Non Communicable Diseases: Prevalence and Risk Factors Among Adults in Rural Community

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Abstract : To study the prevalence, distribution of risk factors and to identify the burden of noncommunicable diseases (NCD) among rural population. The prospective observational study involved a door to door survey of 240 respondents, aged 20-70 years. The data collection consisted of socio-demographic characteristics, NCD history, behavioural risk factors and nutritional status etc.The present study population comprised of 47.92% males and 52.08% females.32.08% were <50 years whereas around 67.92 % were >50yrs of age. Most of the patients were found to be illiterate (58.75%). It showed that 19.16% people were using tobacco products. Sedentary habit or physical inactivity was present in 95% of study population. Low fruit consumption was observed in both genders. Majority of people were underweight (45%) which was found most in women than men. The prevalence of cardiovascular disease along withco-morbidity (28.33%) is more among the population. In this study population about 32.91%were found to be using OTC drugs**.** The study showed high burden of NCD risk factors in rural area. Improving the detection and treatment of NCDs and thereby preventing complications are the only solutions for reducing NCD burden.
behavioural risk factors, illiterate and lifestyle.
Actions should be oriented toward curbing the NCD risk factors, promoting healthier lifestyles to reduce NCD incidence rates and delay the age of NCD onset.
Keywords : Non communicable disease, behavioural risk factors, illiterate and lifestyle.

Introduction

Noncommunicable diseases (NCDs), also known as chronic diseases, are not passed from person to person. They are of long duration and generally slow progression. NCDs are the leading cause of death in the world, responsible for 63% deaths worldwide in 2008.[1]The majority of these deaths (36 million) were attributed to cardiovascular diseases (48%), cancers (21%), chronic respiratory diseases (12%) and diabetes (3%).[2]According to 2008 statistics, NCDs accounted for 5.2 million deaths in India. A rising trend in the burden of NCDs is expected in the years ahead. Cardiovascular disease (CVDs) alone account for 24 percent of all deaths. Chronic respiratory diseases (CRDs), cancers and diabetes accounted for 11, 6 and 2 percent of all deaths respectively.[3]It is estimated that globally in the year 2002, NCD contributed 60% of deaths and 43% of global burden of disease and by 2020; it is projected to account for 73% of deaths and 60% of disease burden.[4]All age groups and all regions are affected by NCDs. NCDs are often associated with older age groups, but evidence shows that more than 9 million of all deaths attributed to NCDs occurs before the age of 60.[5]

The four main types of NCDs are CVDs (like heart attacks and stroke), cancers, diabetes and CRDs (such as chronic obstructed pulmonary disease and asthma) are the major public health threat in developing countries particularly in India.[6-7]NCDs have more risk factors such as tobacco use, unhealthy diet, physical inactivity (PinA), obesity, recreational drug use and excess adiposity. These are called 'intermediate risk factors' or behavioural risk factors which can lead to NCDs. Factors contributing to the rise of NCDs also include ageing, rapid unplanned urbanization and globalization.[8-9]

In India, there is no regular system for collecting data on NCDs which can be said to be of adequate coverage or quality. Thus, most of these estimates at best may be taken as approximation only.[10]Knowing the socio-demographic patterns of NCD risk factors across rural areas in India is important not only for predicting the future course of the epidemic but also for planning relevant policies for prevention and disease control. It may also provide new aetiological insights through their juxtaposition to known variations in disease patterns.

Material and Methods

The prospective observational study involved a door to door survey of 240 respondents, aged 20 -70 years of both genders who were under treatment for NCD and those who were diagnosed as having NCD but not taking any medication, are residents in Komarapalayam locality were included in study. Patient those who were not willing to answer the questionnaire, suffering from communicable disease also excluded since the research study aim only about NCDs.

Data collection

The data collection consisted of socio-demographic characteristics, NCD history, behavioural risk factors and nutritional status etc.

Step 1: (Interview)

The study was carried out between 23rd January 2015 to 13 August 2015. The collected data include socio demographic details such as age (<25 years > 70), gender (male and female), occupation, educational status. Patient past, present medical and medication history, family history and behavioural risk factors, such as tobacco use, alcohol use and diet were obtained with the help of suitable questioner form. Low physical activity was defined as achieving less than 5 days a week of any combination of walking, moderate- or vigorous-intensity activities and less than 600 min of physical activity per week. Insufficient fruit and vegetable consumption was defined as <5 servings of fruit or vegetables a day.

Current smokers were defined as those who were reported smoking cigarettes or bidisfor past one year. Current smokeless tobacco users were defined as those who were using chewable tobacco products, gutka, or zardapaan daily.

Current alcohol drinkers were defined as those who reported to consume alcohol 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).

Daily vegetable consumption 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 servings). Daily fruit consumption 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. (One servings).

Step 2: (Physical measurement)

Physical measurement like height and weight is recorded to calculate BMI (kg/ m[2)].

Results and Discussion

The present study population comprised of 47.92% males and 52.08% females.32.08% were <50 yrs whereas around 67.92 % were >50yrs of age.41.25% of population were literate and 58.75% were illiterate. Illiteracy were more prevalent among females than males (66.09% vs. 52%).It was seen that, 35% of study

population were unemployed 65% were employed. Sedentary habit or physical inactivity was present in 95% of study population. Physical activity was observed in 5% of population. Regarding the dietary habit, 56.5% were non-vegetarian, 8.33%,64.5% were vegetarian and mixed respectively. 28.75% of study population took fruits 3-4 times a week and 71.25% took occasionally. None took fruits daily. Study was shown that food intake of population were 39.16%, 42.9%, 17.08% thrice, twice and once respectively.   The study estimated the prevalence of cardiovascular disease along with co-morbidity (28.33%), Hypertension alone (13.33%), CVD (12.08%), DM (11.25%), Respiratorydisease (10%), Hypertension+DM (8.33%), Arthritis (7.5%), Blood disorder (6.25%) and ulcer (4.16%). Among this population 32.91% were consumers of OTC products. Since family history has an impact in contributing the NCDs, our study found that 25.83% had family history of hypertension, respiratory diseases (8.75%), DM (9.58%) and 5% arthritis (table 1).

Table 1: Socio demographic status of subjects

Socio demographics	Male	Female	Total
Gender	115(47.92%)	125(52.08%)	240
Age groups(years)			
20-30	5(4.35%)	9(7.2%)	14(5.83%)
31-40	14(12.17%)	8(6.4%)	22(9.16%)
41-50	22(19.13%)	19(15.2%)	41(17.08%)
51-60	40(34.78%)	65(52%)	105(43.75%)
61-70	34(29.56%)	24(19.2%)	58(24.16%)
Education			
Literate	39(33.91%)	60(48%)	99(41.25%)
Illiterate	65(52%)	76(66.09%)	141(58.75%)
Risk factor			
Physical inactivity	109(94.78%)	119(95.2%)	228(95%)
Low fruits & vegetable intake	105(91.30%)	116(92.8%)	221(92.08%)
Alcohol consumption	9(7.83%)	7(5.60%)	16(6.66%)
Smokeless Tobacco use	26(22.60%)	8(6.4%)	34(14.16%)
Smoking alone			
Alcohol & Smoking	12(10.43%)	-	12(5%)
	17(14.78%)	-	17(7.08%)
Chronic diseases			
SHT	18(15.65%)	14(11.2%)	32(13.33%)
CVD	11(9.57%)	18(14.4%)	29(12.08%)
DM	8(6.96%)	19(15.2%)	27(11.25%)
Respiratory	6(5.22%)	18(14.4%)	24(10%)
Arthritis	9(7.82%)	9(7.2%)	18(7.5%)
Blood Disorder	2(1.74%)	13(10.4%)	15(6.25%)
Ulcer	6(5.22%)	4(3.2%)	10(4.16%)
Co-morbidity			
CVD+DM+SHT	36(31.30%)	32(25.6%)	68(28.33%)
SHT+DM	12(10.43%)	8(6.4%)	20(8.33%)
Family history			
SHT	41(35.65%)	21(16.8%)	62(25.83%)
DM	15(13.04%)	8(6.4%)	23(9.58%)
Arthritis	4(3.48%)	8(6.4%)	12(5%)
Respiratory	7(6.086%)	14(11.2%)	21(8.75%)
CVD	2(1.74%)	1(0.8%)	3(1.25%)
Blood Disorder	_	1(0.8%)	1(0.42%)
Ulcer	1(0.87%)	2(1.6%)	3(1.25%)
Medication history			
Non-OTC	13(11.30%)	8(6.4%)	21(8.75%)
OTC	45(39.13%)	34(27.2%)	79(32.91%)

Table 2: BMI of study subjects

BMI	Male(115)	Female(125)	Total(240)
Under weight(<18.5)	43(37.39%)	65(52%)	108(45%)
Normal weight(18.5-24.9)	31(26.95%)	36(28.8%)	67(27.91%)
Over weight(25-29.9)	41(35.65%)	24(19.2%)	65(27.08%)

Table 2 illustrates BMI of study population, among them 27.08% were overweight or obese, 27.91% were normal weight. Majority of people (45%) were under-weight which was found most in women than men.10.43% of study population were smokers in men whereas 6.4% women and 22.6% of men used smokeless tobacco products. The average tobacco use had been increased as age advanced in both sexes. It was seen that7.83% of study population was high risk drinkers whereas 14.78% were used both alcohol and smoking. 5.6% of females under study reported alcohol consumption.

Our study has revealed that there was a high rate of prevalence of behavioural risk factors among adults in the community, especially the habit of smoking and alcohol consumption among men. This result was found to be similar with study conducted by Somanet.alin Kerala.[11] Our study results concordance with others (de Costa et al., 2013; Kolber et al., 2013) [12-13] that the behavioural NCDs risk factors namely Physical inactivity, smoking, obesity and insufficient intake of vegetables and fruits were the predominant factors encountered in NCD development and its progression.In our study, women were reported to consume alcohol- a finding that has been differing from other studies.

The study further showed that the dietary habits in majority of respondents were unhealthy. The relationship between the inadequate intakes of high fibre foods such as vegetables and fruits, and the chance of occurrence of chronic NCD is well documented.[14] According to Pender, an adult should consume an adequate quantity of fruits and vegetables (at least two servings daily). The inadequate dietary pattern prevailing among the respondents in the present study is likely to impact adversely on future morbidity burden in community, especially in the absence of adequate physical activity observed.[15]Poor dietary quality (in particular, high salt intake, high saturated and trans-fatty acid intake, and low fruit and vegetable consumption) and insufficient physical activity are key risk factors for NCD development. A diet rich in vegetables and fruits has beneficial health effects including decrease in the likelihood of having a heart attack or stroke and possibly protect against some types of cancers. Our study revealed that women and men were consuming fewer amounts of fruit and vegetable than recommended; this can be attributed to their low socio-economic status. Our study showed that women have a poorer healthy dietary pattern than men for all the age groups, which may be a reflection of their poor social status and the reason behind the prevalence of anaemia in women than men.

Most of the people in this study population were suffering from blood disorder 15(6.25%)RDS24 (10%),SHT (13.33%), DM 27(11.25%) and CVD 29(12.08%). Except blood disorder (especially anemia) other NCDs reported a greater genetic influence in the development of NCDs, which is evident from their family history.

In the current study, the number of underweight women was significantly higher than men while obesity had a significant difference in relation to genders.This study shows NCDs and its risk factors were more prevalent among men than women. This result was found to be similar with other published reports (Schuit et al., 2002; Poortinga et al., 2007; Moura et al., 2009).[17-18-19]The level of physical activity was surprisingly lower (5%) than expected in this rural area, poor knowledge about the importance of daily physical activity could have led to this response. These findings support the need for regular screening of individuals for NCDs and their risk factors. Our study result concordance with other studies conducted in Angola and China, which was found that older age, lower level of education, unemployment and lower body mass index, low fruits intake were significantly associated with NCDs.[18] Prevalence of NCDs including CVD,SHT and DM stemmed from the uncontrolled above discussed modifiable risk factors, therefore primary prevention of these risk factor through identification and appropriate management may help in delaying and halting the progression of many NCDs. Majority of the NCDs could be easily avoided through life style changes like eating a healthy diet, avoiding tobacco use and exercising regularly. These are simple cost effective interventions that have worked in different settings around the world.

Conclusion

The study was not a representative but provided a detailed description of the prevalence of behavioural NCDs risk factors. The study showed high burden NCD risk factors in rural area. Improving the detection and treatment of NCDs and thereby preventing complications are the only solutions for reducing the NCD burden. Actions should be oriented toward curbing the NCD risk factors and promoting healthier lifestyles to reduce NCD incidence rates and delay the age of NCD onset.

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Conflict of Interest

The authors declare no conflict of interest

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