



QUALITY OF LIFE USING WHOQOL-BREF AMONG ELDERLY IN A RURAL FIELD PRACTICE AREA OF A TERTIARY CARE CENTER, SOUTH TAMILNADU

Community Medicine

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ABSTRACT

Introduction: Quality of Life (QOL) among elderly is a neglected issue especially in developing countries and is an essential area to explore as it represents their health and well-being. **Methodology:** A community based cross-sectional study was conducted among 230 elderly subjects in rural field practice area. Informed consent obtained from the participants. Data on QOL was assessed using the WHOQOL-BREF. Data on socio-demographic factors and chronic morbid conditions were obtained using a pretested semi-structured questionnaire. Collected data was analysed using scoring instructions recommended by WHO. Univariate and multivariate analysis were used to find the significant factors associated with QOL. **Results:** In physical domain, 64% had good QOL scores. In psychological domain, 57.4% had good QOL scores. In environmental domain, 54.6% had good QOL scores. In the social domain, only 20.4% had good QOL scores. Education had significant association with social domain and marital status had significant association with environmental domain ($p < 0.001$). **Discussion:** Our study revealed that age, marital status, and education determined the QOL of the elderly, in line with findings from similar studies. We observed a negative linear relationship between age, literacy, comorbidities and QOL, reinforcing findings from previous research. Similarly, other studies have found that the elderly have better QOL score in physical health domain, like our study. **Conclusion:** More than half the study participants had good QOL. Comorbidities and literacy levels were significant predictors of QOL.

KEYWORDS

Quality of life, Geriatric, WHO-BREF

INTRODUCTION:

Aging leads to an increased risk of disease, disability, decreased functional capacity and eventually death. It affects every individual, family, community, and society.(1) Quality of Life comprises an individual's physical health, mental health, level of independence, environment, and other factors. WHO has defined quality of life 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". QOL among geriatric population is an area of concern as it reflects their health status and overall well-being of this vulnerable group. Globally, the geriatric population has increased from 8% in 2012 to 8.5% in 2015. It is expected to rise to 22% in 2050. In the year 2015, there were an estimated 617 million old persons in the world, of which 400 million were living in low-income countries.(2) As per the Technical Group on Population Estimates for India and States 2011–2036, an increase of nearly 34 million elderly people was seen in the year 2021 when compared to Population Census conducted in 2011 which is further anticipated to increase around 56 million in 2031.(3)

In developing countries, demographic transition will result in increasing life expectancy thus increasing the proportion of elderly population in near future.(4) For India, the population of above 60 years was around 7% in 2001, which is expected to rise to 11.6% by 2026.(1) Currently epidemiological transition of diseases along with increase in burden of chronic diseases driven by population ageing will affect the QOL of elderly population. Improving the quality of life of the geriatric and promoting their social participation still poses a major public health challenge even in the twenty-first century.

In the above context, it is imperative to analyse the QOL and its associated factors among this vulnerable population so that effective measures to improve the QOL can be implemented at community level.

OBJECTIVES:

1. To study the QOL among elderly population in rural field practice area Chenbagaramanputhooor, Kanyakumari Government Medical College using WHO-BREF scale.
2. To associate sociodemographic variables with QOL.

MATERIALS AND METHODS:

Type of study: A community based cross-sectional study.

Study setting: Rural field practice area, Chenbagaramanputhooor, Kanyakumari district.

Study population: Elderly (60 years and above)

Sample size:

Assuming an expected population standard deviation (σ) of 12.59 according to the study by S. E. Thadathil et al(5) in Kerala and a margin of error (E) of 1.75, the sample size was calculated to be 198 according to the formula $(Z_{\alpha/2} * \sigma / E)^2$. With 10% non-response, the corrected sample size was 216.

Sampling technique:

Systematic random sampling was followed. According to Census data, there are 2131 households in Chengabaramanputhooor. The sampling interval was calculated to be $2131/216=9$. A random start was identified using the random number table and every 9th household was sampled till the desired sample size was reached. In case eligible participants were not residing in the household, the next eligible household was identified.

Study tools:

WHO Quality of Life BREF (WHOQOL-BREF) which was translated to Tamil and then, back translated to English to assess the liability of the instrument. Pilot-test was done before the survey.

WHO-BREF scale consist of FOUR DOMAINS namely physical, psychological, social and environment domains with a total of 26 questions. Each domain consists of multiple facets which were rated on a 5-point Likert scale with higher scores indicative of higher QOL. The raw scores were calculated for each domain and negatively worded questions were reverse coded. The raw scores were transformed to a score with a range between 0 and 100, with higher scores indicative of higher QOL.(6)

The components included in various domains were as follows: Physical domain includes mobility, daily activities, functional capacity, energy, pain, and sleep. Psychological domain includes self-image, negative thoughts, positive attitudes, self-esteem, mentality, learning ability, memory concentration, religion, and the mental status.

Social domain includes questions on personal relationships, social support, and sex life. Environmental domain includes safety, health and home environment, financial resources for needs, opportunities to acquire new skills and knowledge, recreation, general environment (noise, air pollution), access to health and transport facilities.

A pretested semi-structured questionnaire was used to obtain data on socio-demographic factors and chronic morbid conditions. An association between variables and poor quality of life was significant if the p value was less than 0.05.

Ethical considerations:

Institutional ethical committee clearance was obtained. Informed consent was obtained from the participants after explaining the purpose of the study.

Statistical Analysis: Data was collected using Google Forms and exported to MS Excel.

T-test and one way ANOVA were applied to test the association between the explanatory variables and mean domain scores. Multiple linear regression analysis was done to assess the significant predictors of QOL. Data analysis was done using R version 4.

RESULTS

The study findings are as follows:

Table 1: Sociodemographic characteristics of study participants

Variables		Frequency	%
Gender	Male	94	43.51%
	Female	122	56.48%
Age group	Up to 70	116	53.70%
	>70	100	46.30%
Education	Illiterate	44	20.37%
	Literate	172	79.62%
Marital status	Single	18	8.33%
	Married	102	47.22%
	Widowed/Divorced/Separated	96	44.44%
Co-morbidity	None	78	36.11%
	1	108	50%
	>1	30	13.88%

As seen in table 1, the proportion of females were more than the males in our study population. Those in the older age group 70 years and above were more compared to those between 60 to 69 years of age. Nearly 80 percent were literate. The proportion of those who were currently residing with their spouse and those who were separated/ widowed were 47.22% and 44.44% respectively. Around half of the study population had one co-morbidity, one-third did not have any co-morbidities whereas the rest had multiple co-morbidities. The most common co-morbidities are Hypertension and Diabetes depicted in figure 1.

Table 2: QOL scores of study participants

WHOQOL-BREF Domains	Mean $\pm$ SD	Median (IQR)	Good QOL n(%)
Physical health	48.44 $\pm$ 12.69	46.42 (14.29)	138(63.9%)
Psychological health	46.21 $\pm$ 14.82	45.83 (15.63)	124(57.4%)
Social relationships	47.37 $\pm$ 17.44	50 (16.67)	44(20.4%)
Environment	48.78 $\pm$ 17.70	46.87 (17.19)	118(54.6%)
Mean QOL score	47.70 $\pm$ 13.86	47.22 (14.74)	114(52.77%)

The QOL scores of the study participants are summarized in table 2. As there is no cut-off for the QOL scores, the median score was used to classify the study participants into GOOD QOL (>50th percentile) and poor QOL (<50th percentile). As seen in table 2, majority of the study participants had good QOL scores falling above the 50th percentile.

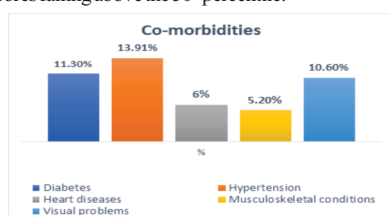


Figure 1: Co-morbidities among study participants

Table 3: Factors associated with QOL scores – Univariate analysis.

Variables		QOL domain mean score $\pm$ SD				
		Physical	Psychological domain	Social relations	Environment	Mean QOL score
Gender	Male	47.26 $\pm$ 13.43	44.94 $\pm$ 16.95	48.04 $\pm$ 17.89	46.34 $\pm$ 19.14	46.65 $\pm$ 15.2
	Female	49.35 $\pm$ 12.07	47.19 $\pm$ 12.93	46.85 $\pm$ 17.15	50.66 $\pm$ 16.35	48.5 $\pm$ 12.74
p value from t test		0.23	0.269	0.62	0.075	0.327
Age group	Up to 70	50.12 $\pm$ 4.86	47.7 $\pm$ 16.48	46.33 $\pm$ 13.2	47.25 $\pm$ 14.29	49.05 $\pm$ 16.15
	>70	46.5 $\pm$ 9.29	44.5 $\pm$ 12.49	50.10 $\pm$ 20.16	49.05 $\pm$ 16.15	46.14 $\pm$ 10.49
p value from t test		0.036	0.114	0.416	0.238	0.125
Education	Illiterate	43.99 $\pm$ 11.18	39.39 $\pm$ 11.34	36.74 $\pm$ 16.98	45.31 $\pm$ 15.94	41.36 $\pm$ 11.37
	Literate	49.58 $\pm$ 12.83	47.96 $\pm$ 15.13	50.09 $\pm$ 16.54	49.67 $\pm$ 18.06	49.32 $\pm$ 14.01
p value from t test		0.009	0.001	<0.001	0.145	<0.001
Marital status	Single	46.82 $\pm$ 22.61	43.05 $\pm$ 17.5	45.37 $\pm$ 19.84	39.23 $\pm$ 24.63	43.62 $\pm$ 20.19
	Married	50.28 $\pm$ 11.23	48.44 $\pm$ 13.59	50 $\pm$ 16.58	51.04 $\pm$ 15.75	49.94 $\pm$ 12.51
	Widowed/Divorced/Separated	46.8 $\pm$ 11.49	44.44 $\pm$ 15.35	44.96 $\pm$ 17.66	48.17 $\pm$ 17.72	46.09 $\pm$ 13.59
p value from ANOVA		0.133	0.105	0.112	0.029	0.063
Co-morbidity	None	56.59 $\pm$ 13.26	56.19 $\pm$ 16	55.34 $\pm$ 20.14	57.85 $\pm$ 18.85	56.49 $\pm$ 15.5
	1	44.17 $\pm$ 9.55	40.27 $\pm$ 10.41	43.82 $\pm$ 14.06	45.31 $\pm$ 14.49	43.39 $\pm$ 9.53
	>1	42.61 $\pm$ 10.48	41.66 $\pm$ 11.37	39.44 $\pm$ 12.93	37.7 $\pm$ 14.56	40.35 $\pm$ 10.92
p value from ANOVA		<0.001	<0.001	<0.001	<0.001	<0.001

As seen in table 3, univariate analysis was performed to study the significant associations between various socio-demographic, health related factors with QOL scores. Gender was not found to have a significant relationship with all the individual domains as well as the overall QOL scores. Age above 70 was found to be associated with a significantly lower QOL score in the physical domain alone. Illiteracy was also associated with overall lower QOL scores as well as the individual domains except environmental domain. Marital status was found to be significantly associated with lower QOL scores in the environmental domain alone. The most-significant associated factor with lower QOL scores was the presence of co-morbidities. Multiple co-morbidities were highly significantly associated with lower QOL scores in all individual domains in addition to the overall QOL scores.

Table 4: Predictors of QOL

Linear regression Dependent variable: Mean QOL score		Standardized Coefficients		t	Sig.
		Beta			
(Constant)	39.557	5.496		7.198	0.000
Gender	1.353	1.701	0.048	0.796	0.427
Co-morbidities	-9.224	1.230	-0.447	-7.501	0.000
Education	8.302	2.033	0.242	4.083	0.000
Marital status	0.891	1.420	0.041	0.628	0.531
Age	-2.605	1.737	-0.094	-1.500	0.135

After performing univariate analysis, linear regression was performed to assess the association of factors after adjusting. In multivariate analysis, only co-morbidities and educational status were found to be significantly associated with lower QOL scores after adjusting for other factors.

DISCUSSION

As per our study, those in the age group 70 years and above were more compared to those between 60 to 69 years of age. A study by Abishek et

al(7) found the mean age of participants as 71.23 ± 7.60 years which was in contrast to the studies done by Devraj *et al*(8) and Praveen *et al*(9) where the mean age of study participants was 65.59 ± 6.53 and 66.33 ± 6.7 years, respectively. Our study revealed a negative linear relationship between age and QOL. As age increases, health related QOL decreases which can be explained by the effect of chronic conditions among older people. It was found that the age group between 60 and 69 years had statistically significant better QOL scores in all the four domains. Similar results were revealed in the studies conducted by Kumar *et al*(10) and Sivapragasam *et al*(11) in Puducherry and Devraj, D Mello *et al*(8) in urban areas of Mangalore, Karnataka. Factors such as age of the individual had a statistically significant association with QOL of the elderly ($P < 0.001$) in our study. On the contrary, study by Low *et al*(12) from developed nations did not confirm any relationship between age and QOL.

Around two-thirds (67%) of the study participants reported history of comorbidity in our study. Half of the study population had one comorbidity, whereas the rest had multiple co-morbidities which is comparable to study by Abishek Singh and Palaniyandi(7) in rural areas of Uttar Pradesh where 67.7% of elderly gave history of chronic morbidity. Common co-morbid conditions reported were hypertension, diabetes followed by visual problems, musculoskeletal disorders and heart diseases which can be compared with findings of Ganeshkumar *et al*(10) in urban Puducherry where 42.3% were hypertensive, 35.3% had musculoskeletal disorders, 30.7% had low vision and 25.3% had diabetes. Presence of multiple comorbidities affect QOL scores in all domains and overall QOL scores with high statistical significance as observed in other studies.

QOL scores were higher among elderly with higher literacy level or vice versa.(10) In our study, 80% were literates and those with high literacy rates were found to have good QOL scores in all domains comparable to studies conducted by Sowmiya *et al*(13) in Mettupalayam, a rural area in Tamil Nadu which showed that literate elderly had better mean QOL domain scores than the illiterates. Education levels that increased self-esteem were found to be significantly associated with QOL in the Zin PE *et al*(14) and study by Ghosh *et al*(15) also revealed the similar findings whereas a study by Soren and Santhoshkumar(16) in Jharkhand, education had influenced only the physical domain scores.

In the present study, the marital status of elderly was also significantly associated with QOL scores when compared to unmarried or divorced or widowed and similar pattern was observed in the studies done by Brajesh *et al*(17) and Bansal *et al*(18) in Uttar Pradesh and Dasgupta *et al*(19) in West Bengal where staying with partners was found to be significant determinant of better QOL. On the contrary, a study by Varghese *et al*(20) in Kerala found there was no association found between QOL of the elderly people and their marital status. Marital status was found to be significantly associated with lower QOL scores in the environmental domain ($p < 0.001$)

Our study found that 64% had good QOL scores in physical domain, 57.4 % had good QOL scores in psychological domain, 54.6% had good QOL scores in environmental domain but only 20.4% had good QOL scores in social domain. Mean QOL score was $47.70 (\pm 13.86)$. Social domain of QOL showed below average score as comparable to study by Ganesh Kumar *et al*(10) in Urban Puducherry. On the contrary, the study by Soren *et al*(16) in Jharkhand found that the social domain of quality of life had the highest mean score of $58.23 (\pm 21.216)$ and the environmental domain had the lowest mean score $46.42 (\pm 14.101)$ in contrast to our study. Barua *et al*(21) have shown higher mean scores of social relationship domain when compared to our study, while the other domains namely physical, psychological and environmental were found to be comparable. A study by S. E. Thadathil, R. Jose and S. Varghese(5) in Kerala has shown that the elderly had better QOL score in Physical domain compared to other domains.

A study by Ganeshkumar *et al*(10) in Urban Puducherry witnessed the negative linear relationship between age, literacy, comorbidities and QOL similar to our study.

After univariate analysis, age was found to be associated with a significantly lower QOL score in the physical domain alone. Illiteracy was also associated with overall lower QOL scores as well as the individual domains except environmental domain. Marital status was

found to be significantly associated with lower QOL scores in the environmental domain alone. The most-significant associated factor with lower QOL scores was the presence of co-morbidities. Multiple co-morbidities were highly significantly associated with lower QOL scores in all individual domains in addition to the overall QOL scores. In multivariate analysis, only co-morbidities and educational status were found to be significantly associated with lower QOL scores.

CONCLUSION

More than half the study population showed good QOL scores in all domains except social domain. Comorbidities and literacy levels were significant predictors of QOL.

Recommendations

Elderly need the support from the family and social circle which could help in improving the QOL and help them to lead a physically, socially, and economically productive life. Health education can be implemented in the form of social support groups for elderly with focus group discussion along with a psychologist or counsellor to identify the gaps in their QOL domain so that possible measures can be taken to address them.

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