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Access to Health Care: A Community based study among Elderly population of a Rural Area of West Bengal.

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Abstract:
Background*: With the advancement of age people suffer from various illnesses which demand a regular health care support and that must also be accessible. There is a dearth of information regarding the status of health care accessibility in rural West Bengal. In this perspective the study was planned to assess the morbidities and health care accessibility among the elderly people in a block of Purba Barddhaman district, West Bengal, India.*
Materials and Methods*: A community based observational study was conducted in Bhatar block of Purba Barddhaman district during July 2016 to December 2016 among the people aged 60 years or above, who were selected through multistage sampling. Data on morbidity and health care accessibility were collected through interview of the study subjects and record review.*
Results*: About 66% individuals had one or more chronic illnesses like refractive error, hypertension, arthritis, neurological disorders, dental problems etc. Acute problems included fever, cough and cold, diarrhoea. The study participants were aware about the place of treatment. Distances of health care facilities availed for chronic ailments were >1.5 kilometer. Mode of transport were rickshaw, van, bus, train. Travel time mostly varied from 45-60 minutes. Distances of the nearby healthcare facilities varied from <0.5 Kilometer to >1.5 Kilometer. Travel time to any nearby health care facility varied from <15 minutes to 45-60 minutes. Treatment cost varied from <Rs. 500/- to >Rs. 1500/- per month. Half of the study population had not heard about health insurance and only 4.2% had such. They however did not face any discrimination during treatment.*
Conclusion: *A comprehensive health care system suiting the need of the elderly population is recommended. There is a need to generate awareness among the elderly people regarding their health conditions and services available. Health insurance needs to be made affordable.*
Key Word*: elderly, morbidities, health care accessibility.*

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I. Introduction

Elderly population and their health conditions are now one of the major concerns all over the world, as also in India. Population $\geq$ 60 years has tripled in India over the last 50 years and it will relentlessly increase in near future because of demographic transition with a decline in both birth and mortality rates. According to census 2001, the older population was 7.7 %, which has increased to 8.14% in census 2011[1]. In India total number of elderly will surpass under 14 years aged children by 2050[2].

With the advancement of age people suffer from various diseases like heart diseases, diabetes, hypertension, respiratory diseases etc[3]. So, elderly people need a regular health care support to live a healthy life. In developed countries, various health promotional initiatives have reduced the health risk of the elderly, thus the healthcare costs[4]. But in India, complex health care needs of the elderly have not received sufficient attention[5].

Health care accessibility can be defined as "the timely use of personal health services to achieve the best health outcomes"[6]. Health care accessibility has four overlapping dimensions viz: non-discrimination, physical accessibility, economical accessibility (affordability) and information accessibility[7].

Though studies on geriatric health problems were undertaken in rural India[8-11] including Purba Barddhaman (Burdwan) [12], study on healthcare accessibility was lacking.

In this perspective, the present study was planned with the aim to assess the magnitude of morbidities among the elderly and their health care accessibility.

II. Material And Methods

A community based descriptive study, cross sectional in design was conducted in Bhatar block of Purba Barddhaman district of West Bengal during July 2016 to December 2016 among ≥ 60 years aged people.

Study Design: Cross-sectional descriptive study
Study Location: Bhatar block of Purba Barddhaman district, West Bengal, India. Bhatar is one of the 31 blocks in the district and is the rural field practice area of the Department of Community Medicine, Burdwan Medical College, West Bengal. The Bhatar block has 14 gram panchayats with 104 inhabited villages.
Study Duration: July 2016 to December 2016.
Sample size: 168 elderly (people ≥ 60 years of age) people.
Sample size calculation: Prevalence of at least one morbidity was found to be 83% in a study done among elderly by Thakur RP et al[12] in Burdwan, in 2013. Considering the same prevalence and confidence interval 95%, allowable error 10%, design effect 2 and non response rate of 5% the final required sample size was found to be 166 using the formula Z^2pq/L^2.

Subjects & selection method: The required sample was selected through multistage sampling technique from 14 villages, each from one gram panchayat, which were selected by simple random sampling from the list of villages in each gram panchayat. In the final stage, in each identified village, 12 elderly people were selected by simple random sampling from the list of people ≥ 60 years of age in each village. Altogether 168 elderly were studied.

Inclusion criteria:
Elderly people who were permanent residents (for at least 1 year) of the block and had given consent to participate in the study.

Exclusion criteria:
1. Elderly people residing in the block for less than 1 year.
2. Migrants.
3. Severely sick.
4. Not willing to participate.

Procedure methodology:
A pre-designed pre- tested schedule was used to collect the data of the study subjects. The variables studied were socio-demographic characteristics, morbidity pattern both chronic and acute (within last 3 months), various domains of health care accessibility. Data were collected by interviewing the study subjects and reviewing records of their illnesses (prescriptions/ tickets). Only documented illnesses were considered in this study. Before interviewing, the nature and the purpose of the study were briefed to the study population and they were assured about confidentiality of information. Informed consent was obtained from each and every respondent.

Statistical analysis:
The collected data was rechecked for completeness and consistency, entered in the computer on Excel data sheets and presented in tables.

III. Result

Socio-demographic characteristics of the study subjects: (Table no. 1)
Out of the total 168 study subjects 133 (79.1%) were 60-70 years, 30(17.9%) were 70-80 years and 5 (3%) were >80 years, 65(38.7%) were male and 103(61.3%) were female, 156(92.1%) were Hindu and 12(7.1%) were Muslim, 144 (85.7%) belonged to general caste and 24 (14.3%) were scheduled caste, 61 (36.3%) were illiterate. Most of the elderly women were housewives and elderly males were agricultural worker. Majority of study subjects belonged to middle class and lower middle class (44% and 41.1% respectively) socio-economic status according to modified BG Prasad scale[13], 2016. Majority (63.7%) of them belonged to joint families. About 29% were addicted to chewing tobacco and 16.1% were smokers.

Table no. 1: Distribution of the study subjects according to their socio-demographic characteristics (n=168)

Socio-demographic characteristics	Frequency (%)	Socio-demographic characteristics	Frequency (%)
Age(in years)		Socio economic status*	
60-70	133(79.1)	Upper class	1(0.6)
70-80	30(17.9)	Upper middle class	23(13.7)
>80	5(3)	Middle class	74(44.0)
		Lower middle class	69(41.1)
Gender-		Lower class	1(0.6)
Male	65(38.7)		
Female	103(61.3)		
Religion-		Type of family-	
Hindu	156(92.9)	Nuclear	61(36.3)
Muslim	12(7.1)	Joint	107(63.7)
Caste-		Addiction-	
General	144(85.7)	No addiction	93(55.4)
SC	24(14.3)	Smoking tobacco	27(16.1)
		Chewing tobacco	48(28.5)
Education-			
Illiterate	61(36.3)		
Non formal literate	17(10.1)		
Less than primary	27(16.1)		
Primary completed	24(14.2)		
Middle school completed	9(5.4)		
Secondary completed	8(4.8)		
Higher secondary completed	20(11.9)		
Graduate and above.	2(1.2)		
Major occupation-			
Retired from Service	7(4.2)		
Agricultural	50(29.7)		
Business	6(3.6)		
Housewife	98(58.3)		
Not Applicable	7(4.2)		

*according to modified BG Prasad scale, 2016

Morbidity pattern:

In the present study 112(66.6%) individuals had one or more diagnosed and documented chronic illnesses. Out of them, 108 individuals were still receiving treatment.

The problem with highest prevalence was refractive error (38.7%). Other morbidities were hypertension (20.8%), arthritis (25%), neurological disorders (1.2%), Diabetes Mellitus (4.6%), cataract (4.2%), hearing difficulties (11.3%), spondylosis (2.4%), COPD/asthma (5.4%), dental problems (7.7%), anaemia (4.8%), IHD (3.6%) . Less prevalent disorders were NASH, CA throat, CA tongue, Breast CA and depression.

Also 7.7% individuals had fever, 1.8% had cough and cold, 1.2% had diarrhoea within last 3 months. All study participants with acute illness received treatment. (Table no. 2)

Health care accessibility:

Regarding treatment facility 100% were aware about Govt. Hospital, 90.1% knew about private chamber, 60.1% had knowledge of private hospital/ nursing home. 11.9% mentioned about quack practitioners and health camps. 112 individuals with chronic illness had to travel >1.5 kilometer to avail health care. Modes of transport used were rickshaw, van, bus, train. Travel time for this purpose varied from 45 – 60 minutes (Table 3).
For acute illness they had to travel 0.5 to <1 kilometer.

Table no. 2- Distribution of study subjects according to their morbidity pattern (n= 168)

Variables	Frequency		Total (%)
	Male (%) (n= 65)	Female (%) (n=103)	
Presence of chronic disease*-			
Refractive error	21(32.3)	44(42.7)	65(38.7)
Hypertension	9(13.8)	26(24.2)	35(20.8)
Arthritis	10(15.4)	32(31.1)	42(25)
Neurological disorder	1((1.5)	1(0.97)	2 (1.2)
Diabetes mellitus	3(4.6)	3(2.9)	6(3.6)
Cataract	0(0.0)	7(6.8)	7(4.2)
Hearing difficulties	8(12.3)	11(10.7)	19(11.3)
Spondylosis	4(6.2)	0(0.0)	4(2.4)
COPD/asthma	3(4.6)	6(5.8)	9(5.4)
Dental problems	6(9.2)	7(6.8)	13(7.7)
Anaemia	4(6.2)	4(3.9)	8(4.8)
IHD	3(4.6)	3(2.9)	6(3.6)
Others	1(1.5)	4(3.9)	5(2.9)
Study subjects with atleast one morbidity	38 (58.5)	74(71.8)	112 (66.7)
Study subjects without morbidity	27(41.5)	29(28.2)	56(33.3)
H/O acute illness in last 3 months-			
Fever	8(12.3)	5(4.9)	13(7.7)
Cough and cold	2(3.1)	1(1.0)	3(1.8)
Diarrhoea	2(3.1)	0(0.0)	2 (1.2)
None such	53(81.5)	97(94.1)	150(89.3)

*multiple responses

Table no. 3- Distribution of study subjects according to health care accessibility (n= 168)

Variables	Frequency		Total (%)
	Male (%) (n=65)	Female (%) (n=103)	
Knowledge of Place of treatment*-			
Government hospital	65(100)	103(100)	168(100)
Private hospital/ nursing home	41(63.1)	60(58.25)	101(60.1)
Private chamber	61(93.8)	92(89.3)	153(90.1)
Others	8(12.3)	12(11.7)	20(11.9)
Distance of health care facility for chronic illnesses-			
>1.5 KM	38(58.5)	74(71.8)	112(66.7)
NA	27(41.5)	29(28.2)	56(33.3)
Mode of transport*-			
Rickshaw	17(26.2)	30(29.1)	47(27.9)
Van	12(18.5)	32(31.1)	44(26.2)
Bus	34(52.3)	67(65.0)	101(60.1)
Train	23(35.4)	30(29.1)	53(31.5)
NA	27(41.5)	29(28.2)	56(33.33)
Travel time-			
30-45 minutes	6(9.2)	14(13.6)	20(11.9)
45-60 minutes	22(33.8)	54(52.4)	76(45.2)
>60 minutes	10(15.4)	6(5.8)	16(9.5)
NA	27(41.5)	29(28.2)	56(33.3)

*multiple responses

Distance of the nearby healthcare facilities varied from <0.5 Kilometer to >1.5 Kilometer. Modes of transport to nearby health care facility were rickshaw, van, walking, bus (multiple responses were found). Travel time to any nearby health care facility varied from <15 minutes to 45-60 minutes (Table 4).

Table no. 4: Distribution of the study subjects according to different aspects of health care accessibility with respect to their nearest health care facility (n= 168)

Different aspects of health care accessibility	Frequency		Total (%)
	Male (%) (n=65)	Female (%) (n=103)	
Distance of nearby health care facility			
< 0.5 KM	41(63.1)	79(76.7)	120(71.4)
0.5-1 KM	10(15.4)	14(13.6)	24(14.3)
>1.5 KM	14(21.5)	10(9.7)	24(14.3)
Mode of transport to nearby health care facility*			
Rickshaw	62(95.4)	96(93.2)	158(94)
Van	32(49.23)	41(39.8)	73(43.5)
By feet	51(78.5)	93(90.3)	144(85.7)
Bus	14(21.5)	10(9.7)	24(14.3)
Travel time to nearby health care facility			
<15 mins	44(67.7)	83(80.6)	127(75.6)
15-30 mins	7(10.8)	10(9.7)	17(10.1)
45-60 mins	14(21.5)	10(9.7)	24(14.3)

*Multiple responses

Health expenditure: (Table no. 5)

Monthly expenses for chronic illnesses was <Rs. 500 per month for majority of the study subjects, followed by Rs. 500-1000 per month for 12 individuals, > Rs. 1500 per month for 4 individuals. Expenses for episodes of acute illnesses were < Rs.500.per month.

32 males (49.2% of males) and 52 females (50.5% of females) had heard about health insurance but only 7(4.2%) had such.

Table no. 5: Distribution of study subjects according to their health expenditure pattern (n= 168)

Variables	Frequency		Total (%)
	Male (%) (n=65)	Female (%) (n=103)	
Monthly expenses for chronic illnesses-			
< Rs. 500	32(49.2)	60(58.3)	92(54.8)
Rs. 500- Rs.1000	4(6.2)	8(7.8)	12(7.1)
> Rs. 1500	2(3.1)	2(1.9)	4(2.4)
NA	27(41.5)	33(32.0)	60(45.7)
Total	65(100)	103(100)	168(100)
Expenses for episode(s) acute illnesses-			
< Rs. 500 Per month	12(18.5)	6(5.8)	18(10.7)
NA	53(81.5)	97(94.2)	150(89.3)
Total	65(100)	103(100)	168(100)
Knowledge about health insurance-			
Present	32(49.2)	52(50.5)	84(50)
Absent	33(50.8)	51(49.5)	84(50)
Total	65(100)	103(100)	168(100)
Health insurance coverage-			
Present	3(4.6)	4(3.9)	7(4.2)
Absent	62(95.4)	99(96.1)	161(95.8)
Total	65(100)	103(100)	168(100)

Discrimination faced: Individuals who went for treatment faced no discrimination in terms of age, sex, religion, caste, poverty or type of disease.

IV. Discussion

Morbidities among the elderly-

Geriatric age group is vulnerable to develop many diseases due to changes in body composition, discrepancy in energy production and utilization, homeostatitc dysregulation, neurodegeneration[14]. In the present study, it was found that 65 (38.7%) study subjects were suffering from refractive error, 42 (25%) from

arthritis, 35 (20.8%) from hypertension, 19 (11.3%) from hearing difficulties. Dental problems, COPD/asthma, anaemia, cataract, diabetes mellitus, ischaemic heart disease etc. were other chronic ailments found to be present among the study subjects. Thus it is quite evident that a spectrum of diseases was prevalent in the study population. Study conducted by **Thakur RP et al** in 2013[12] in the same district observed that self reported visual impairment (83.29%). Hearing impairment (63.1%), depression (52.3%), anaemia (49.6%), arthritis (44.7%), hypertension (30.7%), dental problems (32.6%), cataract (29.2%), urinary problems (14.5%) etc. were other major morbidities found to be present among the elderly study subjects. Thus similarity is being observed in the morbidity pattern identified in the two studies except for the prevalences, which were higher in the study by **Thakur RP et al[12].** Reporting of self reported morbidities might be the reason behind it. Other studies (by **Pandve HT et al[15]** in 2017, **Zare VR et al[16]** in 2018) on health problems among elderly in rural India also found that visual impairment, hearing impairment, diabetes mellitus, hypertension, musculoskeletal disorders, diseases of oral cavity etc. were predominant morbities. Differences in prevalence might be due to differences in methodologies of the studies conducted, different geographic locations, difference in health awareness, healthcare accessibilities etc. In this study it was found that only 7.7% of study subjects had fever, a very few had cough and cold (1.8%) and diarrhoea (1.2%) in the last three months. As only documented ailments were considered in this study, the burden of acute illnesses appeared to be less. Among 112 individuals with chronic ailments, 108 were still receiving treatment. All the study subjects received treatment for their acute ailments. Thus their health seeking behaviour is appreciable.

Health care accessibility of study subjects:

Knowledge:

All the study subjects were aware of the treatment available in Government hospitals. This may be due to proper functioning of the peripheral health workers of the study area and effect of mass media campaign.

On the other hand, only 50% of the study subjects had heard about health insurance. Initiatives need to be taken to make this elderly population aware of the social security schemes and health insurance schemes.

Physical accessibility:

All the 112 individuals with chronic illnesses had to go to Bhatar Rural Hospital or Burdwan Medical College and Hospital**,** both of which are > 1.5 KM from their residence. Majority used bus for travelling, Other travel modes were train, rickshaw, bus, van. For most of them travel time to reach health facility was 45-60 minutes.

For acute illness they had travelled 0.5 to <1 kilometer.

Distance of the nearby healthcare facilities varied from < 0.5 kilometer to >1.5 kilometer. Modes of transport to nearby health care facility were bus, rickshaw, van, by walking. Travel time to nearby health care facility varied from <15 minutes to 45-60 minutes.

A study[17] done by **Islam MS, Akhtar S** in Khulna city, Bangladesh in 2011 found that 88.99% of the study subjects lived within 1.5 KM of UPHCC and 70% lived within 1.5 KM of government hospital. Most common mode of transport was rickshaw (36.01%), followed by ambulance (14.11%), auto rickshaw (9.01%), on foot (8.02%). The similarity of physical accessibility of health care found in both the studies might be due to identical geographical, socio-economic and socio-cultural contexts of both the study settings.

Health expenditure:

Monthly expense for chronic illnesses was <Rs. 500 per month for majority of the study subjects.

Expenses for each episode of acute illnesses were < Rs.500 per month.

Only 4.2% individuals had health insurance coverage and all from private companies. They were unaware of the existing government health insurance schemes for geriatric population. IEC activities in various forms might help them to access such schemes on a large scale.

The present study was conducted in a single block of a district. More information could have been obtained if a larger sample was studied. As only documented/ diagnosed ailments were recorded in this study, actual burden of diseases might be more. Despite these limitations, important information regarding the morbidity pattern and different aspects of health care accessibilities of this vulnerable elderly age group would help to plan better the required health care services and would also indicate for the needed research in this field.

V. Conclusion

Elderly people suffer from various morbidities. There is a need to generate awareness among them regarding their health conditions and services available. A comprehensive health care system suiting the need of the elderly is recommended. Health insurance needs to be made affordable. Further studies to explore their health care accessibility are also recommended.

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