A Cross sectional study about the quality of life among the elderly population in rural Puducherry

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Abstract
Introduction: Quality of life in elderly population of rural area is a neglected area in developing country. This study aims to assess the quality of life and its associated factors among elderly population residing in rural areas.
Materials and Methods: A community based cross sectional study was conducted among 221 elderly people from five villages in the catchment area of Sri Lakshmi Narayana Institute of Medical Sciences using Systemic Random sampling technique from March 2019 to June 2019. Quality of Life Scale developed through the World Health Organization (WHOQOL BREF) was used to collect data about quality of life, and sociodemographic details were also collected. The collected data were analyzed by SPSS version 21 and P<0.05 was considered statistically significant.
Results: The mean age of our study population was 69.74±8.43, with males around 46.2% and females around 53.8%, around 80.1% illiterate and 76.92% belonging to socioeconomic class V. The overall QOL score of each domain were Physical domain 35.82±11.97, psychological domain 41.65±13.27, social 33.57±17.26, and environmental domain was 46.24±11.24. Musculoskeletal disorder was associated with physical and social domain scores and Diabetes status was associated with social domain scores. Education status and marital status was significantly associated with each domains
Conclusion: The study revealed environmental domain had higher QOL score and physical and social domain QOL scores were equally less. Newer policies and improvised programs should be considered to enrich the quality of life in elderly people of rural community. Further in depth studies can help to assess further more influential factors affecting QOL in elderly.

Keywords: Quality of life, Elderly, Rural population, Geriatric.

Introduction
Aging is a biological process characterized by gradual changes in metabolic activity of organs and disability in regeneration capacity of cells. WHO report says, more than 600 million elderly individuals are living worldwide and this number will be doubled by 2025 and will be 2 billion by 2050.[1] In India, the percentage of elderly individual's population was 103.9 million in rural India in 2011. This is expected to increase from 103.9 million to 324 million by 2050.[2,3] Chronic non communicable diseases like diabetes mellitus, coronary heart diseases, osteoporosis and cerebrovascular are most common diseases in elderly people. These leads to medical, social and psychological problems which can decrease motor functions and the quality of life in elders in the community. Poor economic, cultural, education, inadequate social interactions can also result in poor quality of life in elderly people. According to WHO statements, quality of life is defined as an individual's perception of their situation in life in the context of the culture and values systems in which they live with interconnection to their goals, expectations, standards and concerns. In addition, quality of life is described as a wellness which is combination of physical, functional, emotional and social factors.[1,2] Newer evolution of medications trying to improve life expectancy by not just adding number of years but also increasing quality of life to years. Very few studies were conducted to assess the quality of life in elderly people of rural population[4.] WHO-QOL is a known and acceptable generic instrument to measure quality of life for cross-cultural comparison and available in more than 40 countries.[2,3,5] The tamil version of WHOQOL-BREF has been recognized to be valid and reliable in the assessment of quality of life in our study individuals.[2,3]

Objective
To assess the quality of life in elderly population of rural Puducherry and factors associated with it.

Materials and Methods
Study Design
We have conducted a community based cross sectional study.

Study Setting and Study Period
Our study was conducted from March, 2019 to June, 2019 in the catchment area around Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry

Sample Size Calculation
Considering the expected Standard Deviation (SD) of the QOL score in the elderly population as 10.11[2] and tolerable error as 1.4 at 95% confidence interval, minimum sample size was found to be 201 After adding a non-response rate of 10%, total sample size became 221.

Sampling Technique
There are 36 villages in Villianur commune panchayat according to census 2011 with population of 34,383[6]. Five villages were chosen out of 36 villages by systematic random sampling. The chosen villages are Koodapakam,

Ossudu, Thondamanatham, Sedarapet and Katteri. 44 samples from each village. These 44 samples were selected using simple random sampling method using computer generated random number.

Study Population

Inclusion Criteria

1. Male and female aged 60years and above
2. People living in village for past 5 years
3. People available at the time of the survey and willing to participate voluntarily
4. People who are apparently healthy, independent, mobile, and were able to communicate verbally

Exclusion Criteria

1. People living in urban area
2. Alcoholics
3. People with Chronic Obstructive Pulmonary Disease(COPD)
4. People diagnosed with dementia
5. People diagnosed with psychiatric disorders such as depression, bipolar affective disorder and schizophrenia
6. People diagnosed with neurological disorders such as stroke and aphasia
7. People diagnosed with fractures and amputations

Software Used

The collected data were entered into a Microsoft Excel 2013 (Office 365, Microsoft Company Ltd., USA) and were analyzed using statistical software SPSS 21 version (IBM SPSS software, USA).

Statistical Methods Used

Mean, standard deviation and proportions were used for descriptive datas. Independent t test and ANOVA was used to find the association between sociodemographic variables and various domains of WHO-QOL BREF.

Study Tool and Data Collection Instruments:-

The first part of the questionnaire contained the details regarding sociodemographic variables like age, gender, occupation, education, family type, marital status, family income. BG Prasad socioeconomic scale[7] was used to determine the socio economic status. WHO-QOL BREF[8] questionnaire was used to assess the Quality of life in elderly. The questionnaire contains four domains i.e physical health questions as domain one, psychological health related questions domain two, social health related questions as domain three and environmental health related questions as domain four with a total of 26 questions on a five point likert scale. As guided by the WHO-QOL BREF questionnaire module 25 raw scores from each domain were calculated by adding score of single item, and it was then transformed to a score ranging from 0-100 in which 100 is the highest score and 0 is the lowest score. The mean score of various domains with total score and average score was calculated. The WHO-QOL BREF questionnaire was translated to vernacular language (tamil) and then back to English and Cronbach's Alpha was calculated (value was found to be 0.798) for assessing reliability of the instrument.

Method of Data Collection

The study subjects were interviewed in their homes by trained interns after getting informed consent. The sociodemographic variables and WHOBREF QOL was used to collect data from them under the supervision of the investigators.

Ethical Considerations

Scientific and ethical approval was taken from the Institutional Ethics Committee, of Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry before conducting the present study. We explained about our study and its importance to the participants in vernacular language, Tamil. Anonymity and confidentiality were ensured throughout the study.

Results

In our study around 54.75% were between 60 to 69yrs and 45.24% were ≥70yrs, 46.2% were males and 53.85 were females with majority of them are illiterate 80.1% and 71.9% belonged to nuclear family as shown in Table 1.Some of the elderly people like 29.4% were farmers, and 16.7% working as coolie. Around 74.2% were living with their partners and 22.2 % were widower. Majority of them belonged to Socioeconomic status V like 76.92% in our study.

Table 2 in our study shows the association between sociodemographic factors and WHOQOL score of various domains. Elderly people <70 yrs showed better QOL scores when compared to individuals who are above 70 yrs. Male gender showed better QOL score in physical domain when compared to female. The physical domains scores were significantly associated with independent variables like age, education status, occupation, marital status and socioeconomic status. Likewise low psychological domain score was associated significantly with age, religion, education status, and socioeconomic status but low social domain score were associated with religion, education, marital status, family type and socioeconomic status. Environmental domain score was significantly associated with all independent variables except gender and family type. The highest score was seen in environmental domain in SES II. As majority of them belonged to SES V most of their domain scores were low.

Table 3 shows the overall mean score in all domains that is, highest mean QOL score 46.24±11.24 was seen in environmental domain and lowest was seen in social domain that is 33.57±17.26, rest of the two domains like physical domain score was 35.82±11.97 and psychological domain score was 41.65±13.27.

Table 4 shows the association between QOL domains and morbidity status. Physical domain score was significantly associated with presence of musculoskeletal disorder and low vision. Social domain score was significantly associated with musculoskeletal disorder and

diabetic population. The overall QOL scores in each of the domains was higher in the subjects who had at least one of the comorbidities.

Discussion

The study included 221 elderly people from 5 villages around villianur commune and only 11.31% were satisfied with their quality of life and rated their quality of life as good and 53.84 quoted as dissatisfied with their health status of life. Similarly a study done by Missiriya[9] in Thiruvellore showed similar results 48.3% were dissatisfied with their health status. In our study, majority were in the age group of 60 to 69yrs (54.75%) and low physical domain scores were associated with age, education, occupation, marital status and comorbidities like musculoskeletal disorder and vision impairment in Table 2 and the lowest score was seen in separated elderly populations' social domain score 21.83±16.70. Likewise a study done by Thadathil et al[10] in rural setting of Kerala showed similar association independent variables with physical domain QOL scores. But the overall mean score of physical domain was 42.44±20.95 and social relationship was 42.16±23.09 whereas our study showed low overall physical domain score as 35.82±11.97 and social relationship domain 33.57±17.26 in table 3, Likewise a study done by Shahul Hameed et al[11] showed physical domain score as 63.5±12.2 and social relationship domain 61.7±11.2 these differences may be due to the geographical variation and cultural variation. A study done by Syed Qadri et al[12] in Kashmir showed an overwhelming 68.2% enjoyed good quality of life whereas our study showed only 11.31% as good quality of life due sociodemographic and geographical variation.

A study done by Mohammad Abbas Uddin[13] from Bangladesh showed social domain score and association between QOL score and education status similar to our study. In our study presence of diabetes showed association with low social domain QOL scores and presence of musculoskeletal disorder is not associated with psychological domain in table 4 whereas a study done by Kumar et al[3] in urban population of Puducherry showed that diabetes is associated with low physical domain QOL score and presence of musculoskeletal disorder and psychological domain score. This difference is due to the change in study setting because our study is based on rural population and their study was based on urban population. Abhay Mudey et al[14] did a study in Wardha district of Maharashtra comparing urban and rural elderly population and showed that association between literacy and low physical and psychological domain scores which is statistically significant similarly in our study. Table 2 shows statistically significant association between education and low mean QOL scores in all domains. Elsous et[15] conducted a community based study in Gaza strip which showed association between mean QOL score and education, marital status, comorbidities and income. Similarly our study showed association between low mean QOL scores in education, marital status, socioeconomic status and comorbidities like musculoskeletal disorder diabetes and impaired vision (Table 2 and 4).

Table 1: Distribution of participants according to sociodemographic characteristics

S. No.	Sociodemographic characteristic	N=221	Frequency %
1.	**Age group in yrs**		
	60 to 69	121	54.75
	70 and above	100	45.24
2.	**Gender**		
	Male	102	46.2
	Female	119	53.8
3.	**Education**		
	Illiterate	177	80.1
	Literate	44	19.9
4.	**Religion**		
	Hindu	205	92.8
	Christian	9	4.1
	Muslim	7	3.2
5.	**Type of family**		

	Nuclear	159	71.9
	Joint	8	3.6
	Three generation	52	23.5
6.	**Occupation**		
	Farmer	65	29.4
	Coolie	37	16.7
	Unemployed	56	25.3
	Housewife	55	24.9
	Security	8	3.6
7.	**Marital status**		
	With partner	164	74.2
	Single	2	0.9
	Widow	49	22.2
	Separated	6	2.7
8.	**Socioeconomic status**		
	>7008	2	0.9
	3504-7007	9	4
	2102-3503	9	4
	1051-2101	31	14
	≤1050	170	76.92

Table 2: Comparison of WHO QOLBREF domain score with sociodemographic factors (n=221)

S. No.	Sociodemographic characteristic	Physical health domain Mean±SD	Psychological health domain Mean±SD	Social relationship domain Mean±SD	Environmental health domain Mean±SD
1.	**Age(years)**				
	60 to 69 yrs	38.07±12.12	44.28±13.93	34.48±17.80	49.10±11.40
	≥70 yrs	33.09±11.25	38.46±11.71	32.46±16.60	42.77±10.06
	P	0.00	0.00	0.38	0.000
2.	**Gender**				
	Male	37.03±11.28	41.28±13.49	34.70±15.30	46.58±9.83
	Female	34.78±12.48	41.96±13.13	32.60±18.78	45.94±12.36
	P	0.16	0.70	0.36	0.67
3.	**Religion**				

	Hindu	35.86±11.92	41.29±13.01	33.60±16.93	45.99±11.16
	Christian	29.33±11.63	40.44±9.38	21.44±20.74	43.89±12.85
	Muslim	43±10.90	53.71±20.63	48.29±11.35	56.43±6.5
	P	0.07	0.04	0.00	0.04
4.	**Education**				
	Illiterate	34.62±11.63	40.25±12.93	32.40±17.28	44.91±10.48
	Literate	40.64±12.25	47.25±13.29	38.25±16.53	51.57±12.65
	P	0.00	0.00	0.04	0.000
5.	**Occupation**				
	Farmer	39.49 ±10	39.69±14.43	38.68±16.77	46.26±9.3
	Coolie	32.54 ± 11.77	38.46±12.54	28.84±16.73	43.30±8.5
	Unemployed	32.34 ± 13.19	42.68±13.05	32.27±16.77	45.04±13.26
	Housewife	36.85 ± 11.70	43.84±11.19	32.02±18.07	47.75±10.95
	Security	38.38 ± 12.57	50 ±17.38	33.63±15.03	57.63±16.58
	P	0.005	0.07	0.05	0.01
6.	Marital status				
	With partner	37.63±11.35	42.55±12.71	36.90±15.23	47.44±10.81
	Single	44.00±8.48	31.50±9.19	34.50±21.92	44.00±8.48
	Widow	29.45±11.68	39.04±13.98	23.82±19.66	42.35±12.35
	Separated	35.50±15.82	41.67±21.34	21.83±16.70	45.83±8.54
	P	0.000	0.28	0.000	0.04
7.	Type of family				
	Nuclear	34.90±11.90	41.28±13.69	33.41±17.96	45.87±10.95
	Joint	42.38±12.16	37.50±11.57	54.00±10.01	41.75±11.09
	Three generation	37.67±12.07	43.44±12.40	31.48±13.67	48.12±12.23
	P	0.10	0.40	0.00	0.24
8.	Socioeconomic status				
	>7008				
	3504-7007	41.00±4.24	31.50±26.16	34.50±21.92	50
	2102-3503	46.67±12.30	49.33±12.60	42.44±8.77	61.56±9.20
	1051-2101	32.67±9.81	41.11±11.49	35.33±14.76	46.67±11.21
	≤1050	40.55±11.75	50.68±13.95	34.65±15.07	53.48±10.67
	P	34.49±11.71	39.74±12.40	32.79±18.04	44.04±10.35

		0.00	0.000	0.57	0.000

Table 3: Overall Who QOL BREF score in all domains

Domain	Mean± SD
Physical	35.82±11.97
Psychological	41.65±13.27
Social	33.57±17.26
Environmental	46.24±11.24

Table 4: Association between QOL domain and morbidity status

S. No.	Morbidity status	Physical domain	Psychological domain	Social domain	Environmental domain
1.	Musculoskeletal disorder				
	Yes(166)	34.73±11.87	41.51±12.88	31.09±16.16	45.85±10.72
	No(55)	39.09±11.77	42.05±14.48	41.04±18.43	47.40±12.72
	P	0.01	0.79	0.000	0.37
2.	Hypertension				
	Yes(60)	33.53±11.17	41.67±13.16	33.93±16.94	46.90±10.43
	No(161)	36.67±12.18	41.64±13.35	33.43±17.42	45.99±11.55
	P	0.08	0.98	0.84	0.59
3.	Diabetes				
	Yes(48)	33.56±11.57	43.46±12.51	38.02±17.36	47.48±10.52
	No(173)	36.45±12.04	41.14±13.46	32.33±17.07	45.89±11.44
	P	0.14	0.28	0.04	0.38
4.	Low vision				
	Yes(104)	34.11±12.11	40.43±12.39	32.13±17.44	45.01±11
	No(117)	37.34±11.68	42.73±13.96	34.84±17.07	47.32±11.38
	P	0.04	0.2	0.24	0.12
5.	Hearing Impairment				
	Yes(34)	32.47±11.53	42.35±11.55	30.32±22.08	44.85±10.68
	No(187)	36.43±11.98	4152±13.58	34.16±16.23	46.49±11.35
	P	0.07	0.73	0.23	0.43

Conclusion

The present study revealed that the social relationship domain had lower mean QOL score in comparison to other domains, and physical domain mean QOL scores was also affected in late elderly. But we find that, the declined social relationship health scores due to nuclear family type and physical health scores in our study. These can be re addressed with other methodology like qualitative research. This may be because of socio-demographic factors, comorbidities, family union, social resources, life style behaviors and financial resources

Limitations

There may be subjective bias introduced during the interview. Under reporting of underlying medical conditions. But this community based cross sectional study gives valuable information on the quality of life and its associated factors

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Conflict of Interest: None.

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