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A Study on Disease Episodes and the Expenditure Incurred by the Families of an Urban Area of Karnataka

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ABSTRACT

Background: In many developing countries, a large proportion of the money spent on health care comes from the out-of-pocket expenditure of patients or their families. In India, Bangladesh and Nepal, for example, this proportion has been estimated to be 48–69%. Information on healthcare expenditure at the family or household level is important for the planning and management of health services. It is particularly relevant for health insurance agencies to estimate the amount of premium for initiating a universal health insurance system.

Methodology: A Retrospective cross sectional community based study was conducted for a period of three months in UFPA of KBNIMS, Kalaburagi, Karnataka. The data on disease episodes and the health expenditure incurred was collected by household survey using a pre designed pre tested structured proforma by interview method.

Results: A total of 2295 episodes of illness were recorded giving an overall prevalence of disease episodes as 99.6%. The mean expenditure per episode among all socio demographic factors was found to be Rs 563.8 with standard deviation of 43.15.

Conclusion: The mean per episode expenditure on health is high in our study, so there is need for systems such as health insurance to protect the poor from high medical costs.

Keywords: Disease episodes, health expenditure, urban population

INTRODUCTION

In many developing countries, a large proportion of the money spent on health care comes from the out-of-pocket expenditure of patients or their families. In India, Bangladesh and Nepal, for example, this proportion has been estimated to be 48–69%[1]. Households in such countries can experience financial hardship and often impoverishment as a result of their spending on health care[2-5]. In the long term, financial protection against the health expenditure at household level can be achieved through tax-based health financing systems or social health insurance schemes – or a combination of both[6]. In developing countries that have inadequate public funds for health, some transitional measures such as voluntary community-based health insurance schemes may be introduced[7]. Low-income countries are increasingly either implementing essential health packages for disease treatment free of charge or providing patients – or their families – with conditional cash transfers for selected health services. Such interventions may often use up a large share of a country's public health subsidies[8].

However, most decisions regarding healthcare spending depend neither on national averages nor

on a narrow list of pathologies, but on needs of individuals, and on costs and supply of healthcare relating to a wide range of acute or chronic illnesses or accidents, which are context-specific. And the rapid pace of change in the medical needs[9] or in socio-economic and demographic parameters[10] or in the cost of care[11] suggests that recent evidence is indispensable. Although governments and business and insurance companies are major funding agencies for healthcare, it is individuals and families who pay for all healthcare through out-of-pocket spend-ing, insurance premia or government taxes[12].

Information on healthcare expenditure at the family or household level is important for the planning and management of health services. It is particularly relevant for health insurance agencies to estimate the amount of premium for initiating a universal health insurance system[13].

Many studies on healthcare expenditure have been conducted in India. However, most of them failed to provide valid data in terms of annual per capita health expenditure, In view of the deficiencies of the previous studies, we con-ducted a retrospective cross sectional study to study the disease episodes in the families and estimate the per capita expenditure on healthcare. We also studied the relation between socio-demographic profile of families with disease episodes and health expenditure.

OBJECTIVES

This study was conducted with objectives to study the disease episode profiles of the study population; to study the health expenditure incurred by the study population; and to study the various socio-demographic factors affecting disease episodes.

MATERIALS & METHODS

Between Nov 2014 and Jan 2015, we did a community-based, Retrospective cross sectional study in Karnataka (south India) in the city Kalaburgi, in the urban field practice area(UFPA) of Khaja Bandanawaz Institute of Medical Sciences(KBNIMS) having 2400 houses, the UFPA is divided into four wards A, B, C and D, and it covers an estimated total population of 12,846. According to study done by Ray et al[13] It was decided to cover 20% of houses in the UFPA (i.e. 480 houses).The total number of houses covered in each ward was determined by the proportion of population of that ward.

The data on disease episodes and the expenditure incurred by the families was collected over a period of 3 months (Nov 2014 to Jan 2015) by household survey using a pre designed pre tested structured proforma by interview method. The respondent was the head of family or any responsible person within the family in his absence. Before collecting information the family members were informed about the purpose of the study and their verbal consent was taken and the confidentiality maintained. The socio demographic variables recorded were age, sex, religion, type of family, education, occupation, income and socio economic status according to modified B G Prasad classification[14]. We recorded morbidities that had reportedly occurred in the last one year before the survey and any chronic conditions that had reportedly continued for more than 3 months in the 12 months before the survey. The morbidity pattern was obtained by asking the respondent first about the one week period prior to the day of interview, followed by the one Week to one month period and then the 2-12 months period. This was done to minimize the relapse bias. Health expenditure was defined as the expenditure incurred for preventive and curative health care. The health expenditure of each study household was estimated by asking the respondents how much their households had spent, on consultation or diagnosis fees, drugs, other medical supplies and hospitalization costs. We also asked each respondent to give a single aggregated estimate of their household's total expenditure on health in the previous one year duration. An active effort was made to look at prescription slips, samples of remaining medicines, and bills from chemist shops as evidence of recent illness and treatment. In the majority of interviews, we had to depend on lay reporting of the respondents, as there were no documents for cross-checking the treatment.

Statistical analysis: The data was entered into Microsoft Excel sheet & was analyzed by using software SPSS version 17.

Inclusion criteria: Those households which were open on the day of survey and those families who gave verbal consent to participate and co-operative during data collection were included in the study.

Ethical Clearance: The study was approved by institutional ethical committee of KBNIMS, Kalaburgi, Karnataka.

RESULTS

From our study it is seen that of the total 2305 population involved in the study a total of 2295 episodes of illness were recorded during the 12 month retrospective cross sectional study of which 2280(99.3%) episodes were acute and 15(0.7%) episodes were chronic giving an overall prevalence of disease episodes as 99.6% per 100 population.

Table 1: Description of the sample according to type of family, religion and SES (n=480)

Parameters	Frequency (n=480) (%)
Type of Family	
Nuclear Family	373 (77.7)
Joint family	45 (9.4)
Three generation Family	57 (11.9)
Others(Broken Family)	5 (1)
Religion	
Hindu	78 (16.3)
Muslim	402 (83.7)
Socio economic Status*	
Upper	46 (9.6)
Upper middle	122 (25.4)
Lower middle	126 (26.3)
Upper lower	135 (28.1)
Lower	51 (10.6)

*Modified B G Prasad classification[14]

Table 2: Expenditure on health incurred by study population

Parameter	Expenditure (Rs)	Episodes (n)	Mean Expenditure per episode (Rs)
Total	**12,93,932**	**2295**	**563.8(43.15)***
Age			
0-1	8,180	19	430.5
5-Feb	54,680	120	455.6
9-Jun	63,920	115	555.8
19-Oct	3,89,206	550	707.6
20-45	5,93,933	1124	528.4
>45	1,84,013	367	501.3
Sex			
Male	6,99,661	1177	594.4
Female	5,94,271	1118	531.5
Education			
Literate	11,48,987	1964	585
Illiterate	1,44,945	331	437.9
Occupation			
Private	5,46,022	742	735.8
Labourers	39,220	75	522.9
Govt	6,820	29	235.1
H.W&children	6,88,570	1422	484.2
Others	13,300	27	492.5
Religion			
Hindu	1,30,267	266	489.7
Muslim	11,63,665	2029	573.5
Type of family			
Nuclear	9,81,742	1640	598.6
Joint family	1,75,390	410	427.7
Three generation	1,21,400	208	583.6
Others	15,400	37	416.2
SES[14]			
Upper	89079	255	349.3
Upper middle	5,95,456	632	942.1
Lower middle	2,77,166	568	487.9
Upper lower	2,53,571	644	393.7
Lower	78,660	196	401.3

*Figure in bracket indicate standard deviation (SD)

From table 1 it is seen that of the total 480 families involved in the study 373 (77.7%) families were nuclear type and with regard to religion 83.7% of the families were Muslims as it is a Muslim predominant area where as only 16.3% families were Hindus. About 28.1% of the study population belonged to upper lower class of socio economic status according to modified B.G. Prasad classification[14].

From table 2 we observed differences in the expenditure pattern among individuals of different socio demographic factors. The mean expenditure per episode among all socio demographic factors was found to be Rs 563.8 with standard deviation of 43.15. The mean expenditure per episode was high among the upper middle (Rs942) and lower middle (Rs488) classes of socioeconomic status, among males (Rs594), literates (Rs585), doing private business (Rs736) & those belonging to Muslim (Rs574) religion, nuclear (Rs599) & three generation (Rs584) type of family and in the age group of 10-19yrs(Rs708).

From table 3 it is seen that about 49% of disease episodes were seen commonly in the age group of 20-45yrs, among males (51.3%), among persons belonging to Muslim religion (88.4%), among literates (85.6%), belonging to nuclear type of family (71.5%). With regard to occupation 62% of disease episodes were commonly seen among children and housewives and in relation to socioeconomic status 28.1% episodes were commonly seen among persons belonging to upper lower class of SES according to modified B.G Prasad classification[14].

DISCUSSION

Most previous Indian studies on health expenditure at the household level were either one-time cross-sectional surveys or studies of short duration covering a period of 3 months. Extrapolation of these estimates to the annual cost may not be appropriate. Although ours is a retrospective cross sectional study done over a three months period we have collected information about disease episodes in the past one year which is likely to provide more valid data on the annual health expenditure.

The WHO has produced a selected list of symptoms associated with various health problems that may be used by a lay interviewer in a health survey[15]. Tekle-Haimanot Makonnen picked up all morbidity by using tracer conditions in a rural health survey in Ethiopia[16]. We did not use any systematic list of tracer conditions, but spent time by probing into various morbid conditions to increase completeness of reporting.

Table 3: Socio-demographic factors affecting the disease episode

Parameters	Population (N=2305) (%)	Disease episode (N=2295) (%)
Age (yrs)		
0-1	20 (0.9)	19 (0.8)
2-5	120 (5.2)	120 (5.2)
6-9	117 (5.1)	115 (5.0)
10-19	552 (23.9)	550 (24)
20-45	1138 (49.4)	1124 (49)
>45	358 (15.5)	367 (16)
Sex		
Male	1182 (51.3)	1177 (51.3)
Female	1123 (48.7)	1118 (48.7)
Education		
Literate	1972 (85.6)	1964 (85.6)
Illiterate	333 (14.4)	331 (14.4)
Occupation		
Private	744 (32.3)	742 (32.3)
Labourers	76 (3.3)	75 (3.3)
Govt	29 (1.3)	29 (1.3)
H.W & children	1429 (62)	1422 (62)
Others	27 (1.1)	27 (1.2)
Religion		
Hindu	266 (11.5)	266 (11.6)
Muslim	2039 (88.5)	2029 (88.4)
Type of family		
Nuclear	1643 (71.3)	1640 (71.5)
Joint family	417 ((18.1)	410 (17.9)
Three generation	208 (9)	208 (9.1)
Others	37 (1.6)	37 (1.6)
Socio-economic status[14]		
Upper	255 (11.1)	255 (11.1)
Upper middle	632 (27.4)	632 (27.5)
Lower middle	568 (24.6)	568 (24.7)
Upper lower	648 (28.1)	644 (28.1)
Lower	202 (8.8)	196 (8.5)

The duration of the recall period also influences the completeness and reliability of reporting. The longer the recall period, the less likely a person will remember an illness. The health survey conducted in 1954-55 in California, USA[17] established this fact. A morbidity survey in Japan confirmed that recall lapse affects the not-so-serious health conditions much more. We adopted a systematic recall of one week prior to the interview, two weeks to one month and then one month to 1 year which, to some extent, assures the completeness and reliability of reporting.

Rao *et al*[18]. have stated that a longitudinal study overcomes the problem of a recall bias. However, longitudinal studies are expensive and hence can cover only a short duration. A combination of retrospective and longitudinal studies is considered ideal.

We observed differences in the expenditure pattern among individuals of different socio demographic factors. Our study showed the mean per episode health expenditure to be Rs563.8. The mean expenditure per episode was high among the upper middle and lower middle classes of socioeconomic status, among males, literates, doing private business & those belonging to Muslim religion, nuclear& three generation type of family and in the age group of 6-19yrs. Where as in a study conducted by Ray et al[13]the mean per episode heath expenditure was found to be Rs117.8 The mean per episode expenditure was high among the middle and upper middle classes in comparison to the lower and lower-middle classes. In a study conducted by Duggal R[19], George A[20] and Ramamani S[21] the mean expenditure per episode in private sector was found to be Rs 116.3, Rs112 and Rs130 respectively.

CONCLUSION

Our study shows that the acute episodes of diseases are more compared to chronic episodes and the episodes were more among people in the age group of 20-45yrs , among Muslims and among people belonging to upper lower class of SES. The mean per episode expenditure on health is high in our study, so there is need for systems such as health insurance to protect the poor from high medical costs.

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