



PREVALENCE OF CHRONIC MORBIDITIES AND QUALITY OF LIFE AMONG ELDERLY PERSONS

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ABSTRACT

Ageing is an unavoidable developmental phenomenon which brings along a number of changes in physical, mental, hormonal as well as social conditions. These changes are projected to have an effect on quality of life of the elderly persons. This paper gives a glimpse of Quality of Life (QOL) and common chronic morbidities prevalent among the elderly persons, of elderly persons of Jorhat district, Assam. All morbidities were assessed as in ICD-10. QOL was assessed by calculating different indicators using a well-structured questionnaire. Data were entered and analysed with the help of SPSS software. Mean score and aggregate score of each QOL indicator were calculated. Chi-square test, independent t- test was applied to observe the statistical significance between Quality of Life (QOL) and independent variables. p- value less than 0.05 or 0.01 testifies the result significant. High Blood Pressure was the most common morbidity among the elderly persons. Large proportion of elderly persons of the study area experienced middle level of QOL. Awareness and regular elderly health care services should be introduced to ensure a better Quality of Life of geriatric population.

Keywords: Elderly, ICD-10, Morbidity, National Family Health Survey (NFHS), Quality of Life.

INTRODUCTION

Ageing is a universal process.<sup>1</sup> According to the ‘National Policy on Older Persons’ implemented by Government of India - a person above 60 years of age is referred to as ‘elderly’.<sup>2</sup> There has been a steady rise in proportion of elderly people in India from 6.8 percent in 1991 to 8.6 percent in 2011<sup>3</sup> and the United Nations estimated that there would be 21 percent elderly populations of India of aged 60+ by 2050.<sup>4</sup>

Aging is unavoidable, unalterable, always progressive and always related to the loss of physical and mental functions.<sup>5</sup> There are changes in everyday interests, thoughts and lifestyles, physical problems start to plague the aged persons.<sup>6</sup> The Quality of Life of elderly people is expected to be largely affected by these changes.

Quality of Life (QOL) is “Individual’s perception of their position of life in context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”. Hence, it is a broad concept that encompasses the individual’s physical health, mental state, level of independence, social relationship, personal beliefs and their relationship to important characteristics in the environment.<sup>7</sup>

OBJECTIVES

The present study was conducted with the following objectives –

1. To assess the magnitude of common chronic morbidities among elderly persons.
2. To assess the Quality of Life of elderly persons with respect to some socio-demographic characteristics.
3. To compare the Quality of Life of morbid elderly with non-morbid elderly persons.

MATERIALS AND METHOD

A cross-sectional study was conducted during December 2017 to March 2018 among elderly populations (≥ 60 years age) residing in rural and urban areas of Jorhat district, Assam.

Sample size calculation

The sample size was determined based on proportion of elderly person having some morbid condition. According to NSSO proportion of elderly persons having some morbid condition is 43% .<sup>8</sup> Following formula has been adopted to determine the sample size.<sup>9</sup>

$$n = \frac{Z^2 p(1-p)}{e^2}$$



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Where, n= estimated sample size, Z=1.96, P = 0.43, d = 0.05 e = 0.05 is the desired level of precision. It is also known as sampling error or allowable error. Thus, the estimated sample size n is found to be 377. Finally, our sample size for this study was proposed to be 400.

Sampling technique

Multistage sampling procedure was followed to select the required number of elderly respondents for interview. In case of rural area Block was selected at the first stage, in the second stage panchayats, in the third stage villages were selected and in the third stage aimed respondents were randomly selected. Probability proportional to sample size (PPS) sampling technique is applied for selection of blocks, Gaon Panchayat, and villages. Similarly similar technique was applied for selecting urban elderly from municipality wards of the study area. Applying this procedure 234 elderly persons (Male = 132, Female =102) were selected from rural area and 166 elderly persons (Male = 78, Female = 88) were selected from urban area.

Study tool: The present study mainly depends upon primary data. The secondary data have been collected from various sources like census, National Family and Health Survey. A pre-tested structured questionnaire was used for the study. It comprised of socio demographic information which include a diverse set of parameters such as age, sex, marital status, education financial status etc. To measure the Quality of Life, measurements related to various Quality of Life indicators are also included in the questionnaire. In this study all morbidities are assessed as in ICD-10 (International Classification of Disease-10)

Quality of Life assessment

Quality of Life (QOL) is generally seen as the outcome of the interaction of a variety of social, health, economic and environmental factors that affect both human and social development at the level of individuals and societies which cumulatively, and often in unknown ways. Based on this concept we used a Quality of Life Index to assess the Quality of Life of elderly persons in this study. This index has total of forty two indicators comprised of five major groups namely Economic (8 indicators), Health (12 indicators), Housing and Household facility (10 indicators), Family and its environment (9 indicators), Society and societal environment (3 indicators). For the calculation of the Standard Quality of Life Index, the scoring of the indicators was done on the basis of the weightages given as in National Family Health Survey. scores differ between 0 and 4 according to their relative importance in terms of Quality of Life for each sub - indicator. Score 0 corresponds to the lower part of quality of life and 4 to the highest part of quality of life. Since, the total score for each of the quality-of-Life indicators are different, it has been converted into 0 to 100 scales. The total score, mean score of each indicator and aggregate score were computed.

The maximum and minimum scores in each indicator or domain are shown in table 1. Then the Quality-of-Life score of all the five groups are then classified into Low, Medium and High for the analysis as follows –

- Low level of Quality of Life = < 33.33
Medium level of Quality of Life = 33.34 – 66.67 and
High level of Quality of Life = > 66.67.

Table 1: Broad groups, total number of indicators of Quality of Life, maximum and minimum possible scores

Table with 4 columns: Broad groups, Total number of indicators, Maximum probable score (High QOL), Minimum probable score (Low QOL). Rows include Economic, Health, Housing and household facilities, Family environment, Society and societal environment, and Total.

Statistical analysis: Data were entered and analysed with the help of SPSS software. Mean score and total score of each indicator were calculated. Chi-square test, independent t- test was applied to observe the statistical significance between Quality of Life (QOL) and independent variables. p- value less than 0.05 or 0.01 testifies the result significant.

RESULTS

Out of 400 elderly persons of study area, 382 elderly persons (95.5%) have at least one morbidity. Prevalence of at least one morbidity among females was 96.8% whereas among males it was 94.3%. It was also observed that morbidity was statistically



positively associated with increasing of age. Among females 95.1% in 60-64 years age group, 100% in 75+ years age groups were morbid. In males 90.5% were morbid in 60-64 years age group and 100% in 75+ years age group were morbid (Table 2).

**Table 2: Age and sex wise distribution of morbidity in elderly population**

Age-groups (Years)	Male			Female			Total		
	No. of respondent	Morbid	%	No. of respondent	Morbid	%	No. of respondent	Morbid	%
60-64	74	67	90.5	102	97	95.1	176	164	93.2
65-69	77	74	96.1	30	30	100.0	107	104	97.2
70-74	38	36	94.7	42	41	97.6	80	77	96.3
75+	21	21	100.0	16	16	100.0	37	37	100.0
Total	210	198	94.3	190	184	96.8	400	382	95.5

Source: Computed from field work data. Analysis: chi- square = 24.624 (d.f = 3, p < 0.0001)

It is evident that there are 1606 morbidities in these 382 elderly persons, 719 in males and 887 in females. Mean number of illness was found to be 4.02. In case of male elderly persons, it is 3.63 and in case of females it is 4.82. Positive association is seen between progression of age and mean number of morbidities. Mean number of morbidities for the age group 60-64 has been found to be 3.20, 4.10 for 65-69 age group, 5.55 for 70-74 age group and 6.53 for the age group 75 and above. Prevalence of morbidity is 100% among the elderly belong to age group 75 years and above, 96% for the age group 70-74 years, 97% for the age group 65-69 years and 93.18 % among the elderly age group 60-64years (Table 3). Another study observed approximately same prevalence of morbidities among 95.31% elderly persons and mean number of morbidities as 4.03. Morbidities were observed more recurrently in older age group.<sup>13</sup>

**Table 3: Age and Sex wise distribution of total morbidities in elderly persons**

Age groups (In years)	No. of respondent	Morbid persons (%)	No. of morbidities		Total morbidities	Mean no. of morbidities
			Male	Female		
60-64	176	164 (93.18)	221	342	563	3.20
65-69	107	104 (97.20)	320	119	439	4.10
70-74	80	77 (96.00)	87	273	360	5.55
75+	37	37 (100.00)	91	153	244	6.53
Total	400	382 (95.5)	719	887	1606	4.02

Chi-square =21.47 (d.f = 3, p< 0.0001)

Source: Field survey data

The elderly respondents were asked if they had been suffering from any morbidity listed here which was diagnosed by a physician. Medical reports, doctor's prescriptions were also verified during the period of interview. The most prevalent morbidities among the elderly have been observed in this study are High Blood Pressure (56.0%), Cataract (50.2%), Arthritis (48.0%), Alzheimer (35.2%), Diabetes (35.0%), Loss of teeth (30.8%), Osteoporosis (20.0%), heart disease (16.2%), Fall injury (16.0%), Asthma (15.5%), Skin disease (14.5%), Renal/urine infection (13.8%), Liver (10.5%), Depression (7.8%), Bronchitis (7.0%), Stroke (6.2%) followed by other less prevalent morbidities. Among the males HBP (57.1%), Cataract (46.2%), Arthritis (45.2%), Diabetes (37.1%), Alzheimer (32.4%) have been found to be most prevalent followed by other morbidities while among the female elderly Cataract (54.7%), Arthritis (51.1%), Alzheimer (38.4%), loss of teeth (33.2%), Osteoporosis (23.6%), Fall injury (17.4%), Asthma (16.3%), Urinary infection (1.2%), Accidental injury (6.8%), Cancer (5.8%) and Dementia (6.8%) have been observed as the most prevalent morbidities. Study conducted in Delhi found a high prevalence of Arthritis among the females in their studies.<sup>14</sup> This reflects that woman suffer the tough days by doing household works without rest. In the present study prevalence of heart disease is found to be same for the both gender (Table 4).

**Table 4: Prevalence of morbidities among the elderly population**

Morbidities	Male		Female		Total	
	N=210	Percentage	N=190	Percentage	N=400	Percentage
HBP	120	57.1	104	54.7	224	56.0
Cataract	97	46.2	104	54.7	201	50.2
Arthritis	95	45.2	97	51.1	192	48.0
Alzheimer	68	32.4	78	38.4	141	35.2



Diabetes	78	37.1	62	32.6	140	35.0
Teeth	60	28.6	63	33.2	123	30.8
Osteoporosis	37	17.6	43	23.6	80	20.0
Heart disease	34	16.2	31	16.3	65	16.2
Fall injury	31	14.8	33	17.4	64	16.0
Asthma	31	14.8	31	16.3	62	15.5
Skin disease	25	11.7	33	17.4	58	14.5
Renal/urine infection	28	13.3	27	14.2	55	13.8
Liver disease	23	11.0	19	10.0	42	10.5
depression	17	8.1	14	7.4	31	7.8
Bronchitis	15	7.1	13	6.8	28	7.0
Stroke	14	6.7	11	5.8	25	6.2
Acc.injury	10	4.8	13	6.8	23	5.8
Cancer	10	4.8	11	5.8	21	5.2
paralysis	08	3.8	09	4.7	17	4.3
Dementia	03	1.4	13	6.8	16	4.0

Source: Computed from field work data

Considering the first six most prevalent morbidities in the study area all these morbidities were seen to be more prevalent among the urban elderly than their rural counterparts (Table 5).

**Table 5: Prevalence of major morbidities diseases in elderly population according to their residence**

Major morbidities	Rural (N=234)	Percentage	Urban (N=166)	Percentage	Grand total (N= 400)	Percentage
HBP	92	39.3	132	79.5	224	56.0
Cataract	104	44.4	97	58.4	201	50.2
Arthritis	83	35.5	109	65.7	192	48.0
Alzheimer	77	32.9	64	38.6	141	35.2
Diabetes	56	23.9	84	50.6	140	35.0
Teeth problem	46	19.7	77	46.4	123	30.8

Source: Computed from field work data

It is observed in aggregated quality of life with selected background characteristics of the elderly persons of the study area that though the proportion of female (43.1%) is seen to be lesser than their male counterparts (52.1%) in the high level of aggregate quality of life, P-value testifies the result insignificant. Aggregated quality of life depicts significant result with age group. The situation of the elderly persons in high QOL is comparatively poor in the age group of 75 years and above (37.8%) than the other lower age groups. The situation of widow and widower in high QOL is poor which has been observed in different indicators of quality of life. Educational achievement also has significant result with aggregated quality of life. The general pattern emerging out of the outcome that higher the educational achievement, higher the quality of life and vice – versa. Illiterates (17.2%), primary (13.2%) and middle level elderly (17.5%) have smaller proportion in the high level of aggregate quality of life. Approximately 70% elderly respondents with higher education enjoyed high level of aggregate quality of life. No higher educated elderly persons were found in the low level of aggregate quality of life. Elderly persons in the nuclear family system (58.6%) were found to be enjoyed high level of quality of life in comparison to the elderly living in joint family system (40.6%). Concerning with the caste categories elderly of OBC/MOBC category (56.2%) enjoyed better quality of life than the elderly of general category. Only 0.8% elderly of OBC and 2.4% of general category experienced low level of quality of life. In general, it is to be emphasized that a large number of elderly persons (49.0%) of the study area is experiencing middle level of quality of life (Table 6).

**Table 6: Bivariate Distribution of Proportion of the elderly with aggregate QOL and selected background characteristics**

Background characteristics	Diff. categories	Low QOL (%)	Middle QOL (%)	High QOL (%)	P-value
Sex	Male	2.4	44.7	52.9	0.08
	Female	4.2	52.7	43.1	



Age group	60-64	2.3	52.8	44.9	<0.001
	65-69	0.9	55.1	43.9	
	70-74	8.8	27.5	63.8	
	75+	2.7	59.5	37.8	
Marital Status	Married	0.0	43.0	57.0	<0.001
	Unmarried	6.2	50.0	43.8	
	Widow	7.8	62.1	30.1	
	Widower	15.4	57.7	26.9	
	Divorcee	0.0	33.3	66.7	
Education	Illiterate	0.0	82.2	17.2	<0.001
	Primary	2.6	84.2	13.2	
	Middle	19.0	63.5	17.5	
	HSLC	0.0	39.6	60.4	
	HS	0.0	45.5	54.5	
	Degree+	0.0	31.1	68.9	
Family Type	Single	8.0	92.0	0.0	<0.001
	Nuclear	0.0	41.4	58.6	
	Joint	6.9	52.5	40.6	
Cast	General	2.4	51.8	45.8	<0.001
	OBC/MOBC	0.8	43.0	56.2	
	SC	28.6	52.4	19.0	
Total		3.2	49.0	47.8	

Source: computed from field work data

Aggregate or overall status of the quality of life of elderly persons of the study area is graphically presented in the fig 1. It is computed by taking out the mean of all above mentioned five categories. In aggregate, highest proportion of elderly persons of the urban areas (47.22%) leads a high quality of life than their rural counterparts (36.68%). Again, in high level of QOL male proportion was found to be high (52.9%) in comparison to their female counterparts (43.1%).

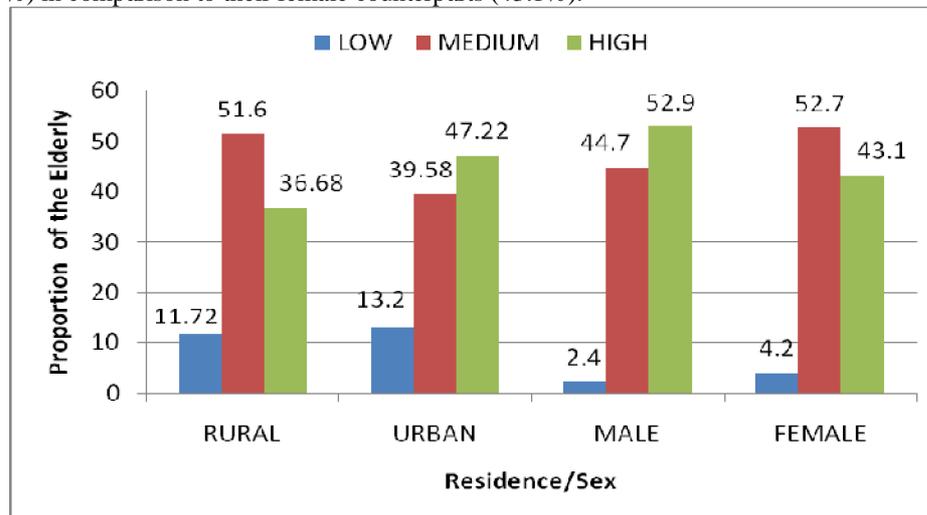


Fig 1: Proportion of elderly persons in aggregate Quality of Life with respect to residence and sex

This study highlighted that aggregate mean score of QOL as average which was 64.62 on 0-100 scale. The mean score was 50.87, 52.18, 70.73, 80.0, and 69.33 for Economic, Health, Housing, Family environment and social environment. Family environment domain was found to be better than other domains. But mean scores for Economic and Health related domain were comparatively lower than Housing, Family and society related domains. On the other hand, Family, Housing, and social environment



related domains have shown higher mean score It is observed that the elderly persons of the study area were experiencing middle level of quality of life during the survey (on 0-100 scale) (Table 7).

**Table 7: Quality of Life score of the study population (on 0-100 scale)**

Sl no.	Domains of Quality of Life (QOL)	Mean score (SD)
1.	Economic	50.87 (20.08)
2.	Health	52.18 (0.16)
3.	Housing and household facilities	70.73 (15.64)
4.	Family environment	80.00 (0.21)
5.	Society and societal environment	69.33 (0.33)
	<b>Aggregate</b>	<b>64.62 (0.13)</b>

Independent t-test gave an idea that as the age increased quality of life decreased and it was statistically significant. QOL was found to be better among the urban elderly than their rural counterparts, though it was insignificant. The QOL of females were about 6 points lower than males ( $p < 0.01$ ) while QOL of elderly with partner was found to be 11.76 points higher than the elderly without partner ( $p < 0.01$ ). Higher the education better the Quality-of-Life score was observed. QOL score was about 12 points higher for literate elderly than the illiterate ( $p < 0.01$ ). The QOL score in financially independent elderly was found to be significantly better than financially dependent elderly ( $p < 0.01$ ). Elderly persons with no morbidity experienced better QOL than the elderly having morbidity. Non- functioning of ADL activity shows lower Quality of Life among the elderly and it was almost 4 points lower than the elderly persons having good ADL function (Table 8).

**Table 8: Quality of Life scoring according to Socio-Demographic Characteristics**

Characteristics	No. of respondent N=400 (percentage)	Quality of Life Mean (SD)	t-value	P-value
Location				
Rural	234 (58.5)	63.46 (13.07)	1.895	0.059
Urban	166 (41.5)	66.09 (14.47)		
Sex				
Male	210 (52.5)	67.23 (12.08)	4.194	<0.01
Female	190 (47.5)	61.59 (14.79)		
Age				
60-69	283 (70.8)	65.88 (12.42)	0.931	<0.01
70 and above	117 (29.2)	61.59 (16.45)		
Education				
Literate	371 (92.8)	65.39 (13.51)	4.482	<0.01
Illiterate	29 (7.2)	53.81 (11.81)		
Marital status				
With partner	249 (62.3)	68.99 (9.00)	9.130	<0.01
Without partner	151 (37.7)	57.23 (16.72)		
Financial status				
Independent	260 (65.0)	68.38 (12.64)	8.215	<0.01
Dependent	140 (35.0)	57.45 (12.79)		
Morbidity status				
Not morbid	18 (4.5)	71.78 (11.09)	2.259	<0.05
Morbid	382 (95.5)	64.29 (13.84)		
Activity of Daily Living				
Functioning	379 (94.7)	64.76 (13.67)	1.330	0.184
Not functioning	21 (5.3)	60.68 (14.12)		

Source: Computed from field work data



The maximum impact of any chronic morbidities was quite significant on Health and Economic related QOL domain (p<0.05) where mean difference between morbid and non-morbid persons were almost 13.6 and 10.4 respectively. The mean score on housing and household facilities indicator was 76.88 for non-morbid elderly while for morbid persons it was 70.43. The mean score on Family environment domain was 82.05 for healthy elderly while for morbid person it was 79.94. The mean score on society environment domain was 77.78 for non-morbid elderly while it was 68.93 for morbid elderly (Table 9).

Table 9: Scoring of different indicators of Quality of Life according to morbidity status

Morbidity status		Quality of Life Indicators					
		Economic	Health	Housing	Family	Society	Total Score
Morbid (N= 382)	Mean	50.40	51.57	70.43	79.94	68.93	64.25
	Std. Deviation	20.26	16.38	15.79	21.16	33.47	13.83
Not morbid (N= 18)	Mean	60.78	65.20	76.88	82.05	77.78	72.54
	Std. Deviation	11.73	10.20	10.46	23.45	32.33	10.61
Test of significance		t= 2.154 p<0.05	t= 2.476 p<0.05	t= 1.715 p= 0.087	t= 0.410 p= 0.682	t=1.097 p=0.508	t= 2.505 p<0.05
Mean Difference		10.38	13.63	6.45	2.11	8.85	8.28

Source: Computed from field work data

DISCUSSION

The study was carried out to assess the prevalence of chronic morbidity among the elderly persons and to assess their Quality of Life. The most common health disorder was High Blood Pressure, followed by Cataract, Arthritis, Alzheimer, Diabetes and Teeth problem. Cataract was the most common morbidity among the aged population and prevalence of all morbidities was increased with increasing age. 1, 15

Present study indicates that the attachment with family members and get care from them have great influence on elderly persons' quality of life. Material well-being is also necessary for the standard living. Again, social Participation in the societal function and activities keeps the elderly active all the time which is indispensable for their welfare. Similar findings were obtained in the research done among the elderly in Karnataka, Tamil Nadu and northern India 16,17,18, where the highest Quality of Life score was found in the social relationship domain. The Quality of Life of female were about 6 points lower than males (p<0.001). Quality of Life of elderly males was better in general than their female counterparts 19, 20. In the present study the mean perceived quality of life score in the elderly population were found to be 64.62 ± 0.13. This was higher than the study conducted in a rural area in Tamil Nadu (49.1 ± 21.56) and rural area of Karnataka (62.1 ± 16.4) 17, 21. Again in our study mean perceived overall health status score were found to be 52.18 ± 0.16 which was higher than the study of rural area of Tamil Nadu (39.8 ± 21.56) and lower than the study of rural area of Karnataka (59.8 ± 17.4) 17, 21.

Present study depicts that as the age increases the overall Quality of Life decreases. Also, depression of ageing greatly impacts their quality of life. Young old elderly (60-69 years) had better Quality of Life score than the old-old (70-79 years) and Oldest old (80 and above) elderly 22. Elderly persons living with partner enjoyed better quality of life and happiness 16, 17, 18. Same results were also observed in our study.

Conforming to our study, quality of life was found to be significantly correlated with education 23. This might be because of better livelihood and high socio-economic condition among literate elderly persons compared to illiterate. This study also found that elderly persons those were financially independent experienced a better quality of life than those who were financially dependent on others. The maximum effect of chronic morbidities was found on economic and Health. Reduced health in the presence of morbidity lowered the quality of Life of elderly persons to a great extent 17, 20, 24.

LIMITATION

In assessing the magnitude of chronic morbidities, we depended entirely on history given by the elderly respondents. So, there could be a risk of misreporting and also under reporting of these circumstances as well. In addition, there is also an increased possibility of recall bias as this research deals with elderly population.



## CONCLUSION

It has been evident from this analysis that a large proportion of the elderly of the study area experience a medium level of Quality of Life. However urban elderly and male elderly enjoying better Quality of Life compared to rural elderly and female elderly respectively. Elderly persons in the study area who have chronic morbidities report major impairment in their quality of life. They have an impaired quality of life especially in the health-related domain followed by economic domain relative to the other three domains. To ensure prevention and early detection of chronic morbidities, consciousness among the geriatric population should be established through the promotion of frequent medical checkups. If health services are truly designed to improve of quality of life of people, Health Related Quality of Life (HRQOL) needs to be included as a regular outcome measure especially for geriatric persons having chronic morbidities.

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