present study was lower than the studies done by Bhardwaj, Garg, Vijaykartikeyan, Tondore which showed the prevalence of 37.7%, 26.0%, 17.3% and 27.3% respectively.(3,8,11,12) Again, it could be attributed to different geographical area and different population composition in the study.

The overall prevalence of insufficient use of fruits and vegetables in the present study was observed 88.8%. This prevalence was higher than studies conducted by Misra PJ *et al* , and Vijatkarthikeyan who observed the prevalence of 68.0% and 63.0% respectively.(9,12) The prevalence of insufficient use of fruits and vegetables in the present study was lower than studies conducted by Bhagyalaxmi and Garg where the prevalence was 92.7% and 94.5% respectively.3,6 Low consumption of fruits and vegetables could be attributed due to lack of awareness, lack of availability and high cost factors.

Physical activity

The prevalence of physical inactivity in the present study was 53.0% which was higher than the study conducted Koppad in urban, Karnataka where the prevalence was 30.4%.(13)

Overweight

The prevalence of overweight in the present study was 37.1%, out of which the prevalence among males and females was 39.8% and 34.6% respectively. It was higher than previous studies done by Logaraj in Tamilnadu and Bhagyalaxmi in Gujarat where the prevalence was found 17.1% and 30.2% respectively; Bhardwaj in Nagpur which showed the prevalence among males and females 5.7% and 7.2% respectively.(6,8,15) This could be attributed to unhealthy lifestyle habits, unhealthy diet, insufficient use of fruits and vegetables and increase trends in physical inactivity. Study by Vijaykarthikeyan in Kancheepuram showed a prevalence of 38.1% which is almost similar to the present study.(12)

Obesity

The prevalence of obesity in the present study was 16.1%; the results are almost similar to the study conducted by Vijarkarhikeyan in Kancheepuram where the prevalence was found 11.4%.(12) Our study showed the prevalence among male and females was 12.5% and 19.5% respectively which was higher than the study done by Bharadwaj in Nagpur in 2008 (0.3% in males and 0.7% in females).(8) Again, it could be attributed to unhealthy lifestyle habits, unhealthy diet, insufficient use of fruits and vegetables and increase trends in physical inactivity. Studies conducted by Prabhakaran and Logaraj showed the prevalence of obesity 48.1% and 56.7% respectively which was higher than the present study.(14,15) Study by Kinra showed the prevalence of obesity 19% and 18% among men and women respectively.10 This could be due to different geographical areas, different age group composition or more awareness regarding obesity and its complications.

Waist circumference

The prevalence of increased waist circumference in the present study was 37.7%. The results were almost similar to the study conducted by Bhagyalaxmi in Gujarat which showed the prevalence of 38.2%.6 Study done by Prabhakaran in Andhra Pradesh showed prevalence of 46.62%, this higher prevalence could be attributed to unhealthy life style habits, insufficient use of fruits and vegetables, more physical inactivity and increasing prevalence of overweight and obesity.(14) The prevalence of increased waist circumference in the present study was lower than a study conducted by Garg in which the prevalence was 77.50%. This could be due to more awareness and lifestyle habits.(3)

Blood pressure.

Systolic blood pressure: Overall prevalence of raised systolic blood pressure in the present study was 14.6%. Prevalence of raised systolic blood pressure was 37.2% and 32.5% found among the study population in the studies conducted by Logaraj and Garg respectively.(3,15) This could be attributed to different geographical locations and lifestyle changes.

Diastolic blood pressure: The overall prevalence of raised diastolic blood pressure in the present study was 19.3%. It was higher than studies conducted by Logaraj and Garg where the prevalence was found 6% and 14.5% respectively.(3,15) The increasing prevalence could be attributed to lack of awareness and unhealthy lifestyle.

Conclusion

There is considerable prevalence of NCDs in the district. Majority of having insufficient use of fruits and vegetables and physical inactivity. Most of them were overweight and increased waist circumference. We should focus on- lifestyle modification, early diagnosis and treatment by recognition of risk factors, prevention and control of complications by regular medication and follow up with trained health personnel.

Recommendation

There is requirement of increased awareness of risk factors for chronic NCDs in general population, which can be done mainly through intensive IEC campaigns. Multifaceted strategies are needed to educate with main focus on younger generation like – children, adolescents and adults so as to deter early initiation of smoking and alcohol. It should mainly focus on life style modifications, early diagnosis and treatment by recognition of risk factors, prevention and control of complications by regular medication and follow up with trained health personnel.

Limitation of the study

Sample size was limited so a study with large sample size is needed to generalize the results

Relevance of the study

There is paucity of community based studies on prevalence of risk factors of non communicable diseases especially in this region of the country.

Authors Contribution

NG: Contributed all the process of study. SK & PJ: Involved in all the process of study. KJ & PB: Involved mainly in manuscript editing. SS: Involved mostly for data and statistical analysis.

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Tables

TABLE 1 SOCIO-DEMOGRAPHIC PROFILE OF STUDY SUBJECTS

		Male (n=256)		Female (n=272)		Total (n=528)		Statistical Inference
		No.	%	No.	%	No.	%	
Age (in years)								
1.	25-35	91	35.5	119	43.8	210	39.8	χ2=6.600 df=3 p=0.086
2.	36-45	66	25.8	68	25.0	134	25.4	
3.	46-55	38	14.9	42	15.4	80	15.1	
4.	56-64	61	23.8	43	15.8	104	19.7	
Educational status								
1.	No formal schooling	25	9.8	89	32.7	114	21.6	χ2=61.341 df=6 p<0.001
2.	Less than primary	11	4.3	18	6.6	29	5.5	
3.	Primary school	15	5.9	34	12.5	49	9.3	
4.	Secondary school	48	18.8	29	10.7	77	14.6	
5.	High school	52	20.3	31	11.4	83	15.7	
6.	College completed	75	29.2	53	19.5	128	24.2	
7.	Post graduate	30	11.7	18	6.6	48	9.1	
Occupation								
1.	Govt employee	30	11.7	15	5.5	45	8.5	χ2=314.03 df=7 p<0.001
2.	Non govt employee	93	36.3	27	9.9	120	22.7	
3.	Self employed	104	40.6	19	7	123	23.3	
4.	Non paid	0	0.0	0	0.0	0	0.0	
5.	Student	3	1.2	3	1.1	6	1.1	
6.	Homemaker	0	0.0	199	73.2	199	37.7	
7.	Retired	13	5.1	0	0.0	13	2.5	
8.	Unemployed	13	5.1	9	3.3	22	4.2	
Socioeconomic Status*								
1.	Upper	27	10.5	17	6.3	44	8.3	χ2=4.998 df=4 p=0.288
2.	Upper middle	52	20.3	47	17.3	99	18.8	
3.	Lower middle	59	23.0	64	23.5	123	23.3	
4.	Upper lower	85	33.2	107	39.3	192	36.3	
5.	Lower	33	12.9	37	13.6	70	13.3	
***According to Modified BG Prasad classification 2016.5**								

TABLE 2 PREVALENCE OF BEHAVIOURAL AND OTHER RISK FACTORS FOR CHRONIC NCDS

	Risk factors	Male(n=256)		Female (n=272)		Total (n=528)	
		Number	%	Number	%	Number	%
Behavioural risk factors*							
1.	Current tobacco users	138	53.9	41	15.1	179	33.9
2.	Use of alcohol	84	32.8	0	0.0	84	15.9
3.	Insufficient use of fruits and vegetables	223	87.1	246	90.4	469	88.8
4.	Physical inactivity	116	45.3	164	60.3	280	53.0
Other risk factors*							
1.	Overweight	102	39.8	94	34.6	196	37.1
2.	Obesity	32	12.5	53	19.5	85	16.1
3.	Increased WC	76	29.7	123	45.2	199	37.7
4.	Raised systolic BP	41	16.0	36	13.2	77	14.6
5.	Raised diastolic BP	58	22.7	44	16.2	102	19.3