Original article:

A community based cross sectional study on morbidty pattern of elderly in Rani block, Kamrup (rural) district, Assam

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Abstract:

Background: Ageing is a universal process. In the words of Seneca, "Old age is an incurable disease" but more recently Sir James Sterling Ross commented, "You do not heal old age, you protect it, you promote it and you extend it". Old age is associated with deterioration of health and increase in morbidity. Assessment of the morbidity profile will help in the application of interventions, to improve the health status and the quality of life of the elderly. Our objectives were to study the morbidity pattern among the elderly residing in Rani block. 2. To study the morbidity load among elderly population. 3. To identify the various factors associated with morbidity amongst the study population.

Materials and method: 30 clusters were selected and 13 elderly from each cluster were taken to get the desired sample size. Therefore a total of 390 elderly were selected. House to house visit was done and data was collected by interviewer method, observation and clinical examination of the study population. Diagnosis of the disease was made on the basis of history, investigations, clinical examination and treatment report. Statistical analysis was done using SPSS 17.

Results: Out of 390 elderly, 68.5% belonged to the age group of 60-69 years, majority (82.8%) were found to be Hindus, 89% lived in joint family. Most of the elderly were illiterate (69.5%) and majority (48.2%) belonged to Class IV socio economic status. Morbidity load was 1070. Average morbidity per person was 2.7 and average morbidity per morbid person was 2.8. Majority of the elderly (33.1%) had two morbidity. Arthritis was the most common morbidity and it was more common in females. The association of morbidity was found to be statistically significant with sex, socio economic status and financial dependence.

Conclusion: The prevalence of morbidity is very high (96.9%). Arthritis was the most common morbidity followed by anaemia. This calls for development of community based geriatric care in our country in line with maternal and child care.

Key words: elderly, morbidity

Background:

 Ageing is a universal process. In the words of Seneca, "Old age is an incurable disease" but more recently Sir James Sterling Ross commented, "You do not heal old age, you protect it, you promote it and you extend it". These are in fact the principles of Preventive Medicine (1). Old age is associated with deterioration of health and increase in morbidity. Increasing life expectancy raises the question of whether longer life spans result in more years of life in good health, or whether it is associated with increased morbidity and more years spent in prolonged disability and dependency(2). Health care of the elderly has not received adequate attention from policy maker in developing countries, like India as they were pre-occupied with maternal and child health, communicable diseases, malnutrition, and increasing population. Assessm-

ent of the morbidity profile will help in the application of interventions, to improve the health status and the quality of life of the elderly.

Objectives:

1. To study the morbidity pattern among the elderly residing in Rani block. 2. To study the morbidity load among elderly population. 3. To identify the various factors associated with morbidity amongst the study population

Materials and method :

1.Study design - Community based cross-sectional study.

2. **Study area** - Rani block, Kamrup Rural (Assam)

3. Study period – One year; August 2013to July 2014.

4. **Sample size** -Calculated to be around 257 using the formula, **n=4pq/l^2** on the basis of 28% prevalence rate of general morbidity in rural areas as per NSSO 2004 report (3) with 95% confidence interval and a relative error of 20% of p. Using cluster sampling from a total of 96 villages in Rani Block, 30 villages (cluster) will be selected using a design effect of 1.5 out of 96 villages in Rani Block, Kamrup Rural. Hence the sample size came up to be 386. To get the sample size of 386 minimum 13 elderly individual will be required from each village. Therefore total 390 subjects will be taken for study.

5. SAMPLING DESIGN

Cluster methodology was applied. The 96 villages (Census 2001) under the Rani Block were taken as the primary sampling unit in the study under cluster methodology. For the selection of clusters, a list of villages under the Block was obtained from the Census Office, Guwahati. Out of a total of 96 clusters (villages), 30 clusters were selected and 13 elderly from each cluster were taken to get the desired sample size. Therefore a total of 390 elderly were selected. House to house visit was

done till 13 elderly persons were found in each cluster. In each selected household, all the elderly meeting the inclusion criteria were included in the study. If there were more than one elderly in the household, then both are included. Information was verified with the care givers wherever necessary.

6. **Inclusion criteria**

a) Elderly persons aged 60years and over, who are permanent residents (living for more than 6 months) of Rani Block.

b) Elderly persons who are willing to participate in the study.

7. Exclusion criteria – Seriously ill elderly who are not able to respond.

8. Data collection tool - A pre designed and pre - tested schedule along with anthropometric measurements, mercury sphygmomanometer, glucometer, haemoglobin estimation, stethoscope, standard measuring tape ,weighing machine, Modified B.G Prasad scale (April 2013) for determination of Socio Economic Status, 5 point Geriatric Depression Scale (GDS) for screening depression, Hindi version of the mini-mental state examination (HMMSE) was used to test cognitive impairment.

9. Data collection technique -House to house visit, Interviewer method, observation and clinical examination of the study population.

Ethical clearance was obtained before conducting the study from the Ethical Committee of Gauhati Medical College, Guwahati. During the survey, informed written consent was taken from the study subjects. Assurance was given that the confidentiality concerning their information will be maintained strictly.

Statistical analysis

Data collected was entered in Microsoft Office Excel and analyzed by using SPSS Version 17.0. Proportions were calculated for different study

variables. Chi-square test was used for analysis of categorical variables.

Results:

The demographic characteristics of the elderly is summarised in table 1. Out of 390 elderly 68.5% belonged to the age group of 60-69 years, 24.4% belonged to 70-79 years age group and 7.2% belonged to ≥ 80 years age group. 233(59.7%) of the respondents were females and 157(40.3%) of elderly were males. Majority (82.8%) were found to be Hindus, 9.2% were Muslims and 7.9% were Christians. Majority (89%) lived in joint family and only 11% lived in nuclear family. The study revealed that 53.6% elderly were living with their spouse and children, 38.5% were living with their children, 3.6% were living with their spouse, 3.1% were living alone and 1.3% were living with their relatives. Maximum elderly, 271(69.5%) were illiterate, 77(19.7%) studied upto primary level, 23(5.9%) studied till middle school, 15(3.8%) studied till high school, while 3(0.8%) were HSLC passed and only 1 (0.3%) was post-graduate.

Majority of the elderly (48.2%) belonged to Class IV category, 160(41%) were from class III category, 31(7.9%) belonged to class II, while only 11(2.8%) belonged to class V category. Table 2 Shows the morbidity pattern of the elderly. The most common morbidity was arthritis 43%, followed by anaemia 39.5%, hypertension 33.6%, acid peptic disorder 25.9%, dementia 23.1%and refractive error 16.4%. Table 3 shows the morbidity load of the elderly. Morbidity load was 1070. Average morbidity per person was 2.7 and average morbidity per morbid person was 2.8. Majority of the elderly (33.1%) had two morbidity, 30.8% had more than 3 morbidity, 23.1% had one morbidity and only 3.1% had no morbidity. Table 4 shows the relationship of the morbidity with socio demographic variables. The association of morbidity was found to be statistically significant with sex, socio economic status and financial dependence and it was found to be statistically insignificant with age group, education and marital status

TABLE 1. Demographic characteristics of elderly

AGE GROUP (YEARS)	NUMBER	PERCENTAGE
60-69	267	68.5
70-79	95	24.4
>80	28	7.2
SEX		
MALE	157	40.3
FEMALE	233	59.7
RELIGION		
HINDU	323	82.8
MUSLIM	36	9.2
CHRISTIAN	31	7.9
TYPE OF FAMILY		
JOINT	347	89
NUCLEAR	43	11
LIVING STATUS		
SPOUSE AND CHILDREN	209	53.6

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CHILDREN	150	38.5
SPOUSE	14	3.6
ALONE	12	3.1
RELATIVES	5	1.3
EDUCATIONAL SATUS		
ILLITERATE	271	69.5
PRIMARY SCHOOL	77	19.7
MIDDLE SCHOOL	23	5.9
HIGH SCHOOL	15	3.8
HSLC PASSED	3	0.8
POST GRADUATE	1	0.3
SOCIO ECONOMIC STATUS		
CLASS II	33	8.5
CLASS III	158	40.5
CLASS IV	188	48.2
CLASS V	11	2.8

TABLE 2. Morbidity pattern

Morbidity	FEMALE (N=233)	MALE (N=157)	TOTAL (N=390)
Arthritis	126 (54.1)	42 (26.8)	168 (43)
Anaemia	177 (76)	37 (23.6)	154 (39.5)
Hypertension	73 (31.3)	58 (36.9)	131 (33.6)
Acid Peptic Disorder	57 (24.5)	44 (28)	101 (25.9)
Dementia	53 (22.7)	37 (23.6)	90 (23.1)
Refractive Error	38 (16.3)	26 (16.6)	64 (16.4)
Depression	28 (12)	27 (17.2)	55 (14.1)
Cataract	30 (12.9)	20 (12.7)	50 (12.8)
Hearing Impairment	16 (6.9)	23 (14.6)	39 (10)
Diabetes	16 (6.9)	11(7)	27 (6.9)
Dental Problem	12 (5.2)	14 (8.9)	26 (6.7)
Pterygium	13 (5.6)	11(7)	24 (6.2)
Constipation	9 (3.9)	8 (5.1)	17 (4.4)
Kyphosis	9 (3.9)	4 (2.5)	13 (3.3)
Hemiplegia	7 (3)	3 (1.9)	10 (2.6)
Others	40 (17.2)	61 (38.9)	101 (25.9)

(Multiple response)

(Figures in parenthesis indicate percentages)

Table 3. Morbidity load of elderly

Number of morbidity	Frequency	Percent
0	12	3.1
1	90	23.1
2	129	33.1
3	39	10
>3	120	30.8
Total	390	100

Table 4. Relationship of morbidity with socio demographic profile

Gender	Morbidity		Total	P value
	Present	Absent		
Male	147 (93.6)	10 (6.4)	157 (100)	**0.002**
Female	231 (99.1)	2 (0.9)	233 (100)	
Age group				
60-69 years	255 (95.5)	12 (4.5)	267 (100)	0.058
70-79 years	95 (100)	0	95 (100)	
>80 years	28 (100)	0	28 (100)	
Education status				
Illiterate	262 (96.7)	9 (3.3)	271 (100)	0.674
Literate	116 (95)	3(2.5)	119 (100)	
Socio economic status				
Class II	31 (93.9)	2 (6.1)	33 (100)	**0.029**
Class III	149 (94.3)	9 (5.7)	158 (100)	
Class IV	187 (99.5)	1(0.5)	188 (100)	
Class V	11 (100)	0	11 (100)	
Marital status				
Married	212 (95.5)	10(4.5)	222 (100)	0.118
Unmarried	13(92.9)	1 (7.1)	14 (100)	
Widow	110 (100)	0	110 (100)	
Widower	43 (97.7)	1(2.3)	44(100)	
Financial dependence				
Fully dependent	283	5	288	**0.010**
Fully independent	95	7	102	

Discussion :

The present study showed that most of the elderly (68.5%) belonged to the age group of 60-69 years, 24.4% belonged to 70-79 years age group and only 7.2% belonged to ≥ 80 years age group which is similar to the findings by Madhukumar Suwarna et al (4)in their study conducted in Miraj, Maharashtra where 64.5% belonged to the age group of 60-69 years, 28.2% belonged to 70-79 years age group and 7.2% belonged to > 80 years age group. Deepak Sharma et al (5) in their study conducted in Shimla found that in rural area 58.5% belonged to the age group of 60-69 years, 30 % belonged to 70-79 years age group and 11% belonged to > 80 years age group. In the present study majority (59.7%) of the elderly were females and 40.3% of elderly were males. Shraddha K et al (6) in their study conducted in Mysore, Karnataka found that 39.4% were males and 60.6% were females. Pooja Chauhan et al (7) in a study conducted in Venkatachalem village in Nellore district, AP found that 33.4% were males and 66.2% were females. The present study revealed that 69.5% were illiterate, 19.7% studied upto primary level, 5.9% studied till middle school, 13.8% studied till high school, 0.8% were HSLC passed and 0.3% was post-graduate. Anil Jacob Purty et al (8) in their study in a rural area of Tamil Nadu found that 78.7% of elderly were illiterate. Bayapareddy Narapureddy et al (9) in a study conducted in a rural area of Allahabad District, UP found that 70.1% of the elderly were illiterate. SH Parry et al (10) in their study conducted in Kashmir found that 67.8% of the elderly in rural area were illiterate. The present study revealed that the most common chronic morbidity was arthritis 43%, followed by anaemia 39.5%. R. Shankar et al (11) in a study conducted in a rural area of Varanasi district also reported that the most common morbidity was arthritis (57.08%). Padda A.S et al (12) in their study conducted in Amritsar reported that arthritis (60.60%) was most commonest cause of illness. Rajesh. R. Kulkarni (13) in a study conducted at Ashok Nagar, Belgaum, Karnataka reported osteoarthritis (40%) was the most common morbidity followed by anaemia (30%). The present study revealed that majority of the elderly (33.1%) had two morbidity, 30.8% had more than 3 morbidity, 23.1% had one morbidity and only 3.1% had no morbidity. Morbidity load was 1070. Average morbidity per person was 2.7 and average morbidity per morbid person was 2.8. Nirankar Singh et al (14) in a study conducted in a rural area of Patiala found that 12.8% had no morbidity, 25.9% had one morbidity, 22.6% had two morbidity, 24.6% had 3 morbidity and 13.3% had more than three morbidity. Average morbidity per morbid person was foun to be 2.3 and average morbidity per person was 2.01. JP Singh et al (15) in their study conducted at urban slum in Central India found that 400 morbid individuals suffered from 1268 illness and the average morbidity per morbid person was 3.17. Majority (74%) suffered from more than three morbidity. 32.5% had three morbidity, 23.5% had two morbidity and 1.25% had single morbidity. Table 4 shows the relation of morbidity with socio demographic profile. There was a statistical significant association of morbidity with sex, socioeconomic status and financial dependence but it was found to be statistically insignificant with age, education and marital status. Madhukumar Suwarna et al (2) also found statistical significant association of morbidity with sex, age group, education, marital status and socio economic status.

Conclusion :

The present study revealed that the prevalence of morbidity is very high (96.9%). Arthritis was the

most common morbidity followed by anaemia and hypertension. Multiple morbidity is common among the elderly. The prevalence of morbidity is higher among females, those belonging to lower socio economic status and among those who are financially dependent on others. This calls for development of community based geriatric care in our country in line with maternal and child care.

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