Original article ▌

BEHAVIOURAL RISK FACTORS FOR NON COMMUNICABLE DISEASE AMONG RURAL ADULTS IN ANDRA PRADESH

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ABSTRACT

Introduction: Non-communicable diseases (NCDs) are the leading cause of death in rural parts of Andhra Pradesh. Most of the risk factors for NCDs are modifiable and can be controlled to reduce incidence and to ensure better outcomes for those having NCDs.

Objectives: To estimate the prevalence of various behavioral risk factors for NCDS in rural area and to evaluate the socio-demographic characteristics associated with these risk factors.

Material and Methods: A cross sectional study was conducted in rural area of Karimnagar among 410 participants. Various risk factors assessed were smoking and alcohol intake, physical inactivity, obesity, hypertension and stress among participants.

Results: The mean age of the participants was 56.41 ± 11.90 years. Male accounted for 55.6% of the total sample, 34.9% were illiterate and 70.7% belonged to an upper lower class. Presence of at least one risk factor was observed among 76.3% of participants. The prevalence of hypertension was 38.5% among participants, 24.6% were current smokers whereas 29.8% were current alcohol users. Stress was exhibited by 24.9% and 25.9% were physically inactive. A binary logistic regression analysis revealed that older age ($p = 0.000$), male gender ($p = 0.001$), illiteracy ($p = 0.007$) and lower socio-economic status ($p = 0.001$) were associated with the presence of at least one risk factor.

Conclusion: High prevalence of risk factors among rural population warrants an immediate attention. There is a need for careful monitoring and control of non-communicable disease risk factors in rural area.

Keywords: Behavioral Risk Factor, Non Communicable Disease, Rural Area

INTRODUCTION

According to WHO Report 2004, NCDs contributed to half of the total mortality and were a major cause of deaths in India.[1] Mortality data from the Andhra Pradesh Rural Health Initiative revealed that chronic diseases are now a leading cause of death in rural area. Accordingly deaths due to circulatory system (32%), ischemic heart disease (14%) and cerebrovascular disease (13%) are in preponderance.[2] A large percentage of NCDs are preventable through the reduction of their four main behavioral risk factors: tobacco use, physical inactivity, harmful use of alcohol and unhealthy diet.

Modification of these risk factors are not only helpful in reducing the incidence of NCDs but

also ensures a better outcome for those having NCDs.[3] Evaluation of these risk factors can be utilized to set priorities and for planning intervention strategies for identified risk factors in the community to reduce the burden of non communicable diseases. This has important public health implication since two third of India's population still lives in rural areas having a limited access to health care.[4] The present study was planned and conducted in rural area of Andhra Pradesh with the objectives of

estimating the prevalence of various behavioral risk factors for NCDs and to evaluate the socio-demographic characteristics associated with these risk factors.

MATERIAL AND METHODS

A cross-sectional study was carried out in the Rural Health Training Center (RHTC) Vutoor, a field practice area of the Department of Community Medicine, Prathima Institute of Medical Science, Karimnagar during October - November 2012. Vutoor village is having the population of 4346 as per the data obtained by village and family health survey 2012, conducted by department of community medicine. A total of 410 adults aged 35 years and above were included in the study through purposive sampling. The purpose of the study was explained and informed consent was obtained from all the respondents. A semi structured questionnaire was designed which consisted of two parts: baseline characteristics of study population consisting of age, sex, educational and occupational status, household income, family type and size, etc. and various risk factors include smoking and alcohol intake, physical inactivity, overweight/obesity, hypertension and stress among participants.

Measurement: Body mass index (BMI) estimation was done by measuring height using a stadiometer to the nearest 0.1 cm in an upright posture and measuring weight with a standard weighing scale with minimal clothing and while ensuring adequate inter and intra rater reliability. Subjects were classified into categories of normal, overweight and obese, based on their BMI calculation. Blood pressure was measured using the mercury sphygmomanometer. Both systolic and diastolic values were taken twice and their average was recorded in the schedule. Hypertension was diagnosed based on drug treatment for hypertension or if the blood pressure was greater than 140 / 90 mm Hg as per Joint National Committee VII Criteria.[5] Behavioral risk factors included assessment of current smoking and drinking status. Current smoker is considered as someone who at the time of the survey, smokes tobacco in any form either daily or occasionally [6] whereas current drinker is considered as one who consumed one or more than one drink of any alcohol in the year preceding the survey.[6] Physical activity of subjects was assessed taking into consideration the occupational as well as non-occupational physical activity. A person was considered "inactive" if he/she has always been carrying out only light (sedentary) physical activities.[7] Participants were asked whether they were feeling any stress or tension in their close environment like job, family life, interaction with friends, financial problems, health etc. Information on dietary intake was collected from each respondent. For the purpose of analysis those who took vegetables and fruits less than once daily were considered as having an unhealthy diet.[7] Statistical measures obtained were proportions, mean, standard deviation and chi square values. A binary logistic regression analysis was performed to predict the role of various socio-demographic factors for the presence of at least one risk factor for NCD. The dependent variable was dichotomized into no risk factor present and at least one risk factor present. The independent variable includes the age of the participants, sex (male gender), years of schooling and socioeconomic status scores of the participants.

RESULTS

Table 1 showed the baseline characteristics of participants. The mean age of participants was 56.41±11.90 years. Most of the participants 142 (34.6%) were belonged to age group of 55-60 years followed by 114 (27.8%) of the age group > 65 years. Males accounted for 228 (55.6%) of the total sample whereas females represented 182 (44.4%) of the total sample size. A total of 251 (61.2%) participants were educated up to schooling. Only 16 (3.9%) had tertiary education and 143 (34.9%) were illiterate. The majority of participants 290 (70.7%) were belonging to the upper lower socio-economic status whereas 72 (17.6%) were categorized as lower middle class. None of the participant in our sample belonged to the upper socioeconomic class as per Kuppuswamy classification.

Table 2 showed the prevalence of various risk factors among participants. A total of 313 (76.3%)

participants were having at least one risk factor present for NCDs.

Table 1: Baseline characteristics of participants

Variables	Participants (%)
Age in years	
35-44	85 (20.7%)
45-54	69 (16.8%)
55-64	142 (34.6%)
65>	114 (27.8%)
Sex	
Male	228 (55.6%)
Female	182 (44.4%)
Educational status	
Illiterate	143 (34.9%)
Schooling	251 (61.2%)
Tertiary	16 (3.9%)
Socioeconomic status	
Upper Middle	40 (9.8%)
Lower middle	72 (17.6%)
Upper Lower	290 (70.7%)
Lower	08 (2%)

Table 2: Prevalence of various risk factors among participants

Risk factors	Presence of Risk factor in Participants (n=400) (%)	
	yes	No
Hypertension	158 (38.5%)	252 (61.5%)
Alcohol	122 (29.8%)	288 (70.2%)
Physical inactivity	106 (25.9%)	304 (74.1%)
Stress	102 (24.9%)	308 (75.1%)
Smoking	101 (24.6%)	309 (75.4%)
Unhealthy diet	39 (9.5%)	371 (90.5%)
Obesity/overweight	25 (6.1%)	385 (93.9%)
At least one risk factor	313 (76.3%)	97 (23.7%)

Among the sample 158 (38.5%) of participants were hypertensive, current alcohol use was observed in 122 (29.8%) of participants and 101 (24.6%) were current smokers. Physical inactivity was present in 106 (25.9%) of individuals and 102 (24.9%) exhibited stress. Overweight/obesity was present among 25 (6.1%) individuals and 39 (9.5%) were consuming unhealthy diet.

Table 3: Socio-demographic predictors of NCD risk factors

Variables	P	S.E.	OR (95% CI)
Age	0.000	0.012	1.063 (1.039-1.088)
Male gender	0.001	0.258	2.289 (2.063-4.251)
Illiteracy	0.007	0.044	0.888 (0.815-0.967)
Lower SES	0.001	0.032	0.900 (0.846-0.958)

* Nagelkerke R Square = 0.513

Table 3 reveals a binary logistic regression analysis of various socio-demographic predictors for the outcome of the presence of NCD risk factors. The logistic regression model was tested using Hosmer and Lemeshow Chi-square test of goodness of fit to determine overall fit of a model. We obtained a non-significant Chi square value (X^2 =14.559, significance: 0.068) indicating that the data fits the model well. The analysis indicated that older age of participants ($p = 0.000$; OR= 1.063), male gender ($p = 0.001$; OR= 2.289), illiteracy ($p = 0.007$; OR= 0.888) and lower socioeconomic status ($p = 0.001$; OR= 0.900) were risk factors determining the presence of at least one risk factor. A moderate relationship between the dependent and independent variables was obtained with a Nagelkerke R^2 amounting to 0.513.

DISCUSSION

High prevalence of various risk factors for NCDs was observed among participants.

Majority of them (76.3%) were having at least one risk factor. The prevalence of hypertension in our study was 38.5%. A study conducted by Subburam et al reported 33% of the prevalence of hypertension in rural areas and Kokiwar et al reported 19% of prevalence,[8, 9] whereas Singh et al reported a prevalence of 21.3% among the respondents.[10] The difference in the results may be attributed to the different age structure and geographic variation of the studied population. Among the various risk factors alcohol intake among participants was 29.8% and current smokers were 24.9%. A study conducted by Sugathan et al reported two major risk factors among males which were smoking 40% and alcohol consumption 41%.[7] Similar high prevalence of smoking and alcohol use were also reported by Bhardwaj et al and Katyal et al. [11,12] A total of 25.9% of the individuals in the present study were having the sedentary lifestyle. The lack of physical activity leads to obesity, hyperlipidemia, diabetes mellitus, hypertension, and coronary heart disease.

Sugathan et al reported nearly a quarter of the target population (23% males and 22% females) as inactive and Thankappan et al reported total 6.8% of the student population as physically inactive. [7,13] The differences in the results can be ascribed to socio-demographic variables as well as the criteria used for measuring the activity level. A total of 24.9% of participants were experiencing stress in their day to day life in the present study. Our findings are consistent with the findings of Sugathan et al who reported 23%

of the samples were having stress. [7] The present study showed that 9.5 % of individuals were consuming vegetables and fruits less than once daily. Similar kind of low fruits and vegetable intake was reported by Bhardwaj et al and Sugathan et al among studies conducted in rural areas. [7, 11] Prevalence of at least one risk factor was significantly associated with age, gender, educational and socioeconomic status of the respondents in the present study. Sociodemographic patterning plays a role in non-communicable disease risk factors as evidenced by various studies. Kinra S et al and Hosseinpoor AR et al reported a varying degree of socioeconomic inequalities associated with risk factors.[4, 14]

CONCLUSION

High prevalence of risk factors among rural population warrants an immediate attention.

The prevalence of most of the risk factors were generally high across a range of socio-demographic groups, the knowledge of which can be utilized for planning the preventive strategies. There is a need for careful monitoring and control of non-communicable disease risk factors in rural area in India.

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