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Quality of Life and Its Associated Factors: A Comparative Study among Rural and Urban Elderly Population of North India

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ABSTRACT

Introduction: Quality of life (QOL) is an important area of concern among elderly which reflects the health status and well-being of this vulnerable group of population. The present study was conducted with an objective of assessment of QOL and its associated factors among rural and urban elderly population.

Methodology: A community based cross-sectional study was conducted among 390 elderly subjects residing in rural and urban areas of Jammu. Brief version of the WHO QOL scale (WHOQOL-BREF) was used to assess the Quality of Life. Analysis of results was done using Independent sample t- test and multiple linear regression analysis.

Results: A sample of 200 rural and 190 urban elderly subjects was analysed. Overall mean score for different domains of QOL was 59.19± 11.87 with a significantly higher score for urban subjects, indicating a better QOL as compared to their rural counterparts ($p<0.05$). Presence of one or other forms of chronic morbidity was a significant determinant of QOL.

Conclusions: Morbidity status and residence emerged to be significant predictors of QOL. Policy makers should evaluate the implementation of successful programmes for the elderly, especially in rural parts of our country so as to improve their QOL.

Key words: Quality of Life (QOL), Elderly, WHOQOL-BREF, North-India

INTRODUCTION

Ageing is a universal phenomenon characterised by an increased risk of morbidity, disability, reduced functional capacity and eventually death. Due to better accessibility and availability of quality health care services, a continuous demographic transition is occurring leading to an increase in life expectancy. The proportion of people aged 60 years and above is increasing over a period of time. By 2020, for the first time in history, the number of people aged 60 years and older will outnumber the children younger than 5 years and by 2050, the world's population aged 60 years and older is expected to total 2 billion, up from 841 million today.[1] In India, the proportion of geriatric population was around 7% in 2001 which is expected to rise to 11.6% by 2026.[2] As per 2011 census, 8% of population was aged 60 years & above, 8.1% in rural settings and 7.9% in urban settings.[3] Due to epidemiologic transition, there is a shift from communicable diseases to various lifestyle disorders and chronic diseases. Elderly population especially is vulnerable to chronic co-morbid conditions, isolation, social insecurity and depression.

With an increase in life expectancy, one of the greatest challenges of public health is to improve the quality of life in later years.[4] The WHO defines QOL as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns.[5] Various socio-demographic factors like age, education, marital status, family structure, social and interpersonal factors also have an impact on overall

Quality of Life (QOL). Since QOL is a subjective phenomenon and cannot be measured directly, very few studies have been conducted in India determining the quality of life and its associated factors in geriatric population.

Objectives of this study were to assess and compare the QOL among elderly in rural and urban areas and to elicit the association of various factors with QOL.

MATERIALS AND METHODS:

Setting and Study Design: The present community based cross-sectional study was conducted from July to August 2017, in both the rural as well as urban field practice areas of PG Department of Community Medicine, Govt. Medical College Jammu. The department caters to the health services of Rural health block, R.S.Pura, through a CHC and a network of PHCs and Sub centers, whereas Urban Health Centre (UHC) caters to Trikuta Nagar ward in urban area. The study was conducted after obtaining permission from Institutional Ethical Committee of the institution.

Sample size calculation: Considering the expected Standard Deviation (SD) of QOL score in the elderly population to be 10.88[6] and allowable error 1.5% at 95% confidence interval, the minimum sample size came out to be 201 by the formula ($1.96^2\ \sigma^2/l^2$), where 'σ' is standard deviation and 'l' is allowable error. Taking 10 % as non-response rate, the final sample size was calculated as 220.

Selection of the Study Subjects: All the elderly subjects aged 60 years and above residing in the study area were eligible for the purpose of current study.

Inclusion criteria: Elderly people aged ≥ 60 years, available during the study period, willing to participate and able to answer.

Exclusion criteria: Persons with mental disability which hinders them from understanding the question and responding back, refusal to participate or, failure to keep appointment even after three attempts.

Sampling Technique: For the purpose of providing efficient health care services, RS Pura Block has been divided into eight zones. Out of all the zones, Simbal zone was selected by Simple Random sampling technique. Further, two villages Tanda and Baga Jana falling in Simbal zone were selected for the study purpose by convenience sampling method. The total population of Tanda and Bagga Jana is 1527 and 998 respectively and combined geriatric population (≥60 years age) of these two areas is about 237.

The total population catered by Urban Health Center is 11,997 and it is divided into extensions and sectors. For the purpose of study, two extensions B and D were selected randomly. The population of these two areas is 1000 and 1400 respectively and the combined geriatric population is 218.

Strategy for data collection: The local community leaders of the respective areas were approached and sensitized about the purpose of the study beforehand. All the elderly in the selected areas constituted the sampling frame. A lay out map including all households and all major landmarks in the study area was prepared, so as not to miss any hidden structures. House to house survey was done. On reaching the house a standard technique was followed which included knocking the door, introducing oneself and exchange of greetings, explaining the reason of visit and purpose of study, following this a list of eligible subjects was made. Further the participants were asked to read the consent form which was prepared in local language and in situations like not able to read due to poor eyesight or illiteracy, it was read out to them. Those who replied in affirmation, were included in the study and those who replied in negative were again requested for participation and if still not willing were excluded. Privacy during the interview was ensured by taking them in separate room.

Study Tool: The questionnaire used for the current study comprised of two parts. The first part elicited socio-demographic details while the second part was Brief version of the WHO QOL scale (WHOQOL-BREF) which is derived from the WHOQOL-100. The socio-demographic details included age, sex, education, religion, marital status, family type, financial independence and chronic illness. The WHOQOL-BREF questionnaire contains 24 items of satisfaction that are divided into four domains: Domain 1 (Physical health with 7 items), Domain 2 (Psychological health with 6 items), Domain 3 (Social relationships with 3 items) and Domain 4 (Environmental health with 8 items). In addition, there are two items that are examined separately i.e. about an individual's overall perception of quality of life and about an individual's overall perception of their health. The four domain scores denote an individual's perception of quality of life in each particular domain. All the items were rated on 5-point Likert scale. Domain scores are scaled in a positive direction i.e. higher scores denote higher quality of life. Raw scores of each domain were calculated by adding scores of individual items with in the domain and then they were transformed in scale of 0-20 and 0-100 using WHO Reference table given in manual of QOL.[7]

Statistical analysis

Data was analysed using SPSS version 20.0. The categorical variables were reported in percentages (%) while quantitative variables were presented as Mean ± Standard Deviation. Student's *t*-test was used to find out the significance of difference between the two group means. Multiple Linear Regression Analysis was performed to predict the role of most significant variables in determining the QOL scores. P value less than 0.05 was taken as significant.

RESULTS

A total of 390 persons constituted our study population, out of which 200 belonged to rural area and 190 to urban. Almost two-third of participants was in the age group of 60-70 years (66.6%), with a mean age of 67.76±7.37 years. Males constituted 51.5% of the study population with majority of the participants being Hindu (64.4%). 58.9% of participants belonged to nuclear family. As far as Literacy level was concerned, 67.2% of the study population was literate, with majority having studied up to secondary level (43.8%).

Table 1: Association of QOL scores with socio-demographic factors (n=390)

Socio-Demographic actors	N (%)	QOL Scores (Mean±SD)					
		Physical	Psychological	Social relationship	Environmental	Overall QOL	Overall Satisfaction with health
Age (Years)							
60-70	260 (66.6)	58.15±15.4	58.10±14.9	62.65±12.9	61.77±13.4	3.66±0.7	3.26±0.8
70-80	83 (21.3)	53.98±14.7	57.30±12.6	61.53±13.9	64.56±16.2	3.51±0.8	3.10±0.8
>80	47 (12.1)	51.95±13.3	46.10±16.5	56.40±14.7	59.78±15.1	3.27±0.9	2.93±0.7
P value*		**0.008**	**0**	**0.013**	0.146	**0.004**	**0.033**
Sex							
Males	201 (51.5)	60.73±15.1	60.29±14.3	62.88±12.6	64.09±14.5	3.67±0.7	3.34±0.8
Females	189 (48.5)	52.05±14.1	52.43±15.0	60.37±14.2	60.03±13.7	3.50±0.7	3.03±0.7
P value*		**0**	**0**	0.066	**0.005**	**0.033**	**0**
Religion							
Hindu	251 (64.4)	55.07±15.2	55.28±16.1	60.48±14.2	62.68±14.4	3.50±0.7	3.13±0.8
Muslim	43 (11)	59.81±15.4	60.72±15.3	63.63±11.8	61.14±17.3	3.83±0.8	3.51±0.8
Sikh	96 (24.6)	58.84±14.7	57.73±11.7	63.86±11.6	61.12±12.2	3.71±0.7	3.19±0.9
P value*		**0.038**	0.061	0.067	0.59	**0.008**	**0.025**
Type of Family							
Nuclear	230 (58.9)	55.07±15.4	56.78±14.2	61.93±13.4	62.79±14.8	3.58±0.8	3.19±0.9
Joint	160 (41.1)	57.53±15.1	56.28±15.7	61.47±13.5	61.66±13.8	3.59±0.7	3.18±0.8
P value*		0.118	0.75	0.738	0.443	0.858	0.938
Residence							
Urban	190 (48.7)	57.07±14.5	58.97±13.8	62.65±12.6	67.15±12.4	3.72±0.7	3.25±0.7
Rural	200 (51.3)	56.00±15.8	54.12±15.9	60.72±14.1	57.35±14.2	3.46±0.8	3.13±0.8
P value*		0.487	**0.002**	0.158	**0**	**0.001**	0.155
Literacy level							
Illiterate	128 (32.8)	50.16±14.7	48.83±16.3	58.60±13.9	56.34±15.0	3.36±0.8	2.95±0.8
10th pass	171 (43.8)	59.78±14.1	60.44±13.3	64.33±13.1	63.80±12.4	3.65±0.7	3.25±0.8
Higher Sec & above	91 (23.4)	59.34±15.2	59.81±12.6	60.95±12.5	67.12±13.9	3.78±0.7	3.39±0.8
P value*		**0**	**0**	**0.001**	**0**	**0**	**0**
Marital status							
Married	302 (77.4)	58.16±15.1	58.78±13.5	63.73±12.4	63.14±13.5	3.65±0.7	3.25±0.8
Single**	88 (22.6)	50.89±14.3	48.61±17.5	54.56±14.3	58.64±15.9	3.38±0.8	2.95±0.8
P value*		**0**	**0**	**0**	**0.009**	**0.005**	**0.003**
Financial dependency							
Dependent	181 (46.4)	53.66±14.6	53.65±14.3	60.26±15.2	59.89±13.7	3.48±0.8	3.05±0.8
Independent	166 (42.6)	61.17±14.4	60.92±14.4	64.49±11.4	65.97±14.2	3.76±0.7	3.29±0.9
Partially dependent	43 (11)	50.58±16.4	51.27±17.2	56.62±10.6	56.67±13.4	3.37±0.7	3.34±0.8
P value*		**0**	**0**	**0**	**0**	**0**	**0.013**
Any chronic morbidity							
Present	314 (80.5)	54.89±15.3	55.84±15.5	61.52±13.6	60.96±14.4	3.57±0.8	3.13±0.9
Absent	76 (19.5)	56.91±14.8	56.64±13.9	61.69±12.8	62.41±13.9	3.59±0.8	3.20±0.8
P value*		0.3	0.68	0.921	0.427	0.894	0.508

*Independent samples t-test/ ANOVA; ** Single means Widow, Divorced/ Living separate from spouse

Table 2: Multiple Linear Regression Analysis of QOL Scores

Associated Factors	Standardized β Coefficients	Correlations	p value
Constant			0.000
Sex	-.045	-.011	0.446
Religion	.028	.003	0.608
Residence	-.126	-.102	**0.039***
Education	-.009	.044	0.888
Type of family	.009	.047	0.858
Financial Dependence	-.105	-.086	0.054
Morbidity status	.176	.174	**0.001***
Marital status	-.047	-.048	0.366

*p value <0.05 considered as significant; R^2= 0.055

Dependent variable: Mean Total domain score

Independent variables: Sex, Religion, Residence, Educational status, Type of family, Financial dependence, Marital status and morbidity

Regarding marital status, 77.4% of subjects were currently married. 46.4% of the participants were financially dependent on their family members. In regards to chronic morbidity, 80.5% of study subjects were suffering from one or other type of disease. Age was found to be significant determinant of all the domains of Quality of Life with maximum score in the age group of 60-70 years except for environmental domain. Among gender, males were having significantly higher domain scores in comparison to female subjects. Muslim population was found to have better QOL in terms of domain scores. Urban residents were having higher domain scores as compared to their rural counterparts but the difference was statistically significant only for scores of psychological, environmental and Overall QOL. Level of literacy was again found to be significant predictor for all the domain scores. Married subjects were showing better Quality of life when compared with those who were single (divorcees, widows, unmarried or staying away from spouse due to any reason) and the difference was statistically significant.

Table 3: Comparison of Total QOL scores among different variables between rural and urban population

Variables	Rural (200)			Urban (190)			t	p value
	n	Mean	SD	n	Mean	SD		
Age (Years)								
60-70	134	58.03	10.51	126	60.95	12.21	2.069	**0.04**
70-80	41	58.99	12.75	42	58.54	12.33	-0.16	0.87
>80	25	54.36	12.67	22	58.95	13.4	1.207	0.23
Sex								
Males	93	58.19	11.45	108	59.83	12.95	0.939	0.34
Females	107	57.4	11.2		60.66	11.58		
Religion								
Hindu	98	56.83	11.99	153	60.3	12.42	2.19	**0.02**
Muslim	21	59.04	9.57	22	58.37	14.05	-0.18	0.85
Sikh	81	58.58	10.87	15	61.66	8.99	1.034	0.3
Type of Family								
Nuclear	134	57.87	10.97	96	59.32	12.66	1.812	0.07
Joint	66	57.56	12.02	94	61.06	12.03	0.929	0.35
Literacy level								
Illiterate	102	57.43	10.88	26	59	10.29	0.665	0.5
10^{th} pass	83	58.06	12.49	88	61.55	11.59	1.898	0.05
Hr.Sec & above	15	58.45	6.76	76	59	13.76	0.152	0.87
Marital status								
Married	149	57.68	10.93	153	60.78	12.24	2.321	**0.02**
Single*	51	58.03	12.43	37	57.72	12.68	-0.12	0.91
Financial dependency								
Dependent	104	58.63	12.25	77	60.91	12.32	1.235	0.21
Independent	78	58.08	9.26	88	60.01	13.16	1.079	0.28
Partially dependent	18	51.4	12.18	25	58.54	9.42	2.16	**0.03**
Any chronic morbidity								
Present	158	56.74	10.43	156	59.13	12.52	1.839	0.06
Absent	42	61.63	13.56	34	65.01	10.44	1.195	0.23
Total score	200	57.77	11.3	190	60.19	12.4	2.017	**0.04**

* Single means Widow, Divorced/ Living separate from spouse

Financial dependence was another significant predictor for domain scores, with significantly higher scores among independent subjects. (Table 1)

Table 2 shows that when different variables affecting the Quality of life were analysed using Multiple Linear Regression using Enter method, only residence and morbidity status have shown an independent association.

Table 3 depicts that when total mean scores were compared among urban and rural subjects using independent sample t test, significantly higher scores were observed in urban subjects as compared to their rural counterparts (60.19±12.4 vs 57.77±11.3). Statistically significant differences among residence were observed in subjects of 60-70 years age group, Hindus, married subjects and those who were partially dependent on their family in terms of financial aspects.

DISCUSSION

Quality of Life (QOL) among elderly is a neglected issue especially in developing countries including India. Keeping this in mind, the present study was designed and conducted to assess QOL in rural and urban elderly population and to determine the association of various factors. Total overall mean score for all domains of QOL was 59.19± 11.87 which was almost comparable with study conducted by Kritika et al in Dehradun.[8] Mean scores for physical, Psychological , Social relationship and Environmental domains were 56.52±15.23, 61.66±13.46, 56.48±15.15 and 62.13±14.25 respectively, with a maximum score in environmental domain, the findings supported by Praveen V et al.[9] Mudey *et al* in their study concluded that the QOL of rural elderly population was better in physical and psychological domain, whereas QOL in urban slum elderly was better in social relationship and environmental domain.[10] However in a study conducted by Shah VR et al, mean score of social domain was maximum (69.4 ± 9.7) with lowest mean score (57.6 ± 10.0) for environmental domain.[11]

In the present study, mean age of the study participants was 67.76 ± 7.37 years. Mean scores for all the domains were significantly higher for 60-70 years old age group except for environmental domain. Similar findings have been reported by Mudey A et al in study conducted in Maharashtra.[10] Males enjoyed a better QOL by showing significantly higher domain scores as reported by other studies also.[12-13] In studies conducted by Barua A et al[14] and Bishak YK[15], males scored higher than females but without any statistical difference. However, Praveen V et al in their study reported a lower mean score for males.[9]

Urban geriatric population in the current study, had higher scores for all the domains as compared to rural geriatric population but a significant difference was elicited for Psychological & Environmental domains. Comparable results have been shown by other studies conducted in different parts of India.[10,12] This difference can be attributed to difference in their lifestyle and socio-demographic factors.

Married subjects in the present study enjoyed a better QOL in terms of higher domain scores as compared to singles (widow, divorcees or living separate from spouse due to any reason) and the difference was statistically significant. Elderly married living with their spouse is being cared in a better way, which explains their better QOL. Barua A et al also observed in their study on geriatric population that currently married had better quality of life.[16] However in a study conducted by Saxena S et al, those living as single scored higher scores than married in all the domains except the social relationship.[17]

Literacy play a major role in predicting QOL as illiterate scored least in all the domains and this relationship was significant for all domains of QOL. Literates have better understanding of their ageing process and better accommodate to lifestyle changes. These findings were concurrent with other studies.[17-18] But Barua et al did not find any significant association between education and QOL.[14]

Similar to the findings of Hameed S et al[19], we did not find any significant association between the type of family and QOL. Other studies done in different parts of India by Kumar GS et al[20], Sowmiya KR et al[21] had showed that the elderly living in joint families had better QOL than those living in nuclear families. Living in a nuclear family or a joint family has its own advantages and disadvantages. So, QOL depends more on the warmth of relationship with family members rather than the type of family alone.

Financially independent subjects were spending a significantly better Quality of life as compared to their counterparts, the findings supported by Kritika et al.[8] Financial independency brings the power of autonomy and opportunities to fulfil the needs in an independent way. Presence of Chronic morbid conditions also determine QOL as illustrated in other studies.[21]

CONCLUSION

Elderly residing in urban areas had shown comparatively better QOL which can be attributed to difference in their lifestyle and easy accessibility and

availability of health services. Morbidity status emerged to be other significant predictors of QOL. Although the process of ageing, disorders and disabilities of old age cannot be totally prevented, suitable measures can be taken that would retard this progress thereby preserving their quality of life. Policy makers should evaluate the implementation of successful programmes for the elderly in our country.

Limitation

Convenience sampling technique with a smaller sample size and cross-sectional nature of data limit the generalization of results in wider population. Unknown confounders might have affected the results because of multidimensionality of QOL.

Relevance

Limited evidence is available in literature on comparison of QOL among rural and urban population, so the study is relevant to the future researchers. The findings of the study are also of relevance to administrators and health programme planners who are dealing with elderly population to develop strategies for their healthy and active ageing.

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