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Morbidity Profile, Healthcare Utilization and Associated out of Pocket Expenditure on Health among Elderly Population of Lucknow District, Northern India

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Abstract

Objective: To study and assess the morbidities occurring in an elderly person, the pattern of their healthcare utilization and the expenditure they incur during the process of receiving treatment.

Methods: A cross-sectional study was carried out involving 404 elderly participants from both the urban and rural parts of Lucknow. The elderly participants were interviewed with the help of a pretested questionnaire. The data was collected on morbidity profile, healthcare utilization and associated expenditure by elderly.

Results: Most common single chronic disease entity was hypertension (20.5%), and the most common group of morbidities were dental (18.8%), orthopedics (17.3%) and cardiovascular (11.8%) in that order. The proportion of those utilizing Inpatient care, out-patient care, Outpatient dental care, AYUSH care and self-medication was 32.9%, 62.9%, 20.7%, 36.4% and 35.6% respectively. Total mean out of pocket expenditure on health among participants from the urban and rural area was INR 7842.25 (SD 9067.97) and INR 6034.82 (SD 9566.45) respectively.

Conclusion: The out of pocket expenditure among the elderly was much higher than per capita health expenditure of the country.

Keywords: Elderly; Morbidity; Healthcare utilization; Expenditure

Introduction

Someone has very rightly described old age as an incurable disease. With this in mind, World Health Organization (WHO) in the year 2012 celebrated world health day with the theme "Good health adds year to life" [1]. The stress was to promote healthy aging. The government of India launched its national policy for older people in the year 1999; this was after WHO declared the year 1999 as the international year for elderly. The policy defines "senior citizen or elderly" as a person who is of age 60 years or above. This policy was amended in the year 2011[2]. According to a United Nation's 2013 report, the proportion of the elderly in the world is continuously increasing; it was 8.1% and 11.7% in the year 2000 and 2013 respectively, and it is expected to be about 21.2 percent by the year 2030. The same report also mentions that the proportion of the elderly in India was about 7.2 percent in the year 2000, and it increased to 8.3 percent in the year 2013, and it is expected to be 10.9 percent in the year 2030 [3]. According to the Sample Registration System (SRS) 2012 the proportion of the elderly in India was 8.3% with females constituting 8.6% and males 7.9%, whereas in Uttar Pradesh proportion of the elderly was 7.1% [4].

Every age group has its unique, set of health problems as an infant and young children have their set of diseases, an elderly have set of diseases of their own. The various changes that accompanies the process of aging, leads to an array of illness among older people. Various studies and surveys conducted all over India [5,6], Uttar Pradesh and Lucknow [7] have studied the morbidities occurring in elderly.

To regain their lost health status the elderly must seek the treatment. India has an array of a different system of medicines. Along with modern medicine (allopathic), Indian people also use Indian/alternative system of medicine. This alternative system of medicine includes Ayurveda, Yoga, Unani, Siddha & Homeopathy; more popularly known by an acronym AYUSH. There is a separate minister of AYUSH under the ministry of health and family welfare, in the government of India [8].

Out of pocket (OOP) health expenditure is any amount of money spent by a person whose primary intent is to contribute to the restoration or enhancement of the health status. It is a part of private expenditure from persons own pocket. This spending represents the share of the expenses that the insured party must pay directly to the healthcare provider without a third-party (insurer, or state) [9].

India is among countries where more than 50% of spending on health comes from out of pocket. In fact in WHO southeast region the out of pocket expenditure on health was third highest in India, next to Myanmar and Bangladesh. Even countries like Nepal, Sri Lanka, Bhutan, and Pakistan are doing much better than India in this respect [10]. According to national health accounts, 2004-2005 of the total expenditure on health in India contribution from the private sector

was 78.05% [11]. Of the total 78.05% contribution from the private sector, household contribution in the form of out of pocket expenditure was 71.09%. These figures point out that primary source of spending on health is from out of pocket expenses [11].

Many studies were conducted earlier to find the out of pocket expenditure on health in India, but only a few of them have considered health spending specifically by elderly. In the given background we carried this study with the objective of study the morbidity profile, healthcare utilization and associated out of pocket expenditure on health by the geriatric population of Lucknow district.

Methods

Study setting

Present study is a part of master's degree dissertation to investigate the interaction of an elderly person with the health system.

Present study: This was a community-based cross-sectional study carried out in the Lucknow district, which is the capital of the state of Uttar Pradesh, the most populous state in India.

Study duration: The total duration of the study was one year from – August 2013 to July 2014.

Study participants: Person 60 years and older (definition of the elderly by the government of India).

Source population: All the elderly residing in the urban and rural parts of Lucknow district.

Inclusion criteria: elderly able to answer the questions/ interview and the elderly who gave valid informed consent for the study.

Exclusion criteria: Uncooperative person, an elderly person who cannot complete/answer the questions/interview, the elderly who did not consent for the study.

Sampling technique: The study employed multi-stage random sampling technique [7]. As per Sample Registration System – 2012 (SRS), the proportion of the elderly in Uttar Pradesh residing in urban and rural areas was about 49.0% and 51.0% respectively [13].

Stage-I: We collected 198 (49%) study subject from an urban area and 206 study participants (51%) from the rural area. Chief election commission of India has divided the Lucknow district into nine assembly constituency (legislative assembly no. 168-176) out of which five constituencies (171-175) cover the urban areas of Lucknow district and rest four (168-170,176) includes the rural parts of Lucknow district. A complete list of all people who are 18 years age and older (eligible voter) in each polling booth is available on the website of the chief election commission of Uttar Pradesh [14].

Stage II: Selection of study subject from urban areas of Lucknow; Of the five assembly constituencies in urban Lucknow, 40 elderly were selected from first four assembly constituency and 38 study participants have been chosen from the last assembly constituency. Thus, a total of 198 required study participants were collected from urban areas.

Stage –III Urban: From each urban assembly constituency, ten polling booths were selected randomly.

Stage IV: Then from each polling station, four study participants have been chosen. From the last polling station of the last assembly constituency (assembly constituency no. 175) we selected only two

study participants. Stage II - Selection of study subject from rural areas of Lucknow: Rural Lucknow is covered by four assembly constituency. So 52 study participants were selected from first three constituencies and 50 study participants had been chosen from the last assembly constituency. Thus, a total of 206 study participants were selected from a rural area.

Stage III rural: From each rural constituency, 13 polling booths were selected randomly.

Stage IV: We selected four elderly from each voting booth by simple random sampling. From last polling booth of the last assembly constituency (constituency no. 176), we selected only two study participants (total 50).

Stage V: Selection of elderly from polling station/booth: From the list of all eligible voters of selected polling station/booth 20 elderly were shortlisted by simple random sampling technique. When approached to an elderly in the community, the identity of the individual was confirmed by voter identification card that she/he possessed. After verification if an elderly fit in our inclusion criteria, then the further interview was conducted. Otherwise, the next individual from the list was approached and so on. This procedure was followed till the requisite numbers of the elderly were interviewed from a given polling station. To cover the requisites sample of 404 we approached a total of 463 elderly in the community. Sample size: Assuming that 50 percent of the households which has an at least one elderly, made a healthcare out of pocket expenditure within last six months [12]. Applying to this estimate a confidence level of 95 percent, precision level of 5 percent, and a non-response rate of 10 percent, the sample size of 404 arrived.

Data collection: The schedule 60_25.0 utilized by NSSO for their survey titled 'Morbidity and Health Care' from January to June 2004 was studied in detail [15]. A pre-structured questionnaire was then prepared; later the same was mailed to experts in the field of assessing out of pocket expenditure. Suggestion and rectification were included in the final version of the questionnaire. The questionnaire was then translated from English into Hindi (native language). The questionnaire was pretested on a sample of 30 elderly, 15 from the community and 15 from the elderly admitted to the ward and visiting the out-patient department of Gandhi Memorial hospital. Pretesting was carried out to check whether questionnaire covered all aspect of healthcare utilization, health expenditure and to test the precision of responses. The results of pretest were excluded from final analysis.

The study questionnaire had four components i) socio-demographic ii) health status of an elderly iii) household income and expenditure and iv) healthcare utilization, healthcare spending & source of financing, etc. Total healthcare spending consisted of following three components self-medication expenditure for past one month, out-patient care expenditure for past three months and in-patients care for past six months. Questions were asked about illnesses episodes and whether the sick elderly availed healthcare or eschewed it. For treated illness episodes, data was amassed on expenditures incurred as (i) direct medical expenditures, like doctor's fees, medicines, investigations, procedures/surgery, hospital charges (ii) indirect medical costs like transport, expenditure on escort and food during the period of stay. Wherever possible the expenditures as mentioned by the elderly were cross-checked with the bills of hospital/ prescription slip etc., but this was not feasible in every case. All expenses were calculated in Indian National Rupee (INR- the currency of India).

Total medical expenditure was computed by summing direct as well as the indirect medical cost. All forms of healthcare expenditures weather of modern medicine, dental, physiotherapy, Ayurveda, traditional healers and buying medical aid were included to estimate total healthcare out of pocket expenditure. When the source of financing was insurance, the net amount paid by the insurance company was deducted to calculate net out of pocket payment made by elderly.

Results

Health status, health seeking behavior and health related expenditure is influenced by the social and demographic variables of the study participants. Table 1 provides details of the various demographic variables of study participants. Most of the elderly (56.4%) were in age group 60 - <70 years and Hinduism (66.1%) was most common religion. Most of the study participants were still married. Most of the elderly had one or other type of addiction habit (58.9%).

Table 2 shows the proportion of the elderly having one or more chronic disease was 56.9%. Most frequent single chronic disease entity among all subjects was hypertension (20.5%), followed by diabetes (17.3%) and cataract (11.4%). Most common group of morbidities were dental (18.8%), orthopedics (17.3%) and cardiovascular (11.8%) in that order.

Bio-Social Characteristics	Urban		Rural		Total	
	Male n=99 (%)	Female n=99 (%)	Male n=92 (%)	Female n=114 (%)	n= 404	%
Age Group(years)						
60 -<70	55 (55.6)	58 (58.6)	51 (55.4)	64 (56.1)	228	56.4
70 -<80	32 (32.3)	31 (31.3)	34 (36.9)	40 (35.0)	137	33.9
≥ 80	12 (12.1)	10 (10.1)	7 (7.6)	10 (8.9)	39	9.7
Religion						
Hindu	65 (65.7)	63 (63.6)	54 (58.7)	85 (74.6)	267	66.1
Muslim	30 (30.3)	34 (34.3)	38 (41.3)	29 (25.4)	131	32.4
Sikh	4 (4.0)	2 (2.0)	0 (0.0)	0 (0.0)	6	1.5
Marital Status						
Unmarried	1 (1.0)	0 (0.0)	2 (2.2)	0 (0.0)	3	0.7
Married	63 (63.6)	75 (75.8)	67 (72.8)	82 (71.9)	287	71
Widow/Widower	32 (32.3)	23 (23.2)	18 (19.6)	27 (23.7)	100	24.8
Divorce/Separated	3 (3.0)	1 (1.0)	5 (5.4)	5 (4.4)	14	3.4
Living arrangement						
Spouse& children	38 (38.4)	37 (37.4)	44 (47.8)	50 (43.9)	169	41.8
Only Children	20 (20.2)	29 (29.3)	22 (23.9)	26 (22.8)	97	24
Only with Spouse	29 (29.3)	30 (30.3)	20 (21.7)	29 (25.4)	108	26.7
Living alone	2 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	2	0.5
Relative	10 (10.1)	3 (3.0)	6 (6.5)	9 (7.8)	28	5.4
Educational qualification						
Illiterate	9 (9.0)	14 (14.1)	12 (13.0)	15 (13.2)	50	12.37
Just literate	23 (23.2)	15 (15.1)	26 (28.3)	11 (9.6)	75	18.6
Up to primary	8 (8.0)	30 (30.3)	13 (14.1)	51 (44.7)	101	25
Up to12	22 (22.2)	16 (16.1)	7 (7.6)	31 (27.2)	76	18.8
Graduate/diploma	24 (22.2)	13 (13.1)	22 (23.9)	4 (3.5)	64	15.8
Post-graduate & above	13 (13.1)	11 (11.1)	12 (13.04)	2 (1.8)	38	8.9

Addiction						
Yes	67 (67.7)	18 (18.2)	56 (60.9)	36 (31.6)	238	58.9
No	32 (32.3)	81 (81.8)	36 (39.1)	78 (68.4)	166	41.1

Table 1: Biosocial characteristic of the elderly by their residential status and gender (n=404)z.

Type of Morbidity#	Urban		Rural		Total	
	Male	Female	Male	Female	n=404	%
	n=99 (%)	n=99 (%)	n=92 (%)	n=114 (%)		
Type of illness						
Acute$	20 (20.2)	28 (28.3)	22 (24.0)	23 (20.2)	93	23
Chronic$$	52 (52.5)	56 (56.6)	49 (53.3)	73 (64.0)	230	57
Three most common Chronic diseases						
Diabetes mellitus	14 (14.1)	18 (18.2)	18 (19.6)	20 (17.5)	70	17
Hypertension	26 (26.3)	21 (21.2)	20 (21.7)	16 (14.0)	83	21
Cataract	13 (13.1)	9 (9.0)	7 (7.6)	17 (15.0)	46	11
System Wise morbidity Profile						
Orthopedics	12 (12.1)	18 (18.2)	14 (14.1)	26 (22.8)	70	17
Neurological	3 (3.0)	2 (2.0)	3 (3.3)	3 (2.6)	11	2.7
Respiratory	8 (8.0)	3 (3.0)	5 (5.4)	3 (2.6)	19	4.7
Cardiovascular	13 (13.1)	11 (11.1)	14 (15.2)	10 (8.8)	48	12
Gastrointestinal	2 (2.0)	0 (0.0)	5 (5.4)	0 (0.0)	7	1.7
Renal	6 (6.0)	0 (0.0)	3 (3.3)	4 (3.5)	13	3.2
Psychiatric	6 (6.0)	8 (8.0)	9 (9.8)	7 (6.1)	30	7.4
ENT	2 (2.0)	5 (5.0)	10 (10.9)	9 (7.9)	26	6.4
Ophthalmology	8 (8.0)	10 (10.1)	11 (12.0)	7 (6.1)	36	8.9
Urogenital	3 (3.0)	1 (1.0)	1 (1.1)	0 (0.0)	5	1.2
Malignancy	3 (3.0)	1 (1.0)	0 (0.0)	0 (0.0)	4	1
Dental	17 (17.2)	21 (21.2)	15 (16.3)	23 (20.2)	76	19
Others	5 (5.0)	3 (3.0)	6 (6.5)	1 (0.9)	15	3.7

#- multiple responses; $- taking medicine for <30 days; $$- taking medicine for >30 days

Table 2: Morbidity pattern among the elderly by their residential status and gender (n=404).

Table 3 show the different forms of healthcare services availed by elderly. Most frequent healthcare services type availed was out patient allopathic care (62.9%), followed by AYUSH care (36.4%). Use of AYUSH care was more prevalent among the elderly residing in rural areas as compared to urban ones. A significant proportion (35.6%) of the elderly self-medicated themselves.

Healthcare services#	Urban n= 198	Rural n= 206	Total (n=404)	
			n	%
In-patient care (during previous 6 month)	76	57	133	(32.9)
Out-patient Medical care (during previous 3 month)	142	112	254	(62.9)
Out-patient dental (during previous 3 month)	53	31	84	(20.7)
AYUSH (during previous 3 month)	64	83	147	(36.4)
Self-medication (during previous 1 month)	64	80	144	(35.6)
Medical aid (during previous 6 month)	40	17	57	(14.1)
#-multiple responses				

Table 3: Different types of Healthcare services availed by the elderly (n=404).

Table 4 shows the total mean OOP expenditure on health among participants from urban and rural area was INR 7,842.25 (SD 9067.97) and INR 6,034.82 (SD 9566.45) respectively. In urban as well as rural area major chunk of this total expenditure is constituted by in-patient care and least burden due to spending on self-medication.

Healthcare Type		Health expenditure in INR@	
		Urban	Rural
Total In patient care	Mean	5766.15	3812.16
	SD	8673.27	8761.43
Outpatient care	Mean	1097.87	962.29
	SD	1009.08	1080.89
Outpatient dental	Mean	189.73	504.14
	SD	466.21	2096.95
AYUSH	Mean	258.78	240.67
	SD	431.34	368.762
Self-medication	Mean	28.22	34.10
	SD	40.48	64.02
Medical aid	Mean	235.04	186.84
	SD	445.04	358.46
Total	Mean	7842.25	6034.82

	SD	9067.97	9566.45
@ Indian National Rupees (1 US $ = 65 INR)			

Table 4: Distribution of OOP expenditure by the type of healthcare services availed.

Discussion

Morbidities in elderly

We interviewed a total of 404 elderly participants in the present study. In our study proportion of the elderly having one or more chronic and acute diseases was 56.9% and 23.0% respectively. Most frequent single chronic disease entity among all study participants was hypertension (20.5%), and the most common group of morbidities were dental (18.8%), orthopedics (17.3%) and cardiovascular (11.8%) in that order.

Healthcare utilization

In our study the proportion of those utilizing Inpatient care, out-patient care, Outpatient dental care, AYUSH care, and self-Medication was 32.9%, 62.9%, 20.7%, 36.4% and 35.6% respectively. In a study conducted by Brinda EM, et al. in South India, the proportion of visits to allopathic health care, alternative medical care facilities (including Homeopathy, Siddha, Ayurveda and Unani) and dentists, were 42.0%, 4.0% and 5.0% respectively [16]. A considerable proportion (36.4%) of the population used AYUSH system. It can be because of many reasons. Firstly there is abundance of AYUSH practitioners in Lucknow, secondly the overall cost of treatment is less as compared to allopathic care. In our study of the total elderly 35.6% self-medicated themselves. Most of those who self-medicated themselves were poor and got medicine directly from the medical store without any prescription from doctor. This is a worry some trend as few medicines just cure symptoms, not the disease itself which remain untreated, progresses and lead to complications.

Out of pocket expenditure

Total mean OOP expenditure on health among participants from urban and rural area was INR 7842.25 (SD 9067.97) and INR 6034.82 (SD 9566.45) respectively. Brinda et al. [16] in their study observed that the mean total out-of-pocket health expenditure over the previous three months was INR 216. The mean expenditure on visiting traditional healers was the highest with INR 78, followed by the expenditure on private physicians, INR 60 [15]. Such huge difference between our studies can be due to two reasons. One that two studies were conducted about 12 years apart and secondly later study included patients from rural areas only.

In our study expenditure on in-patient care was INR 5766.15 and INR 3812.16 in urban and rural areas respectively. As per NSSO (2005) the total expenditure for hospitalization for urban and rural person was INR 9,367 and 6,225 respectively. Similar to our study NSSO also reported that the medical expenditure proper per hospitalization case were almost 50 per cent higher in the urban areas than in the rural areas [17]. In our study expenditure on outpatient medical care was INR 1097.87 and INR 962.29 in urban and rural areas respectively.

Limitation

Only those elderly whose name was in the voter list could have the chance of being enrolled in the study. Because of recall bias, there were chances of both underreporting and over reporting of the incurred expenditure, but we tried to minimize it by crosschecking/verifying the amount by the bills and prescription slip in all cases that we can.

Conclusion

In conclusion, it should be pointed out that burden of out of health expenditure on Indian citizens is worrisome. But it the degree to which out of pocket expenditure exceeds the national level among the geriatrics age group population is more troublesome. Young people can compensate for healthcare expenditure but elderly, many of whom are economically dependent on others cannot arrange for this expenditure. The proportion of the elderly in India and the world is growing continuously and thus, all governments should develop a scheme to provide financial security to all the elderly so that they can live the remaining of their life with dignity.

Conflict of Interest

No potential conflicts of interest were declared.

Author Contributions

Dr. S K Singh is responsible for the study concept and design of protocol, designed the study questionnaire, cross checked filled questionnaire, final proof reading of manuscript. Dr. P Pandey is responsible for the Data collection, data entry, data analysis, preparation of manuscript.

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