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SOCIO-DEMOGRAPHIC, ECONOMIC OCCUPATIONAL AND LIFESTYLE FACTORS ASSOCIATED TO SELF PERCEIVED HEALTH STATUS

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Abstract: **Self-Perceived Health is a subjective measure of overall health status. Individuals' self-assessment of their health may include many aspects that are difficult to capture clinically, such as disease harshness, early stages of disease, psychological and physiological conditions and social function. The aim of this study is to assess the socio, demographic, economic and lifestyle factor correlates of self-perceived health status in a population of capital city of Kerala. Data from 300 sample households with 1078 individuals, had collected through a household survey and analyzed. The independent variables included are demographic characteristics, economic level, employment status, smoking and alcohol intake. Binary logistic regression method is used to assess the association of self-perceived health with demographic, economic and lifestyle factors. In the regression models of unadjusted and multivariate adjustment for all covariates with the backward stepwise elimination procedure shows that the significant "predictors" of poor self-perceived health status were age and gender. Furthermore, alcohol intake was a significant "determinant" of poor self-perceived health in this study population.**

Keywords: **health, self-perceived health status, Kerala, alcohol.**

I. INTRODUCTION

Kerala has achieved remarkable health targets during the pre-liberalization days. However during the post liberalization period, many problems started appearing afresh in the health system which gradually got reflected in the unfavourable trends in health indicators. Income inequality intensified in the society during the fiscal crisis, which accordingly engendered health-equity issues. The morbidity rate is high, malnutrition and under nutrition is alarming, various types of non-communicable diseases are predominant, calorie intake on a decline, and infant mortality started rising. In the meantime, the state expenditure has been declining; the government run institutions stand outdated due to lack of modern health infrastructure and shortage of properly skilled manpower [1]. Differentiation occurs at the health status, since health needs and achievements vary by education, income, and employment; there are also gaps in provision of health services and health needs of the people. It is very difficult to recognize which determinants are most important in the decision to utilize health care. Age, gender, social and economic characteristics, access, self-perception, knowledge and belief are the list of factors, which influence the choice to seek health care and the assessment of which health care option to utilize for the treatment of illness [2].

Health is an important constituent of well-being, foundation of prosperity and development of a country and health is 'a state of complete physical and mental and social well-being' (WHO, 1958). Self Perceived Health is a subjective measure of overall health status. Individuals' self-assessment of their health may include many aspects that are difficult to capture

clinically, such as disease harshness, early stages of disease, psychological and physiological conditions and social function. There were number of studies [3,4,5,6,7] which have confirmed that Self Perceived Health status is a valid and reliable measure, associated with morbidity and mortality conditions of population. These studies also demonstrated that Self-perceived health status is often more effective than clinical measures for predicting health seeking behaviours and utilisation of health care services. The evidence advocates that it is a virtual measure to assess the health conditions, which relate to people's expectations and circumstances. According to population-based studies (OECD Health Statistics, 2008), self-perceived health status has been recommended as a reliable factor to assess population health. In addition, it is associated to not only mortality and morbidity, but also to socio-demographic, economic, and occupational factors. Several socio, demographic, economic and lifestyle determinants of self-perceived health status have been predictable in different population based surveys. Therefore, the aim of this study is to assess the socio, demographic, economic and occupational factors that are associated with self-perceived health status in the capital city of Kerala.

II. MATERIALS AND METHODS

This study was based on a primary survey in Thiruvananthapuram district, the capital city of Kerala conducted in September 2017 for a period of six weeks. The district level data (unpublished data from 2011 to 2015) from Directorate of Health Services states that compared to other districts in Kerala, Thiruvananthapuram district is a high morbid area (DHS, 2017). The household survey is conducted in Neyyatinkara municipality (150 from two wards) and Karakulam grama panchayat (150 from two wards) which are randomly selected as sample urban and rural areas with a total sample of 300. The household survey conducted among the sample households collected data on the variables, which measure self-perceived health status, gender, age wise distribution, education, employment, income, smoking habits and alcohol intake.

The main outcome variable is the evaluation of general self-perceived health. All study participants were asked the following question: *"In general, how would you rate your health?"*Participants rated their health in five categories: very good, good, average, poor and very poor, which is further dichotomized into "healthy" and "unhealthy". Independent variables, based on a detailed literature review, included demographic characteristics, economic level, employment status, smoking and alcohol intake.

Absolute numbers and their respective percentages from the study sample, and their respective 95% confidence intervals are reported. Binary logistic regression was used to assess the association of self-perceived health with socio-demographic, economic and lifestyle factors. The selected variables were included in a backward stepwise elimination method with p-value. Odds ratios (unhealthy vs. healthy), their respective 95%CIs and p-values were calculated. The logistic models were tested with the Hosmer-Lemeshow goodness-of-fit test and reported satisfactory goodness-of-fit criterion. SPSS version 20.0 was used for statistical analyses.

III. ANALYSIS AND RESULTS

The Table 1 presents the distribution of socio demographic characteristics of male and female respondents. Mean±SD of male and female was 34.61±20.46 years and 36.85±20.15 years, respectively. Overall, about 33% of the study sample was 15-35 years old, whereas the proportion of older people (56 years and older) was 18%. About 44% of respondents were residing in urban areas and about 56% were residing in rural areas. The unemployment level was considerably higher among females compared to males (77.3% vs. 45.7%, respectively). About 11% of male and 12% of female had acquired university degree (Table 1).

Table 1: Socio-demographic characteristics of sample population

Indicators	**Male**	**Female**	**Total**
Age (Years) Mean±SD	34.61±20.46	36.85±20.15	35.78±20.32
Age Group			
0-14	92 (17.90)	95(16.84)	187(17.35)
15-35	179(34.82)	179(31.74)	358(33.21)
36-55	165(32.10)	172(30.50)	337(31.26)
56-75	74(14.40)	98(17.38)	172(15.96)
>75	4(0.78)	20(3.55)	24(2.23)

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Residence			
Rural	279(54.28)	320(56.74)	599(55.57)
Urban	235(45.72)	244(43.26)	479(44.43)
	514	564	1078
Employment			
Employed	280(54.47)	128(22.70)	408(37.85)
Unemployed	234(45.53)	436(77.30)	670(62.15)
	514	564	1078
Education			
Illiterate	49(9.53)	81(14.36)	130(12.06)
Below SSLC	181(35.21)	200(35.46)	381(35.34)
SSLC	108(21.01)	108(19.15)	216(20.04)
PLUS TWI	119(23.15)	109(19.33)	228(21.15)
DEGREE	40(7.78)	47(8.33)	87(8.07)
PG	17(3.31)	19(3.37)	36(3.34)
N	514	564	1078

Source: Field Survey. Percentage in brackets

The distribution of income among the sample respondents shows that around 70% have lower level of monthly income. The prevalence of smoking was 37% among men, but only 1% among women (Table 2). About 38% of men and 0.9% of women consumed alcohol. The prevalence of unhealthy condition was 73% in men and 66% in women, and overall only 30% reported themselves as healthy and 70% reported themselves as unhealthy (Table 2).

Table 2: Socio-economic characteristics of sample population

Variables	Male	Female	Total
Income			
<3000	92(34.20)	48 (38.71)	140(35.62)
3001-6000	91(33.83)	41(33.06)	132(33.59)
6001-9000	19(7.06)	10(8.06)	29 (7.38)
9001-12000	38(14.13)	14(11.29)	52(13.23)
>12000	29 (10.78)	11(8.87)	40(10.18)
N	269 (68.4)	124 (31.6)	393 (100.0)
Alcohol			
Yes	190(36.96)	5 (0.89)	195(18.09)
No	324(63.04)	559(99.11)	883(81.91)
Smoking			
Yes	195(37.94)	10(1.77)	205(19.02)
No	319(62.06)	554(98.23)	873(80.98)
Self perceived health status			
Very poor	0(0.00)	2(0.35)	2(0.19)
Poor	375(72.96)	369(65.43)	744(69.02)
Average	115(22.37)	186(32.98)	301(27.92)
Good	6 (1.17)	3(0.53)	9(0.83)
Very good	18(3.50)	4(0.71)	22(2.04)
Self perceived health status			
Healthy	139(27.04)	193(34.22)	332(30.80)
Unhealthy	375(72.96)	371(65.78)	746(69.20)
N	**514**	**564**	**1078**

Source: Field Survey. Percentage in brackets

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The binary logistic regression analysis was used to find out the association of self-perceived health status with socio, demographic, economic and lifestyle factors; odds ratios from regression (OR: unhealthy vs. healthy) and 95% confidence intervals (95%CI). All variables were included in a backward stepwise elimination method. First indicator is taken as reference category. Empty cells refer to those variables which are excluded from the model.

Table 3

Variable	Model 1 crude (Unadjusted)				Model 2 (income adjusted)				Model 3 (multi variate adjusted)			
	sig.	OR	95%CI		sig.	OR	95%CI		sig.	OR	95%CI	
Age group												
0-14*	0.000	1.000			0.000	1.000			0.000			
15-35	0.957	1.013	0.63	1.629	0.222	1.414	0.811	2.465	0.256	1.373	0.795	2.371
36-55	0.000	3.121	2.003	4.863	0.000	3.896	2.240	6.776	0.000	3.682	2.199	6.165
56-75	0.000	6.664	4.085	10.873	0.000	7.048	4.124	12.044	0.000	6.763	4.041	11.318
>75	0.000	7.045	2.869	17.3	0.000	6.510	2.520	16.814	0.000	6.425	2.491	16.574
Gender												
Male		1.000				1.000				1.000		
Female	0.003	1.480	1.140	1.923	0.024	1.526	1.058	2.199	0.012	1.569	1.103	2.231
Residence												
Rural		1.000										
Urban	0.097	0.801	0.616	1.041	0.166	0.818	0.616	1.087	0.162	0.817	0.615	1.085
Education												
Illiterate*	0.002	1.000			0.144	1.000			0.153	1.000		
Below SSLC	0.500	0.868	0.575	1.309	0.644	1.122	0.689	1.826	0.659	1.116	0.686	1.816
SSLC	0.185	0.735	0.466	1.159	0.664	0.880	0.495	1.565	0.683	0.887	0.499	1.578
PLUS TWO	0.000	0.427	0.265	0.687	0.097	0.604	0.333	1.096	0.098	0.604	0.332	1.097
DEGREE	0.099	0.610	0.339	1.098	0.657	0.852	0.422	1.723	0.698	0.87	0.43	1.759
PG	0.075	0.457	0.193	1.082	0.353	0.634	0.243	1.657	0.381	0.651	0.249	1.701
Employment												
Employed		1.000				1.000						
Not Employed	0.07	0.783	0.601	1.02	0.583	1.102	0.779	1.557				
Income												
<3000*	0.967											
3001-6000	0.922	1.025	0.622	1.69								
6001-9000	0.708	1.171	0.512	2.679								
9001-12000	0.836	0.931	0.473	1.831								
12001-15000	0.612	0.821	0.384	1.758								
Alcohol	0.007	0.649	0.475	0.888	0.531	0.816	0.431	1.543	1.292	0.661	2.523	0.454
Smoking	0.009	0.667	0.491	0.906	0.805	0.927	0.508	1.692	0.687	0.359	1.316	0.258

In crude (unadjusted) analysis (Model 1), there was a strong positive association of age with self-perceived unhealthy situation. Self perceived unhealthy situation increases seven points when age increases from 15-35 years (OR=1.013, 95%CI=0.63-1.629) to >75 years (OR=7.045, 95%CI=2.869-17.3) which is shown in the table 3. There was strong significant relationship with sex (OR=1.480, 95%CI=1.140-1.923), but not associated with rural-urban residence (OR=0.801, 95%CI=0.616-1.041). It is evident from the table 3 that the illiterate (sig=0.002) people are more possible to be unhealthy than the literate one. There was no significant relationship of unhealthy situation between employed and unemployed persons, income wise and smoking habits. Interestingly, in multivariate-adjusted models, the association with education as the perception of ill-health is significantly higher for illiterates and below in high school level than persons with higher education in unadjusted model and not significant with other covariates in adjusted models. Females exhibited a higher level of poor self-reported health compared to their male counterparts (OR=1.480, 95%CI=1.14-1.92) (Table 3).

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Table 4: Backward stepwise elimination procedure

Variable		Model Log Likelihood	Change in -2 Log Likelihood	df	Sig. of the Change
Step 1	Age	-238.932	6.954	3	0.073
	Gender	-239.332	7.755	1	0.005
	Residence	-235.48	0.05	1	0.823
	Education	-238.591	6.272	5	0.281
	Employment	-235.455	0	1	0.996
	Income	-235.8	0.691	4	0.952
	Alcohol	-236.265	1.62	1	0.203
	Smoking	-235.465	0.021	1	0.884
Step 2	Age	-238.993	7.077	3	0.069
	Gender	-239.336	7.763	1	0.005
	Residence	-235.48	0.05	1	0.823
	Education	-238.591	6.272	5	0.281
	Income	-235.8	0.691	4	0.952
	Alcohol	-236.269	1.628	1	0.202
	Smoking	-235.466	0.022	1	0.883
Step 3	Age	-239.269	6.938	3	0.074
	Gender	-239.669	7.738	1	0.005
	Residence	-235.819	0.039	1	0.844
	Education	-238.953	6.306	5	0.278
	Alcohol	-236.564	1.527	1	0.217
	Smoking	-235.815	0.029	1	0.864
Step 4	Age	-239.332	7.034	3	0.071
	Gender	-239.674	7.719	1	0.005
	Residence	-235.832	0.034	1	0.854
	Education	-238.953	6.277	5	0.280
	Alcohol	-237.679	3.728	1	0.054
Step 5	Age	-239.376	7.088	3	0.069
	Gender	-239.674	7.685	1	0.006
	Education	-238.953	6.242	5	0.283
	Alcohol	-237.683	3.703	1	0.054
Step 6	Age	-245.018	12.155	3	0.007
	Gender	-243.472	9.064	1	0.003
	Alcohol	-240.865	3.849	1	0.050

It is evident from the table 3 that, with the adjustment of income (Model 2) there were not much variation between the variables selected. Upon multivariate adjustment for all covariates in a backward stepwise elimination procedure (Table 4), strong and significant "predictors" of poor self-perceived health status were age (OR=12.155), gender (OR=9.064) and alcohol intake (OR=3.849).

IV. DISCUSSION

The study gives information about the association of different socio-demographic factors (age, residence and gender), economic factors (income, education and employment) and life style indicators (smoking and alcohol) with self-perceived health status in Thiruvananthapuram district. The study reveals that around 73% of male and 66% of female perceived poor health. Many studies show that demographic, social and economic determinants of self-perception on health vary between regions and countries. Females have greater perceived ill-health than males. Kerala women are on an average, much healthier than that of Indian women [8,9].Considering age, the results showed that the younger generation perceived their health significantly better than that of old age people. Education seems to be an important determinant of health status in Kerala. The perception of ill-health is significantly higher for illiterates and below high school level than persons

with higher education. The study found that the probability of perception of ill-health for the poor is relatively higher than that of the rich. Regarding the place of residence, people in rural areas perceived themselves to be ill-healthy than people in urban areas. It is well known that socioeconomic factors can directly influence the health status of individuals. Since the socioeconomic condition indicates (a) level of education, (b) level of income and (c) occupation, factors relating to these variables were analysed and it was found that an increasing level of economic factors does not indicate a significantly better perceived health status. However, lower level of education is significantly associated with worse self-perceived health. Regarding the income status, perception of ill-health decreased with increasing income level. It is evident from the analysis that the income level is not a significant predictor for ill-health when adjusted for other covariates in the multivariate regression models. The differential in health between the employed and unemployed is statistically not significant because not only unemployed, but the employed people also appeared to have significantly higher risk of perceiving an unhealthy situation.

The significant and strong "predictors" of poor self-perceived health status in the selected population were older age, gender and alcohol consumption. The relationship with the greatest magnitude was found to be older age. The study also indicates that low education is also strongly associated with poor self-perceived health. The findings show that males and females perceive their health differently and this highlights the need to promote health awareness programmes for men and women separately, and according to age-groups, as well. Another insight provided in our study is the influence of lifestyle factors on self-perceived health status. Out of the two factors smoking and alcohol consumption, alcohol has been found to be an important predictor of poor health. However, these findings deserve further study in future.

V. CONCLUSION

The findings indicate that self-perceived health status is not significantly related to socio-demographic and economic conditions, except age and gender. Furthermore, alcohol was a significant predictor of poor self-perceived health in this study population. Some state wise reports revealed that health condition of women in Kerala is much healthier than that of Indian women. However, this fact does not take into account the quality of health. In Kerala the female life expectancy has been higher than that of male life expectancy. As people live longer, there has always been an increase in the number of years spent upon poor health. While women live longer than men, they spend more years on poor health. Thus the number of years needing geriatric care is also more for them. The study also supports this fact. The spread of such difference should be identified through a social survey and judiciously (government) modified interventions on geriatric care and also awareness classes on alcoholism that benefit public health which should be a target of a state health policy in Kerala.

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