



# Behavioral Risk Factors for Non-Communicable Diseases among Adult Population: A Cross Sectional Study from Urban Slums of Central Karnataka, India

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**Financial Support:** None declared

**Conflict of Interest:** None declared

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## How to cite this article:

Garg R, Davalagi S. Behavioral Risk Factors for Non-Communicable Diseases among Adult Population: A Cross Sectional Study from Urban Slums of Central Karnataka, India. Natl J Community Med 2018; 9(3):220-224

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**Date of Submission:** 07-02-18

**Date of Acceptance:** 30-03-18

**Date of Publication:** 31-03-18

## ABSTRACT

**Background:** Non-communicable diseases, account for 53% of the deaths and 44% of Disability Adjusted Life Years in India. Although these chronic diseases are highly prevalent in urban areas, they are inadequately detected.

**Objectives:** The objective of the study was to find out the prevalence of behavioral risk factors for non-communicable diseases among urban slum population.

**Materials and methods:** A cross-sectional study was conducted using WHO STEPS approach questionnaire at urban field practice area of tertiary care teaching hospital, Davangere. The study for conducted for the duration of 3 months including 196 study participants.

**Results:** Among study population, 37% used smoked tobacco products and 43% used smokeless tobacco products. 23% of the study population consumed alcohol occasionally with no female reported consuming alcohol in the study. 37% of the study participants add salt to the prepared food. 19% were diagnosed as hypertensives among which 18% were on treatment at the time of the study. 22.4% were diagnosed as diabetics among whom 21.9% were on treatment at the time of study. No female participants in the study ever underwent screening of cancer cervix.

**Conclusion:** Promotion of healthy lifestyles at individual and community level is the need of modern time.

**Key words:** Non Communicable Diseases, behavioral risk factors, adults, urban.

## INTRODUCTION

Non communicable diseases are diseases that cannot be transmitted. Behavioral risk factors for Non communicable diseases include factors like use of tobacco (smoked and smokeless), consumption of alcohol, low consumption of fruits and vegetables and minimal or no physical activity which leads to the intermediate risk factors such as obesity, raised blood pressure, blood glucose and cholesterol levels, and ultimately contributes to cardiovascular diseases, cancer, diabetes and hypertension.<sup>1</sup>

Although Non communicable diseases affect the people of all ages belonging to all social class and

nationalities, countries with low and middle income are contributing a larger proportion of Non communicable diseases globally than high income countries.<sup>2</sup> By 2030, eighty percent of those deaths are expected to come from low and middle income countries, with the projection of about 52 million deaths annually.<sup>3</sup> By 2060, it is projected that deaths from non communicable diseases will outnumber the deaths from communicable diseases and are projected to account for about three out of four deaths in the world by 2020.<sup>4</sup>

Non communicable diseases account for 53% of the deaths and 44% of Disability Adjusted Life Years

in India. Although these chronic diseases are highly prevalent in urban areas, they are inadequately detected.<sup>5</sup>Integrated disease surveillance project aims to conduct periodic surveillance of risk factors for chronic diseases using the WHO-STEPS approach.<sup>6</sup>This approach focuses core and expanded data on established risk factors of non communicable diseases.

Urbanization has led to economic improvement, the consequences of which increased food consumption, tobacco-use, and decreased physical activity. The purpose of this study was to assess the prevalence of the risk factors of non communicable diseases at tertiary care teaching hospital in order to initiate steps for effective interventions.

### MATERIALS AND METHODS

A Community based cross sectional study was conducted in urban field practice area of tertiary care teaching hospital, Davangere for the period of 3 months i.e. from 1st August to 31st October 2016. Ethical clearance was obtained.

Total population residing in urban field practice area is 19000 which include 8 slums. By simple random sampling, 2 slums were selected which had in total, 270 households. Every alternate house was visited in both the slums in early morning and evening hours to not to miss the earning members of family. After obtaining informed consent, basic demographic details were taken and data was collected using WHO STEPS 1 approach questionnaire.<sup>7</sup>

Adults aged more than 30 years were included in the study whereas bedridden, differently abled individuals and pregnant women were excluded from the study. Final study population at the end of the study was 196. Occupation was classified into Professionals, Semi-professionals, Skilled worker, Semi-skilled worker, Unemployed, retired, home maker, students and others or not classified.

Data was entered in MS Excel and analyzed using IBMSPPSv20.0 and chi-square test was applied to analyze the quantitative data.

### RESULTS

In the present study, majority of participants were males (59.2%) as compared to females (41.8%) [Table 1]. Majority of the study participants belong to age group of 30-40 years with mean age being  $47.24 \pm 14.2$  years [Table 2]. Out of population under study, majority were Muslims (63.2%). 25.0% of the study population was illiterate. Illiteracy was more prevalent in females (36.2%) than males (17.1%), whereas higher education was almost

similar in both the sexes (18.0% v/s 19.3%). Majority of the males were semi professional (43.2%) by occupation whereas most of the females among the study participants were homemaker (34.4%). [FIG 1] 21.1% males and 3.5% females were unemployed at the time of the study. Among males, 72.5% were married and among females, 73.7% were married. The median Per capita income was Rs 2585 per month.

**Table 1: Socio demographic profile of study population (n= 196)**

| Variables          | Individuals (%) |
|--------------------|-----------------|
| Age group          |                 |
| ≤40 yrs            | 76 (38.8)       |
| 41-60 yrs          | 82 (41.8)       |
| 61-80 yrs          | 38 (19.4)       |
| Sex                |                 |
| Male               | 116 (59.2)      |
| Female             | 80 (40.8)       |
| Religion           |                 |
| Hindu              | 70 (35.7)       |
| Muslim             | 126 (63.2)      |
| Level of education |                 |
| Illiterate         | 49 (25.0)       |
| Primary/ middle    | 76 (38.8)       |
| Secondary/ higher  | 71 (36.2)       |
| Employment status  |                 |
| Unemployed         | 37 (18.9)       |
| Employed           | 159 (81.1)      |
| Marital status     |                 |
| Married            | 143 (72.9)      |
| Unmarried          | 53 (27.1)       |

**Table 2: Some socio deomgraphic variables by sex (n=196)**

| Variables                      | Male (n = 116) (%) | Female (n=80) (%) |
|--------------------------------|--------------------|-------------------|
| Age                            |                    |                   |
| 30-40                          | 51 (43.9)          | 25 (31.3)         |
| 41-50                          | 18 (15.5)          | 25 (31.3)         |
| 51-60                          | 23 (19.8)          | 16 (20.0)         |
| 61-70                          | 12 (10.3)          | 12 (15.0)         |
| 71-80                          | 12 (10.3)          | 02 (2.5)          |
| Education                      |                    |                   |
| Primary                        | 29 (25.0)          | 10 (12.5)         |
| Higher primary                 | 23 (19.8)          | 14 (17.5)         |
| SSLC                           | 23 (19.8)          | 12 (15.0)         |
| Degree                         | 21 (18.1)          | 15 (18.8)         |
| Illiterate                     | 20 (1.3)           | 29 (36.3)         |
| Marital status                 |                    |                   |
| Married                        | 84 (72.4)          | 59 (73.8)         |
| Unmarried                      | 32 (27.5)          | 21(26.3)          |
| Employment status              |                    |                   |
| Semi-professional              | 43 (37)            | 15 (18.8)         |
| Semi-skilled                   | 05 (4.3)           | 02 (2.5)          |
| Skilled worker                 | 25 (21.6)          | 17 (21.3)         |
| Unskilled                      | 11 (9.5)           | 07 (8.8)          |
| Homemaker                      | 0                  | 34 (42.5)         |
| Unemployed (including retired) | 22 (18.9)          | 05 (6.3)          |

**Table 3: Prevalence of behavioral risk factors**

| Behavioral risk factors                  | Individuals (%) |
|--|-----------------|
| Types of tobacco use                     |                 |
| Smoked tobacco products                  | 72 (36.7)       |
| Smokeless tobacco products               | 83 (42.3)       |
| Alcohol consumers                        | 46 (23.5)       |
| Salt                                     |                 |
| Adding extra salt to prepared food       | 72 (36.7)       |
| Eat processed food often                 | 79 (40.3)       |
| Blood pressure                           |                 |
| Got checked in past                      | 110 (56.1)      |
| Diagnosed s hypertensive                 | 37 (18.9)       |
| On medication                            | 35 (18.9)       |
| Diabetes                                 |                 |
| Got checked in past                      | 102 (52.0)      |
| Diagnosed as diabetic                    | 44 (22.4)       |
| On medication                            | 43 (21.9)       |
| Cholestrol -Got checked in past          | 20 (10.2)       |
| Cardiovasuclar diseases -Got checked     | None            |
| Cervical cancer -Screening for ca cervix | None            |

Among the study population, 36.7% used smoked tobacco products [TABLE 3] comprising of 62.0% males with no females reported to be a current smoker whereas 42.3% of the study population used smokeless tobacco products comprising of 54.3% females and 33.9% males. Median age of starting tobacco smoked products in males was 18 years. 20.8% males tried to stop smoking and 29.9% males were advised to quit smoking by doctor or other health professional. 30.1% males smoked in home and 31.6% did smoke in their workplace.

In terms of alcohol consumption, 23.5% of the study population were current drinkers comprising of 39.6% males with no females reported to be a drinker in the study. None of the study subjects were high risk drinkers. The mean age of commencing drinking was 18 years. 31.8% males found it difficult to stop drinking once started. None of the study participants needed a first drink in the morning to get going after a heavy drinking session. Non of the participants had any family problems due to drinking.

Regarding dietary habit, the mean days of fruit and vegetable consumption was  $2.5 \pm 0.5$  and  $4.5 \pm 0.25$  days in a week respectively. 36.7% of the study population added extra salt most of the times after food was served. 40.3% ate processed food high in salt often. 66.3% of the study population didn't know the importance of lowering salt in the diet. Majority (80.2%) of the study population did not adapt any methods like buying low salt/sodium alternatives, looking at the salt or sodium content on food labels, avoiding eating foods prepared outside the food etc to control their salt intake. Groundnut oil (37.2%) was used for cooking by majority of the participants followed by palm oil

(20.0%), sunflower oil (17.0%), mustard oil (8.1%) and others (17.7%) which included soya oil, coconut oil and ghee.

Heavy physical activity was reported by 8.6% of the study population and 48.4% reported moderate intensity activity. 54.6% study participants walked/used a bicycle to get to and from places while 7.1% either plays sports or participates in recreational activities. Majority of the subjects spent 10-20 minutes for physical activity done once or twice in week.

56.1% of the study population got their blood pressure checked in last 1 year by doctor or other health professional among which 18.9% were told to have raised blood pressure or hypertension. Among 18.9% diagnosed as hypertensives, 18.0% were on medication at the time of study. 52.0% of the study population got their blood sugar checked in last 1 year among which 22.4% were diagnosed as diabetics and 21.9% were on treatment at the time of study. None of the study participants either ever consulted a traditional healer or took any traditional remedy for hypertension and diabetes. Only 10.2% of the study population for their cholesterol level checked in past and none reported high cholesterol. None of the study participants ever had a heart attack or chest pain from heart disease or a stroke. None of the females ever underwent screening test for cancer cervix.

## DISCUSSION

The present study reveals the high prevalence of risk factors in the population with smoking and alcohol consumption being mainly prevalent in male population. The tobacco products were used by both males and females with females using only smokeless tobacco products. None of the participants in the study reported alcohol dependency and none had family problems arising out of their habits. Almost half of the population got their blood pressure and blood sugar level checked in last 1 year yet none had knowledge about foods containing high salt content, the importance of low salt intake and the adverse consequences of adding extra salt to cooked food. Busy day routine and lifestyles were the reason stated by most of the participants for doing minimal physical activity.

The adherence to treatment among hypertensives and diabetics was good. The health seeking behavior was poor mainly among females since none ever got screened for carcinoma cervix in spite of camps being conducted at nearest health center.

In our study, 36.7% study participants used smoked tobacco products whereas in the study by Basu G et al<sup>1</sup>, 12.3% participants used smoked to-



bacco products including participants of both sexes. 42.3% were using smokeless tobacco products in our study which is almost similar to the study conducted by Basu G et al<sup>1</sup> and more than Laskar A et al.<sup>8</sup> 23.5% of the participants in the current study admitted to consume alcohol which is less than the prevalence reported from studies conducted by Basu G et al<sup>1</sup> and Panday et al<sup>9</sup>. None of the females in the present study were reported to be a drinker which is similar to the study conducted by Basu G et al<sup>1</sup>, Chow C et al<sup>10</sup>, Sugathan T N et al<sup>11</sup> and Gupta R<sup>12</sup>. Intake of fruits was observed for 2.5 ± 0.5 days per week in present study whereas in the study done by Laskar A et al,<sup>8</sup> daily intake of fruits in a typical week was found to be 1%. In the present study, 36.7% participants add extra salt to the food which is less as compared to the study by Basu G et al<sup>1</sup> (49.5%) and more as compared to study by A Krishnan et al<sup>13</sup> (27.7%). The most commonly used cooking oil in our study was groundnut oil (37.2%) followed by palm oil (20.0%) whereas in the study conducted by Basu G et al<sup>1</sup>, mustard oil (64.4%) was most commonly used followed by sunflower oil (8.5%).

Prevalence of Hypertension in our study was found to be 18.9% which is less as compared to study conducted by Laskar A et al<sup>8</sup> (36.9%), Thakur J S et al (40%)<sup>14</sup>, A K Krishna et al (26%)<sup>16</sup>, A Steven et al (26.6%)<sup>17</sup>, B Aroor (29.1%)<sup>18</sup>; more in comparison with the study conducted by P Banik Chandra (3.7%)<sup>15</sup> and almost similar to the study conducted by Krishnan A et al (18.6%)<sup>19</sup>. Prevalence of Diabetes in our study was to be 22.4% which is more as compared to study conducted by Laskar A et al<sup>8</sup> (10.5%), P Banik Chandra (1%)<sup>15</sup>, A K Krishna et al (4%)<sup>16</sup>. None of the participants in present study had hypercholesterolemia whereas 16.1% participants had hypercholesterolemia in the study conducted by Thakur J S et al.<sup>14</sup>

## CONCLUSION

The present study highlights high prevalence of risk factors in community and poor health seeking behaviour, despite the availability of free services at all levels of health care and thereby the need to increase focus on individual health education and also on health promotive lifestyles. Efforts to reduce smoking, alcohol consumption, transfat and salt consumption are needed which required policy formulation and implementation.

## ACKNOWLEDGEMENTS

The authors of this paper sincerely thank all the study participants and Dept of Community Medicine JJMMC, Davangere. This research received no

funding or grants from any public agency and commercial sectors.

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