Abstract -Long

Background: The Cardiovascular and other chronic diseases are becoming the major causes of morbidity and mortality in most of the third world countries including India. The importance of chronic and non-communicable diseases in the patterns of morbidity and mortality seems to be increasing in one of the southern states of India, Kerala (yet another similarity with developed countries!). 20% of all deaths in Kerala are caused by coronary Heart Disease (Govt. of Kerala, 1990 & 1995). Various behavioural factors like smoking, diet, stress at home and work place, consumption of alcohol, sedentary life style, etc, are known to be risk factors for many diseases such as CHD, cancers, asthma, etc, Other physical conditions such as hypertension, obesity and diabetes also are risk factors for many chronic diseases. In this context knowledge about the prevalence of these risk factors among different sections of Kerala population is essential for public health administrators for initiating measures to control them. The main purpose of the present study is therefore focusing on the level of various behavioural risk factors (BRF) for non-communicable diseases prevalent in, Kerala.

Objectives: 1. Estimate the prevalence of BRF in rural and urban areas; and 2. Determine its association with various biosocial factors.

Method: The study is a part of an all Kerala investigation on the BRF sponsored by Indian Council of Medical Research (ICMR), and the findings are based on the data collected from 5494 individuals of age 30 to 74 years, randomly selected following a stratified two stage cluster sampling design. The important factors investigated include smoking, alcohol consumption, vegetable and fruits intake, physical activities, stress and strain, history of chronic disease conditions and various body measurements--height, weight and systolic and diastolic blood pressure. The Statistical methods used include both univariate and multivariate (Cox Regression and logistic regression). A value of $p \leq 0.05$ was taken as level of significance.

Results: Table 1 summarises the prevalence of various behavioural risk factors by place of residence and sex. The two major risk factors observed were the smoking and alcohol drinking habits among males both in rural and urban areas. About three fifth (61%) of the males were found to be ever smokers and the level was found to be more in rural areas. The consumption of alcohol was found to be also substantial among males (52%) and negligible among females (1%). Besides sex and place of residence, various other biosocial factors were also found to be associated with both smoking and alcohol consumption.

The Cox regression analysis has indicated very strong differential with level of education for the above mentioned both risk factors. Lower the level of education higher is the level of risk in smoking as well as drinking habit of alcohol. Compared for high educational group (RR=1), the values of RR increased from 1.5 (10-12 years of schooling) to 2.9(for less than 5 years of schooling) with the decreasing level of education for smoking habits. Similarly the RR for drinking Alcohol varied from 1.6 to 2.4 with the decrease in educational level. The other discriminating factors for RR for smoking habits were higher age groups (linearly increasing from 1 (below 40) to 1.9 (60 years and above). The RR for scheduled caste was

1.4 compared to upper class Hindus. For unskilled workers the RR was 2.3 compared to professional and office workers.

The logistic regression analysis for other risk factors also did show significant association with various biosocial factors. As regards inactivity, the RR was 1.4 for females compared to males, 2.3 for people aged 60 years and above compared to the young people 40 years or below and 0.28 for unskilled workers compared to professional and office workers.

The level of Stress was strikingly related with lower education (RR=4.9) for education below 5 years compared to higher education as reference) and also high for urban residence (RR=1.2 compared to 1 for rural reference). The level of risk for over weight was higher among urban residents (2.4 compared to rural reference) and among females (RR=2.1 compared to male reference). The study also noticed that 58% of the respondents have been diagnosed with at least one chronic disease, and family history was found to have significant influence on disease condition.

Conclusion: Among males the study brought out substantially high level of risk factors, especially smoking and alcohol consumption, which require urgent attention on the part of the public health officials. Special attention should be paid to spreading awareness on healthy living habits among the population, especially among the females.

Table 1. Prevalence of various Risk factors by place of residence and sex

Risk Factors	Urban		Rural	
	Male **(893) $**	**Female** **(1114)**	**Male** **(1550)**	**Female** **(1937)**
1. Smoking Habit (%)				
Current	35.9	0.2	42.2	0.2
Former	17.7	0.0	22.5	0.3
All ever	53.6	0.2 ***	64.7	0.5 ***
2. Alcohol consumption (%)				
Current	44.7	2.8	40.5	0.1
Former	9.2	0.2	10.5	0.2
All ever	53.9	3.0 ***	51.0	0.3 ***
3. Physical Inactivity (%)	41.8	57.7 ***	42.1	53.6 ***
4. Stress (%)				
Only one factor	30.9	28.7	33.9	34.1
More than one factor	21.6	25.3	20.8	25.4 **
5. Family History of chronic Diseases (%)	35.2	36.5	25.5	28.7
a. Diabetes	18.7	18.1	13.8	12.6
b. Heart disease	40.4	42.4	35.4	34.5
c. High Blood Pressure	21.1	18.5	18.5	18.7
d. Asthma	2.5	4.2 *	2.9	3.4
e. Migraine	21.9	20.8	21.7	21.4
f. Rheumatic Complaint	11.7	12.1	13.4	11.9
g. Cancer				
6. Presenting Chronic diseases (%)				
a. Diabetes	13.1	12	9.7	7.3 **
b. Heart disease	4.0	3.0	5.2	2.3 **
c. High Blood Pressure	16.1	23.9 ***	14.5	19.7 ***
d. Asthma	8.8	11.1 *	8.8	8.7
e. Migraine	3.7	9.1 ***	5.5	11.8 **
f. Rheumatic Complaint	6.4	20.4 ***	11.4	20.1 ***
g. Cancer	0.8	0.9	0.3	0.6
7. Body measurements (%)				
a. Over weight	24.2	43.3 ***	12.5	26.2 ***
b. High Blood Pressure				
Systolic (140 or above)	16.2	17.3	15.7	16.7
Diastolic (90 or above)	24.4	22.1	22.6	23.0

$ Number of cases
Level of Significance   * = P < 0.05 ,   ** = P < 0.01 ,   *** = P < 0.001