Risk factors for Non Communicable Diseases among people aged above 30 years in an urban slum of Guntur city - A cross sectional Study.

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Abstract

Background: Non-communicable diseases (NCDs) are the leading cause of death and have many modifiable risk factors. Objectives: To study the risk factors for NCDs among the population aged 30 and above in Urban field practice area of Katuri Medical College and Hospital, Guntur. Methods: A cross sectional study with sample size of 400 was conducted in an urban slum of Guntur city in 2014. Households were selected by systemic random sampling. One person from each house aged above 30yrs was interviewed. A modified WHO-STEPs questionnaire was used with risk factors of tobacco, alcohol use, physical activity, diet and blood pressure. Results: High prevalence of smoking (30.25%), alcoholics (24.5%), known hypertensives 31.75%) was observed and over all prevalence of hypertension was 65.7%. The proportion of population with BMI > 25 was 53% [females (63.5%) > males (44.2%)]. Percentage of vegetable and fruit intake i.e < 5times / week were 37.25% and 82.75% .Out of known hypertensives 86.6 % reported to be on treatment but only 21.8% of those were having the blood pressure under control .Physical activity 57.25 % were inactive. Conclusion and recommendations: NCD risk factors are high in this study population. Hence detailed NCD studies to find out the reason and plan for suitable intervention are recommended. Key Words: Hypertension, NCD, Risk factors, STEPS

Introduction

Non-communicable diseases (NCDs), also known as chronic diseases, are not transmitted from person to person. They are of long duration and generally slow progression. The four main types of NCDs are cardiovascular diseases (like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes. NCDs are the leading causes of death globally, killing more people each year than all other causes combined. Contrary to popular opinion, available data demonstrate that nearly 80% of NCD deaths occur in low- and middle-income countries. Out of 57 million deaths that occurred globally in 2008; 36 million were due to NCDs. Every year, roughly 5.8 million Indians die from heart and lung diseases, stroke, cancer and diabetes. In other words,
1 in 4 Indians risks dying from an NCD before they reach the age of 70.³

A vision of a world free of the avoidable burden of Non Communicable Diseases, WHO’s Global action plan for the prevention and control of NCDs 2013-2020 was formulated.⁴ To accelerate national efforts to address NCDs, in 2013 the World Health Assembly adopted a comprehensive global monitoring framework with 25 indicators and nine voluntary global targets for 2025. In that one of the objectives is to reduce modifiable risk factors.⁵ India is the first country to develop specific national targets and indicators aimed at reducing the number of global premature deaths from NCDs by 25% by 2025.³

Common, modifiable risk factors underlie the major chronic diseases. These risk factors explain the vast majority of chronic disease deaths at all ages, in men and women, and in all parts of the world.⁶ 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. The epidemic of NCDs poses devastating health consequences for individuals, families and communities, and threatens to overwhelm health systems. The socioeconomic costs associated with NCDs make the prevention and control of these diseases a major development imperative for the 21st century.⁷ Local level strategies are also planned through engaging leaders to influence polices, strengthen health systems, modify unhealthy behaviour, encourage research, track trends and monitor the progress of NCD control.⁸

Over the past decade, the burden of NCDs increased as a result of changes in diet and life style occurred due to industrialization, urbanization, economic development and globalization.⁹ The diseases have their affect at individual household and health systems hence labelled as chronic emergency.⁶ These have had significant impact on health and nutritional status of population particularly in developing countries like India. The growing burden of NCDs represents major challenge to health development in India and accurate data are vital to decrease the mortality and morbidity due to NCDs.¹⁰ Though many studies conducted in identifying risk factors for NCDs, we felt it would be an opportunity to identify the risks in this locality of different lifestyles and plan for specific targeted interventions. In this back ground, the study aims to find out the risk factors for NCDs among the population aged 30 and above in Urban field practice area of Katuri Medical College and Hospital.

**Material and Methods**

The study was a community based cross sectional study in an urban slum population. It was conducted in Srinivasa Rao Thota, a field practice area of Katuri Medical College and Hospital during September to November 2014.

The total number of households in UHC area (as per the intensified pulse polio immunization survey, 2012) was 3786. We surveyed 10% of total households with the estimated sample size of 400. Households were selected by systemic random sampling. One from each house age above 30yrs were interviewed. If more than one eligible participant in the household, one was selected randomly for the study.

The WHO STEP wise approach to Surveillance (STEPS) is a simple, standardized method for collecting, analysing and disseminating data which was developed to Risk factors and Stroke. STEP1: collection of information on socio demographic variables and behavioural NCDs risk factors. STEP2: obtaining clinical measurements like Weight, Height, BP using standardized protocols and instruments. STEP 3: biochemical measurement like total cholesterol, blood glucose and triglycerides.¹¹ We used STEP wise approach to risk factor surveillance. We concentrated only selected risk factors. The questionnaire was developed in the department after making necessary modification and it was field-pre tested in our RHC field practice area.

In STEP 1, we have collected Information on socio demographic variables and behavioural NCDs risk factors and STEP 2 Height, Weight, BP were...
measured using standardized instruments and protocols.11

Operational definition for the study11:

Any forms of tobacco use or alcohol use were considered as a risk factor for NCDs. Individuals consuming less than 5 servings of fruits/vegetables per week were considered as at risk group. Overweight is defined based on BMI. Hypertension is defined as systolic BP of > 140 mm Hg or diastolic BP of > 90mm Hg or the use of antihypertensive drugs. Physical activity was classified into 3 groups. 1) Inactive when the individual was inactive at work, transport and leisure time. 2) Vigorous when the individual had vigorous activity at work, transport and leisure time.3) All other individuals were classified as having moderate activity.

The data were entered in Microsoft excel and analysed.

Results

The study comprises responses and measurement from 400 (Males: 210; Females: 190) with mean age of 48.12 years. Out of study participants 36.50% were upper castes, 25.50% backward community, 21.30% Muslims and 16.8% Scheduled Castes (SCs) and Scheduled Tribes (STs) and 61.50% were Upper lower socio economic status, 26.5%Lower and 12% lower middle class.

Smoking / tobacco usage:

Among study participants 121(30.25%) were smokers or tobacco users. Mean age of starting smoking is 26.2±8.4 years.

Alcohol consumption: Alcohol users were 98(24.5%). Mean age of starting drinking alcohol was 26.17±9.5 years.

Among alcohol users 15.3% (15) consumed more than 5 days per week, 22.4 % ( 22) consumed 1-4 days per week, 18.3% (18) consumed 1-3 days per month and 43.8 % (43) were occasional drinkers.

Blood pressure:

Prevalence of known hypertensives in the study was 31.75% and 87 %( 110) of known hypertensives were on hypertensive drugs.

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Among 263 hypertensives identified in our study, 14 had isolated systolic hypertension, 40 isolated diastolic hypertension and 99 had both systolic and diastolic hypertension.

Table 1. Comparison of obesity among males and females among study participants (n=400)

<table>
<thead>
<tr>
<th>Sex/Obesity</th>
<th>Male %</th>
<th>Female %</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>05 2.38</td>
<td>04 2.11</td>
<td>χ² = 14.7; ( \text{df} = 3; ) P&lt;0.05 (Significant)</td>
</tr>
<tr>
<td>Normal</td>
<td>112 53.33</td>
<td>67 35.26</td>
<td></td>
</tr>
<tr>
<td>Overweight</td>
<td>73 34.76</td>
<td>86 45.26</td>
<td></td>
</tr>
<tr>
<td>Obese</td>
<td>20 9.52</td>
<td>33 17.37</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>210 100.0</td>
<td>190 100.0</td>
<td></td>
</tr>
</tbody>
</table>

In our study, 39.75 % were identified as overweight, 13.25% as obese and 2.25% as underweight. Obesity and overweight were higher in females with 17.3%, 45.2% respectively and the difference was statistically significant (p<0.05)

Figure 4. Frequency of pickle consumption per week (n=400)

Frequency of vegetable and fruit intake (<5 times) per week were 37.25% and 82.75% respectively and frequency of outside (other than home) food habit was very high (76.75%). Pickle consumption in most of the days of the week taken by 16%, thrice per week 12%, twice per week 22% and 50% only once in a week.

Most of the study participants were inactive 57.25 %, 27.25% were doing vigorous activity and 15.5% moderate activity. When enquired about their mode of transport, 57.75% were using auto/bus, 26.25% bike/car, 8.25% bi-cycle and 7.75% walking.

Figure 6. Type of work among study participants (n=400)

Discussion

Guntur city has been fast developing as the capital city of Andhra Pradesh state headquarters is planned very nearby. Andhra Pradesh offers a model for progressive Economic Growth and Development for the developing nations. So urbanization has been growing in the city. Guntur is known for Chillies and Tobacco production and availability of fish food is also high. So the risk factor of NCD has got its importance. Also the findings can supplement findings of various STEPS survey conducted in India.

The major findings of the study include high prevalence of smoking (30.25%), alcoholics (24.5%), known hypertensive (31.75%) and overall prevalence of hypertension was 65.7%. The proportion of population with BMI > 25 was 53% [females (63.5%) > males (44.2%)]. Percentage of vegetable and fruit intake per week were very low (37.25% <5 times vegetables and 82.75 %< 5 times fruits). Out of known hypertensives 86.6 % reported to be on treatment but only 21.8% of those were having the Blood Pressure under control. Physical activity 57.25 % was inactive. Most of the other studies conducted on non-communicable disease shows variable degree of risk factors.
India has conducted a sub national STEPS survey in 6 centres in 2004 (Ballabgarh, Chennai, Delhi, Dibrugarh, Nagpur, Trivandrum), and another STEPS survey including 7 states in 2007 (Andhra Pradesh, Kerala, Madhya Pradesh, Maharashtra, Mizoram, Tamil Nadu, Uttarakhands). Smokeless tobacco usage was 4-12% in Andhra Pradesh, Kerala and Tamil Nadu but high (32-48%) in other NCD survey in 2007. Also Alcohol intake was high (20%) in AP. But fruit consumption was less in Tamil Nadu. The mean time spent in recreational activities was low (4 minutes per day) in Andhra Pradesh and less than 31 minutes per day of cycling or walking. Blood pressure, BMI were also high in Andhra Pradesh than other sites.

WHO estimates the 13.9% of tobacco smoking daily (2% females), 14% physical inactivity (17.3% females), 1.9% Obesity (2.45% Females), 27.1% Raised Cholesterol (28.3% Females), 32.5% raised blood pressure and 10% raised blood glucose in India.

A study conducted at Nellore by Prabakaran J et al. resembles our study findings with regards to the fruit and vegetable intake, obesity and BMI. But the prevalence of hypertension was high in this study. The detailed study of hypertension can be planned in Guntur to find out the reasons.

Out of known hypertensives 86.6 % reported to be on treatment but only 21.8% of those were having the Blood Pressure under control. So treatment behavior of hypertensive should be strongly reemphasized. Though the Government of India (GoI) launched the National Programme for prevention and control of cancer, Diabetes, Cardio Vascular Diseases and Stroke (NPCDCS) in 2010 merging the cancer control programme and National Programme for Prevention and Control of Diabetes, Cardio vascular diseases and Stroke in 2010, it is not implemented fully country wide. The monitoring framework with 21 indicators and 10 targets (additionally indoor air pollution) was approved by National Health Mission of India.

All risk factors of NCDs mentioned in WHO-STEP was not done. It was one of the limitations of the study due to resource constraints. Other limitation of the study was the less sample size to extrapolate the findings to the whole city. But this study helps us to take appropriate actions at our end and shared the findings to concerned authorities.

The study was beneficial to the respondents and their family as we conducted a health education session after conducting the survey and linked them to appropriate health center for further diagnosis and treatment. Hypertensive patients were referred to our health center for medical management.

**Conclusion & recommendations:** All the above factors identified in the study clearly reflect the extent of NCDs and their risk factors in the urban slums of Guntur. NCD risk factors are high in this study population. Hence detailed NCD studies to find out the reason and plan for suitable intervention are recommended. Health education regarding hazards of smoking and alcoholism should be widely spread and reinforced. Periodic screening of individuals aged > 30 yrs for early detection of HTN and ensuring for adequate treatment and compliance is essential to control HTN. The importance of maintaining BMI within normal limits by increasing physical activity and fruit intake, decreasing outside food (Unhealthy) consumption must be emphasized.

**Conflicts of Interest:** Nil

**Source of funding:** None

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