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Morbidity Status and Health Care Choice among the Households in Urban Coimbatore

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ABSTRACT

Urban areas in developing countries generally show better health indicators and have more health facilities than rural areas. Increasing urbanization and widening inequalities, unmatched by the development of affordable services, could lead to restrictions in access to care and higher propensity to resort to self-treatment among the people and therefore the health of the urban population is as worse as the rural population. Recently morbidity estimates have been used to assess the burden of diseases. Against this background a study is attempted to examine the morbidity status and health care choices of the selected households in urban Coimbatore. Relevant and required data for the present study were collected from primary sources by administering an interview schedule to the selected households. The study found out that by using discriminant analysis the variables namely sex, age, marital status, education and occupation showed significant univariate differences between the groups selected for the study. Age, education and occupation were found to be main determinants of the household's health care choice which showed their preference for the private hospital in the case of government hospitals education and monthly income are significant. Government should provide cost effective health services like vaccination to the poor and also many health related services such as control of contagious disease.

Keywords: *Doserate, Annual Effective Dose, Cancer Risks, Hereditary Effects, Gamma Radiation*

I. INTRODUCTION

Over the last 50 years, India has achieved a lot in terms of health improvement. Before independence, the health structure was in dismal condition i.e. high morbidity and high mortality and prevalence of infectious diseases. Since independence, emphasis has been put on primary health care and we made considerable progress in improving the health status of the people. Across the globe, there is a steady increase in people residing in urban area. About one third of these urban dwellers which amount to nearly one billion people of which a majority of them live in urban slums, informal settings or sidewalk tents. India is also witnessing an explosive growth in the population residing in the urban areas. It is estimated that of the nearly 30 % of India's population or about 300 million people live in towns and cities. Nearly one-third of India's urban population or nearly 100 million live in slums which are characterized by overcrowding, poor hygiene and sanitation and the absence of proper civic services. Health of the urban poor is as worse as the rural population. While the characteristics of each city may vary by local context, common urban health and social challenges include: overcrowding; air pollution; rising levels of risk factors like tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol; road traffic injuries; inadequate infrastructure, transport facilities, poor solid waste management systems, and insufficient access to health facilities in slum areas. (Nehamadhiwalla, 2007) Most of these cities also face various health challenges of communicable diseases, non communicable diseases, maternal and child health problems, natural calamities and threat of reemerging and emerging diseases.

Health system in India is more focused towards the rural areas having an organizational structure right from grass root to tertiary care and is managed by dedicated staff. However there is a huge deficiency of any such health care structure in the urban areas. To add to this a very rapid growth of urban population has over burdened the existing health care system. Majority of health care in urban area is served by the private sector but its cost, distance and many other factors make private sector facilities out of reach of most urban poor residents. Good urban health governance helps ensure that opportunities and advantages are more evenly distributed, and that access to health care is fair and affordable. WHO has appealed for helping the urban health matters, in critical ways, for more and more people and has requested support for promoting urban planning for healthy behaviors and safety; improvement of urban living conditions; ensuring participatory urban governance; building inclusive cities that are accessible and age friendly; and, making urban areas resilient to emergencies and disasters. (Kantharia 2010)

India is next only to China in terms of population in the world, but the health status of a great majority of the people is far from satisfactory as compared to China and other developed countries. However, over the last five decades or so, India has built up health infrastructure and manpower at primary, secondary and tertiary care in government and private sectors and made considerable progress in improving the health of its population. However, India is one of the major countries where communicable diseases are still not under control. The incidence of new fatal diseases such as AIDS/HIV, hepatitis-A is on the increase and tuberculosis and malaria still take a high toll. Chronic non-communicable diseases

such as heart diseases, diabetes and cancer are also on the rise (Bhat and Babu 2004). Health risk due to high prevalence of alcohol and tobacco consumption is also increasing. Urban areas in developing countries generally show better health indicators and have more health facilities than rural areas. Their populations tend to benefit from higher economic status, enjoy better living conditions and better access to health care. Increasing urbanization and widening inequalities, unmatched by the development of affordable services, could lead to restrictions in access to care and higher propensity to resort to self-treatment among the poor. There is growing interest in the impact on households of the costs of illness and of health service use and an increasing recognition that these cost can lead to household impoverishment. This interest has partly arisen from the reconsideration of various health sector reforms implemented in recent decades.

Life expectancy at birth, mortality and morbidity rates are important pointers of health status of population. The life expectancy at birth is an important indicator of quality of the people. The estimates of morbidity in general and the disease specific incidence rates in particular would serve as valuable information to the health planners and administrators for appropriate and timely measures to monitor, control and eradicate the diseases. (Dilip, 2002) It will also enable the administrators to allocate resources for health facilities such as hospitals, physicians' medicines, etc, and provide basic infrastructure such as sanitation, drinking water and the like. Recently morbidity estimates have been used to assess the burden of diseases (Duraiswamy 1998). Against this background a study is attempted to examine the morbidity status and health care choices of the selected households in urban Coimbatore.

II. OBJECTIVES

The specific objectives of the study are:

- To study the socio-economic background of the households.
- To examine the current morbidity status of the households.
- To assess the knowledge regarding health care choice of the households.

III. METHODOLOGY

Coimbatore is all set to emerge as one of the important hub for medical tourism. The city has numerous hospitals. Coimbatore district is very rich in both public and private sector in health care service provided by hospitals, clinics, beds, and modern medical facilities etc., and the city has numerous hospitals. Apart from the Government hospital, several multi-facility hospitals function in the city. The district's health department is amongst the best in terms of implementing government-initiated health schemes. The Health Care Industry in Coimbatore has witnessed a tremendous growth in the last decade. With the increasing demand for best treatment and best facilities, the Coimbatore hospitals have established themselves. Surprisingly, Coimbatore has the sophisticated large hospitals offering the world class quality treatments equivalent to the best hospitals around the world. The number of Coimbatore hospitals delivering health care to the masses is increasing every day. Coimbatore charity trusts have ensured that the district has a unique place in health care industry. They have championed the cause of health and medical care in Coimbatore.

Multi-stage random sampling method is adopted to select households (HHs), in urban Coimbatore i.e., the sampling unit, from each street. In Coimbatore there are 72 wards, which are divided into four blocks. Randomly each street was selected and 13 households were adopted by taking into account on an average basis. The sample consists of 225 households. Relevant and required data for the present study were collected from primary sources by administering an interview schedule to the selected households. Data collected was analyzed by using percentages chi square analysis, ANOVA and discriminant analysis.

IV. FINDINGS OF THE STUDY

Health and socio-economic development are closely knitted that it is impossible to achieve one without other. The socio-economic condition of a person includes gender, age, marital status, education, occupation and income and this is reflected through the standard of living of a person. Individual and society are inseparable and have mutual influence on each other. Table 1 depicts the socio economic characteristics of the selected households.

Table - 1
Socio-Economic Status of the Households

Socio-Demographic Profile		Frequency	Percentage
Gender	Male	128	56.9
	Female	97	43.1
Age (in Years)	Below 30	69	30.6
	30-45	98	43.6
	45-64	42	18.7
	Above 65	16	7.1
Marital status	Never Married	78	34.7
	Currently Married	124	55.1
	Widowed	12	5.3
	Divorced	11	4.9

Educational status	Illiterate	19	8.4
	Primary	26	11.6
	Secondary	69	30.7
	Higher Secondary	60	26.7
	Degree/Diploma	45	20.0
	Professional	6	2.7
Occupation	Agricultural activity	9	4.0
	Job in organized sector	33	14.7
	Trade/business	171	76.0
	Self employed	12	5.3
Monthly income (in Rs)	Below 10000	129	57.3
	10001-30000	69	30.7
	30001-50000	21	9.3
	Above 50000	6	2.7
Total		**225**	**100.0**

Source: Primary Data

In the above table, among the total sample size 56.9 percent are male and remaining 43.1 percent were female. In a similar way 43.6 percent of households belong to 30-45 years of age group, 30.6 percent of households belong to age group of below 30 years and 7.1 percent of households come under age of above 65 years. The marital status of the households revealed that out of 225 sample households 55.1 percent of households was currently married and 34.7 percent of households were never married. The educational status of the households was recorded it revealed that almost 30.7 per cent of household completed secondary level and 8.4 per cent of the households were illiterate and 2.7 percent of households did professional courses. The various type of occupation carried out by the sample size revealed that 76.0 percent of households is involved in trade/business and 14.7 percent of households were working in organized sector and 4.0 percent of households were carrying out agricultural activities. The income level of the households were divided into four groups and around 57.3 percent earned an income below Rs.10,000 per month, 30.7 percent of households come under income between Rs.10000 – 30000 and 2.7 percent of sample households earned an income above Rs.50000 per month.

Discriminant Analysis

Morbidity refers to a diseased state, disability, or poor health due to any cause and finds out the degree that the health condition affects the patient. Morbidity measures include restricted activity days due to illness, the incidence of rate of certain chronic conditions and a self assessment of health status of a patient. Discriminant analysis was used to identify the variables that distinguish the morbidity status of the households. The classification of the households was done on the basis of the morbidity status. The first group consisted of those households who were having morbidity status while the second group consisted of all those who have no morbidity status.

The morbidity status was hypothesized to be function of the sex of the households(S), age (A), educational status (E), marital status(S), occupation (OCC) and monthly income (Y). Sex, and marital status considered as dummy variables and were used as follows:

Sex: S=1; if male
=0; otherwise

Marital status: MS=1; if married
=0; otherwise

Table- 2 shows the group means, Wilks' Lambda and univariate F ratio for each independent variable. The group means besides profiling the two groups, also identifies the variables with largest differences in the group means. The Wilks' Lambda and univariate ANOVA is used to identify the variables with the largest differences in the group means.

Table-2: Group Descriptive Statistics and Test of Equality of Group Means

Variables Group	Sex	Age	Education	Marital Status	Occupation	Income
	Group means for the independent variables					
Yes	1.06	45.48	1.98	2.24	3.70	1.06E4
No	1.18	36.76	2.17	2.88	3.49	9358.97
All	1.10	42.46	2.04	2.46	3.63	1.02E4
	Standard deviation for the independent variables					
Yes	.241	9.935	0.184	1.305	0.677	9461.236
No	.386	8.124	.653	1.006	.894	8663.964
All	.304	10.215	.420	1.246	.764	9191.839

	Test for equality of the group means					
Wilks' Lambda	.965	.834	.955	.939	.982	.996
F – ratio	7.972	44.396	10.529	14.543	4.037	.906
Significance level	.005	.000	.001	.000	.046	.342

Source: Primary Data

From the above table it is clear that the variables namely sex, age, marital status, education and occupation showed significant univariate differences between the two groups. The remaining variable monthly income is insignificant.

The group means and standard deviation, the standardized canonical discriminant function which represents a linear composite of the original data variability to within group's variability was estimated as follows:

Z= 0.249 Sex - 0.710 Age + 0.407 MS +0.350 Education – 0.105 Occupation – 0.042 Monthly Income.

Wilk's Lambda = 0.768*
Chi-square value = 59.788
Eigen value = .312
Canonical correlation = .488
(* significant at 5 percent level)

In the above function the variables age, education and marital status had positive sign indicating that these variables had higher discriminating power between groups. The variable sex, occupation and monthly income had a negative sign and acted as a suppressor variable. The Wilk's Lambda and Chi-Square value indicated that the function was significant at 5 percent level. The relative importance of each independent variable in discriminating between the groups was assessed in terms of their factor loadings and is shown in table 2.1

Table 2.1: Potency Index of the Predictors

Independent variables	Factor loading	Potency index	Rank
Age	-.798	63.680	1
Sex	.338	11.424	4
Education	.457	20.885	2
Marital Status	.389	15.321	3
Occupation	-.241	5.808	5
Monthly Income	-.114	1.300	6

While evaluating the variables on the basis of their factor loadings, any factor is considered to be a substantive discriminator if the factor loading is either equal to or greater than ± 0.30. Evaluating the factor loadings on the basis of the above criterion, the variables that distinguish the morbidity status from the socio-economic variables are only by age (63 percent).

The validity of the above discriminating function was evaluated at group centroids (group means) and the results are shown in the table below.

Table 2.2: Classification Results

Morbidity Status	Predicted Group membership		Total
	Yes	No	
Yes	70.1	29.9	100
No	23.1	76.9	100

The classification accuracy percentage of the discriminant function for the sample households was 72 percent. Thus the discriminant function was quite efficient in classifying respondents into groups. The first group consisted of those households who were having morbidity status while the second group consisted of all those who have no morbidity status.

Chi-Square Analysis

In order to scrutinize the relationship between overall health status and socio-economic profile (gender, age, marital status, education, occupation and monthly income) of the household, Pearson's chi-square test was done. The null hypothesis framed was:

H_0: The overall health status is independent of the socio-economic profile of the household.

H_a: The overall health status is not independent of socio-economic profile of the household.

The calculated chi-square values are shown in table 3.

Table -3: Relationship between the Overall Health Status and Socio-Economic Profile

Variable	Chi-square value	Degrees of freedom	Asymptotic significance	Inferences
Sex	3.934	4	.415	**Accept H_0**
Age	83.443	35	.000	**Reject H_0**
Marital	9.802	4	.004	**Reject H_0**

status				
Education	63.687	20	.000	**Reject H_0**
Occupation	18.213	12	.109	**Accept H_0**
Monthly income	19.476	26	.816	**Reject H_0**

Source: Primary Data

The study found no significant association between the overall health status and sex, occupation and monthly income of the households. On the other hand, age, education and marital status were found to have significant association with the overall health status.

Role of Public and Private Healthcare Services

The responsibility of providing health care in India, a country of over a billion people, is shared by three major sectors - the public sector, the private sector and the household. The public sector is comprised of the central and state government, municipal and local bodies. The private sector consists of private physicians and a range of other practitioners (including those practicing non-allopathic systems of medicine), health facilities and corporate hospitals operating for profit, corporate bodies providing medical care to their employees, and non-governmental organizations (NGOs) operating as not-for-profit enterprises and providing services free of cost or at subsidized rates. Households provide a large proportion of first-level care in many settings, and this is especially true in a country like India where formal health services are unavailable or unaffordable to a significant section of the population.

The rapidly growing private sector mainly provides curative services to those who can pay. The private sector is not organized but statutory bodies like the Indian Medical Association and the medical council of India regulates their activities, though to a limited extent. Traditional and indigenous systems of medicine also play an important role in meeting people's health needs. Recently, the government has also introduced payment for services that would further hinder accessibility to health services. There is a steady withdrawal of state support for health services.

ANOVA Results for Health Care Choice (Public Hospital)

Table – 4: Health Care Choice of the Public Hospital

Classification		Sum of Squares	df	Mean Square	F	Sig.
Age	Between Groups	230.693	1	46.139	.308	.908
	Within Groups	19643.570	224	149.951		
	Total	19874.263	225			
Education	Between Groups	36.890	1	7.378	3.308	.007
	Within Groups	419.295	224	2.230		
	Total	456.186	225			
Occupation	Between Groups	4.273	1	.855	1.506	.189
	Within Groups	123.709	224	.567		
	Total	127.982	225			
Monthly income	Between Groups	2.890E8	1	1.445E8	51.147	.000
	Within Groups	2.260E7	224	2825520.83		
	Total	3.116E8	225			

Source: Primary Data

The ANOVA table explains about the main determinants of healthcare choice of public hospital, are education and monthly income are significant at 0.05 per cent level, where age and occupation are insignificant.

ANOVA Results for Health Care Choice (Private Hospital)

Table- 5: Health Care Choice of the Private Hospital

		Sum of Squares	df	Mean Square	F	Sig.
Age	Between Groups	2359.583	1	786.528	8.272	.000
	Within Groups	21014.266	224	95.087		
	Total	23373.849	225			
Education	Between Groups	24.661	1	8.220	5.620	.001
	Within Groups	323.268	224	1.463		
	Total	347.929	225			
Occupation	Between Groups	23.084	1	7.695	2.981	.034
	Within Groups	343.281	224	2.581		
	Total	366.365	225			
Monthly income	Between Groups	.447	1	.149	.671	.570
	Within Groups	48.993	224	.222		
	Total	49.440	225			

Source: Primary Data

The ANOVA table estimates the age, education and occupation are the main determinants of the household's health care choice of the private hospital. Those factors are significant at 0.05 per cent level, where monthly income is insignificant.

V. POLICY RECOMMENDATIONS

- Government should provide cost effective health services like vaccination to the poor and also many health related services such as control of contagious disease.
- The health service system is plagued by lack of essential infrastructure, suitable equipment and appropriate human power. There is wide gap between rural and urban sectors and it is a matter of concern that many of the towns, districts with poor health indices do not have any adequate health infrastructure.
- Health and nutritional programme for the urban poor should be designed and implemented according to their needs and environmental content. Special programmes through a comprehensive package of shelter, health care and economic support programmes are urgently required for this group.
- Specific health risks such as traffic accidents, suicidal attempts, food poisoning and tuberculosis are health problems that are more frequent in urban and urban slum than in rural communities and require immediate action to iron out these problems.
- Facilities should be created in urban dispensaries to treat the accident victims so that unnecessary delay and heavy rush in the general hospitals and district head quarter hospitals can be avoided and many accident victims can be saved from death

VI. CONCLUSION

A number of factors such as economic status, caste, occupation, education and gender have great influence on the perceived need for medical care and affect the access to health care facilities. The study found out that a whooping proportion of the households had morbidity and this is mainly due to age. Further the level of income also showed greater impact on the health status of the households. Yet another finding of the study was that it found no significant association between the overall health status and sex, occupation and monthly income of the households. On the other hand, age, education and marital status were found to have significant association with the overall health status. Age, education and occupation were found to be main determinants of the household's health care choice which showed their preference for the private hospital. Services from the

government hospitals were availed by certain households mainly because of their education and monthly income.

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