Original article

Prevalence of risk factors for Non Communicable Diseases in urban slums of Hyderabad, Telangana

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Abstract:

Background: According to World Health Organization (WHO) 2014 estimates on Non Communicable diseases (NCDs) in India, NCDs are estimated to account for 60% proportional mortality. Majority of the NCDs share common risk factors such as tobacco use, high alcohol consumption, overweight & obesity, inadequate physical activity and inappropriate dietary practices.

Material & Methods: It was a community based cross sectional study conducted in selected slums of urban field practice area of Osmania Medical College, Hyderabad, Telangana. A total of 700 respondents were selected using systematic random sampling and a detailed interview of each person in the household was conducted. WHO STEP wise approach for Surveillance of non-communicable diseases (STEPs) was used. Data entry was done using Microsoft Excel 2007 and analysis done by SPSS version 17.

Results: Study found a high prevalence of risk factors for NCDs. Tobacco use in any form was seen in 15.4% alcohol consumption in 19.5%, over weight and obesity in 21.7%. Sedentary habits were seen in 53.6%, irregular intake of fruits & vegetables in 58.8%, high salt intake in 18.5%, 26.8% had family history of NCDs.

Conclusions: Risk factors for NCDs were very much prevalent in the study population requiring appropriate & timely actions to stop the emergence of epidemic of NCDs.

Keywords: Non Communicable Diseases, Risk factors, Urban slums, STEPS

Introduction:

Currently developing countries, especially India, are in a transitional phase, an epidemiological transition from a phase of predominantly infectious disease burden to a phase of triple burden of infectious diseases, chronic non-communicable diseases, and injuries largely due to demographic, lifestyle, nutritional and environmental changes.[1] Such phenomenon is not only seen in urban population but also evident in rural population.

According to World Health Organization (WHO) 2014 estimates on Non Communicable diseases (NCDs) in India, NCDs are estimated to account for 60% proportional mortality (% of total deaths, all ages, both sexes) which include CVDs (26%), cancers (7%), chronic respiratory diseases (13%), Diabetes (2%), injuries (12%) and other NCDs (12%).Total deaths due to NCDs were 98,16,000. [2]

Majority of the NCDs share common risk factors such as tobacco use, high alcohol consumption, overweight & obesity, inadequate physical activity and inappropriate dietary practices. Combination of the risk factors increases the morbidity and mortality of NCDs.[3] These factors are interrelated to each

other, so much so that appearance or occurrence of one factor leads for the other risk factor, thereby leading to the development of NCDs.

Aim & Objectives: To determine the risk factors for non communicable disease risk factors among adults aged 20 years & above in urban slums of Hyderabad.

Material & methods:

Study area:

It was a community based cross sectional study conducted in selected slums of urban field practice area of Osmania Medical College, Hyderabad,Telangana.

Sample Size: Prevalence of obesity is taken as one of the risk factor; one of the previous studies demonstrated the prevalence of obesity to be 37% in urban slums of Hyderabad. [4]

Based on the formula

$$N = \frac{4PQ}{L^2}$$

P taken as 37% [4]

Q= 100-p

L (Relative error) is taken at 10% of P

Hence, the final sample size was 681 which was rounded off to 700.

Sampling Method: Systematic random sampling method

Study Subjects:

- Inclusion criteria: - Persons aged ≥ 20 years, willing to participant in study will be included.
- Exclusion criteria: - persons with severe chronic illness, physical disability, mental disability and pregnant & lactating women were excluded from the study

Data Collection:

The list of slums was obtained from the Urban Health Centre in the field practice area of Osmania Medical College and three slums (Krishnanagar, Nehrunagar and Shasthri nagar) were randomly selected. Each slum has 200 to 220 households with an average family size of five, making a population of about one thousand. Starting from the urban health centre in the direction of west, every fourth house was systematically chosen.

A house-to-house inquiry was carried out using a predesigned & pretested schedule. Informed consent was obtained and a detailed interview of each person in the household was conducted which included personal information, demographic details, economic status, family history of any NCDs.

The proforma which was used for collecting data was based on WHO STEP wise approach for Surveillance of non-communicable diseases (STEPs)[5].

The questionnaire contains three parts.

- In first part, regarding socio demographic data
- In second part risk factor analysis
- In the third part, physical measurements, such as height, weight and waist circumference

Definitions [6]

- Current daily smokers were defined as those who were currently smoking cigarettes, bidis or hookah daily.
- Current daily smokeless tobacco users were defined as those who were currently using chewable tobacco products, gutka, naswar, khaini or zarda paan daily.
- Current alcohol drinkers were defined as those who reported to consuming alcohol

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within the past one year. One standard drink was equivalent to consuming one standard bottle of regular beer (285 ml), one single measure of spirits (30 ml) or one medium size glass of wine (120 ml).

- One serving of vegetable was considered to be 1 cup of raw green leafy vegetables, ½ cup of other vegetables (cooked or chopped raw) or ½ cup of vegetable juice.
- One serving of fruit was considered to be 1 medium size piece of apple, banana or orange, ½ cup of chopped, cooked, canned fruit or ½ cup of fruit juice, not artificially flavoured.
- Physical inactivity was defined as less than 10 minutes of activity at a stretch, during leisure, work or transport.
- Body mass index (BMI) was calculated by dividing the weight (in kilograms) by square of height (in meters). Overweight was defined as BMI < 25kg/m2 and < 30 kg/m2 Obesity was defined as BMI ≥ 30 kg/m2
- Hypertension was defined as BP ≥ 140/≥ 90 mm of Hg or currently on antihypertensive drugs.

Statistical Analysis: Data entry was done using Microsoft Excel 2007 and analysis done by SPSS version 17. Chi-square test was applied to find out any significant associations with p value <0.05 considered as significant.

Results:

Socio demographic characteristics:

The present study population comprised of 50.8% females and 49.2% males with majority (45.4%) belonging to 41-60 years age group. Majority (73%) were Hindus by religion and belonged to nuclear family (45.8%). Literacy status of study population found that 34.6% were illiterates and 65.4% were literates. It was seen that about 56% were unemployed at the time of the study and 22.7% were skilled and semi skilled workers. Socio economic status based on modified BG Prasad classification found that 33.5% belonged to upper lower and 26.7% were from lower middle class.

Table no 1 Socio demographic characteristics of the study population

Socio demographic variable	Frequency	Percentage
Sex		
Males	344	49.2%
Females	356	50.8%
Age		
20-40 years	227	32.5%
41-60 years	318	45.4%
>61 years	155	22.1%
Religion		
Hindu	511	73%
Muslim	168	24%
Christian	21	3%

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Type of family		
Nuclear	320	45.8%
Joint	100	14.3%
Three generation	280	40%
Literacy status		
Literates	458	65.4%
Illiterates	242	34.6%
Occupation		
Professional & semi professional	16	2.3%
Clerical, shop owner, Farmer	34	4.8%
Skilled & Semiskilled	159	22.7%
Unskilled worker	101	14.5%
Unemployed	390	55.7%
Socio economic status		
Upper middle	110	15.8%
Lower middle	188	26.7%
Upper lower	234	33.5%
Lower	168	24%

Table no 2: Prevalence of risk factors for NCDs among study population

Risk factors	**Number**	**Percentage**
Tobacco Use	108	15.4%
Alcohol consumption	136	19.5%
Over weight and Obesity	152	21.7%
Abdominal Obesity (Increased waist circumference)	250	35.7%
Sedentary habits	375	53.6%
Irregular intake of fruits & vegetables	411	58.8%
High Salt Intake	129	18.5%
Family History of NCDs	187	26.8%

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About 15.4% of the study population has been using tobacco in any form; of which smoked tobacco products was seen in 56% and smokeless form in 46%. 13% were using cigarette, 9% using bidis, 33% took chewed tobacco and 45% were users of gutka. 19.5% were alcohol users and the median age of start of alcohol consumption was 18 years in males. Consumption of alcohol was seen more males than females. Body Mass Index (BMI) was calculated by Kg/m^2. BMI $>25kg/m^2$ was considered as obese as per the WHO guidelines for Asians. 21.7% were obese and among them majority were obese class I. Obesity was comparatively more among females compared to males. Abdominal obesity was seen in 35.7% of the study population.

Physical activity which is a crucial factor for prevention of NCDs was measured. More than half of the respondents (53.6%) were having sedentary life style and only 22.5% were having moderate physical activity.

Dietary habits of the study population were assessed which revealed that intake of fruits & vegetables was irregular in almost two thirds (58.8%) and high salt intake was seen in 18.5%.

Regarding family history for NCDs which is an non modifiable risk factor, about 27% were having a family history for NCDs in the study population.

Table no 3: Association between socio demographic variables and risk factors of NCDs

Socio demographic variables	**Risk factors for NCDs**				
	Tobacco use	Alcohol consumption	Physical activity	Fruit & vegetable intake	Extra salt intake
Age group (years)	χ^2=23.5 **P=0.001**	χ^2=0.92 P=0.4	χ^2=12.5 **P=0.02**	χ^2=15.6 **P=0.03**	χ^2=2.45 P=0.3
Sex	χ^2=9.8 **P=0.02**	χ^2=3.5 P=0.4	χ^2=34.6 **P=0.001**	χ^2=2.5 P= 0.6	χ^2=3.7 P=0.2
Education	χ^2=42.34 **P=0.001**	χ^2=21.2 **P=0.01**	χ^2=0.56 P=0.72	χ^2=0.87 P=0.3	χ^2=0.34 P=0.5
Type of family	χ^2=1.56 P=0.8	χ^2=2.6 P=0.5	χ^2=0.3 P=0.65	χ^2=2.1 P=0.27	χ^2=1.8 P=0.9
Socio economic status	χ^2=2.1 P=0.61	χ^2=16.7 **P=0.01**	χ^2=54.7 **P=0.001**	χ^2=15.3 **P=0.04**	χ^2=3.7 P=0.4

* P <0.05 considered statistically significant

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Association between demographic characteristics and risk factors was measured. There was statistically significant association between age group and tobacco use, physical activity & fruit, vegetable intake ($p<0.05$). Tobacco use was more in men and physical inactivity was more in women. A significant association was found between level of education and tobacco & alcohol consumption ($p<0.01$). No significant association found between type of family and NCD risk factors ($p>0.05$). Socio economic status had significant association between alcohol consumption, physical inactivity and fruit & vegetable intake ($p<0.05$).

Blood pressure: The prevalence of self reported hypertension was 4.5% in men and 3.7% in women, whereas the prevalence of hypertension (defined as BP $\geq$ 140/90 mm of Hg or currently on antihypertensive drugs) was 24.6% in men and 28.2% in women. There was sharp rise in prevalence of hypertension among women after 40 years of age.

Discussion

The risk factors of today are the diseases of tomorrow. Identifying these risk factors has a crucial role in public health as it helps to reduce the time lag between exposure and disease. This study with the aim of identifying these risk factors describes the prevalence of risk factors of NCDs among adults in urban slums of Hyderabad. Study found a high prevalence of risk factors for NCDs. Tobacco use in any form was seen in 15.4% alcohol consumption in 19.5%, over weight and obesity in 21.7%. Sedentary habits were seen in 53.6%, irregular intake of fruits & vegetables in 58.8% , high salt intake in 18.5%, 26.8% had family history of NCDs.

Similar study done by Sochaliya KM et al (2012)[7] in urban area of Jamnagar found that smoking was seen in 38%, alcohol intake in 2%, sedentary habits in 42.22%, positive family history of Hypertension & Diabetes in 69.33%, high salt intake in 96.67%, irregular intake of fruits & vegetables in 25.33 & 17.33 respectively. Another study by Acharyya T et al (2010)[8] in Urban slums of Parganas District, West Bengal found that smokeless tobacco was seen in 37.4%, alcohol consumers in 15%, irregular consumption of fruits in 22%, over weight and obesity in 46.9%. A community based cross sectional study done by Thankappan et al (2010) [9] in Kerala observed a high burden of NCD risk factors. In the Urban areas, tobacco users were about 22.6%, alcohol users 13.2%, inactive physical activity in about 9.5% and dietary habits of < 5 servings of fruits & vegetables in 38% of the study population. 36.3% were overweight. The prevalence of all NCD risk factors increased with age.

Significant association was found between NCD risk factors and some of the demographic characteristics like age, sex, literacy status and socio economic status. Statistically significant association was found between age groups and tobacco use, physical activity & fruit, vegetable intake ($p<0.05$). Tobacco use was more in men and physical inactivity was more in women. A significant association was found between level of education and tobacco & alcohol consumption ($p<0.01$). Socio economic status had significant association between alcohol consumption, physical inactivity and fruit & vegetable intake ($p<0.05$).

Study by Gandhari Basu et al (2013)[10] on Behavioral risk factors of non communicable diseases from Hoogly district, West Bengal found that age, sex, income, employment, education seen to be associated significantly ($p < .05$, 95% CI) with physical activity. Education had significant association with many behavioral risk factors (p

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<.01).

Conclusions:

There is urgent need for health promotion programs with a special focus on reducing tobacco & alcohol consumption, promotion of healthy dietary practices and physical activity at the basic primary health care level. Present study recommends creation of awareness for adopting healthy lifestyles for the prevention of NCDs. There is need for introducing lifestyle modification strategies especially targeting the risk population in the urban slums.

References:

1. Quigley MA. Shifting burden of disease–epidemiological transition in India. Int J Epidemiol 2006; 35 : 1530-1.

2. WHO (2014), Non-communicable Diseases by Country Profile, India.

3. Cardiovascular disease risk factors: New areas for research. WHO, Technical Report Series, no. 841, 1994. Available at: http://apps.who.int/iris/handle/10665/37644. (Last accessed on October 12th, 2013).

4. Uthakalla Vijaya Kumar, Kumar K.J.Kishore, Jena S.K, Matti Priyadarshini, Thomas Vimala, Suryaprabha. Prevalence study of overweight/obesity among adults (20-60 yrs) of Urban field practice area of Osmania Medical College, Hyderabad. Indian Journal of Public Health Research & Development. Year 2012, 3(3); 250-253.

5. Bonita R. WHO's response: An integrated approach to NCD Surveillance and prevention consultation on Stepwise Approach to Surveillance of NCD Risk Factors STEPS,STERO, WHO: 2002

6. WHO. STEPS: A Framework- The WHO STEP wise approach to surveillance of Non-communicable diseases (STEPS).WHO. 2002.

7. Sochaliya KM, Parmar DV, Yadav SB. A Study on Prevalence of Life- Style Diseases and its Risk Factors in Urban Area of Jamnagar City. Natl J Community Med 2012; 3(4):595-600.

8. Acharyya T, Kaur P, Murhekar MV. Prevalence of behavioral risk factors, overweight and hypertension in the urban slums of North 24 Parganas District, West Bengal, India, 2010. Indian J Public Health 2014;58:195-8.

9. K.R. Thankappan, Bela Shah, Prashant Mathur, P.S. Sarma, G. Srinivas, G.K. Mini, Meena Daivadanam Biju Soman & Ramachandran S. Vasan. Risk factor profile for chronic non-communicable diseases: Results of a community-based study in Kerala, India. Indian J Med Res 2010; 131 (1):53-63.

10. Gandhari Basu, Subikas Biswas, Chitra Chatterjee. Behavioral risk factors of non communicable diseases: Experience from a village of Hoogly district, West Bengal. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS) Volume 4, Issue 3 (Jan.- Feb. 2013), PP 19-24.