A CROSS-SECTIONAL STUDY ON QUALITY OF LIFE AND ITS DETERMINANTS, AMONG ELDERLY PEOPLE, LIVING IN FIELD PRACTICE AREA OF A PRIVATE MEDICAL COLLEGE IN TAMIL NADU

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Abstract

Background: Population ageing is the increase in median age due to declining fertility rates and longer life expectancy. In India, this shift has occurred rapidly, especially in Tamil Nadu, which has a significant elderly population. Studies show rural elders often have lower education, socio-economic status, and face challenges like financial dependency and malnutrition compared to urban counterparts. **Materials and Methods:** This cross-sectional study was conducted in ten villages in Kanchipuram. Sample size was 460, determined using a two-stage sampling technique involving Probability Proportion to Size and Simple Random Sampling. Pretested semi-structured questionnaire, along with scales like WHO QOL BREF, Mini Nutrition Assessment - Short Form, and KATZ Activities of Daily Living was used. **Result:** The study revealed similar mean scores across the four domains of Quality of Life (QOL), suggesting a balanced perspective. Notably, 52% of the elders were at risk of malnutrition, and 11% were malnourished. Moreover, 98% were fully independent in daily activities. Factors such as Muslim religion, literacy, current employment, spousal living arrangement, and normal nutritional status were strongly associated with a Good QOL. **Conclusion:** The study found a Fair overall Quality of Life (QOL) among elders with similar scores across all 4 domains. Approximately 52% were at risk of Malnutrition, yet 98% were fully independent in daily activities. Notably, factors like Muslim religion, literacy, current employment, living with spouse, and normal nutritional status strongly influenced a Good QOL.

INTRODUCTION

Ageing is a genetically determined and environmentally modulated process that is universal and inevitable, associated with increased morbidity and mortality. Population ageing refers to the increase in median age due to declining fertility rates and rising life expectancy, a phenomenon observed globally but with varying speeds of transition. Developed countries experienced a slow demographic transition, while India's transition was rapid, leading to a significant increase in the elderly population. This rapid transition poses challenges due to India's large population size and inadequate social security systems for the elderly. Factors contributing to this transition include easy access to life-saving medications, reduced famines and infectious diseases, improved nutrition and healthcare, and higher standards of living. This demographic shift has profound social, economic, and political implications for the development of the country.[1,2]

The advancements in healthcare have led to significant reductions in mortality rates and increased life expectancy in India, with life expectancy rising from 49.7 years in 1970 to around 70 years in 2020. The elderly population (age > 60 years) currently constitutes about 8% of the total population but is expected to increase to 20% by 2050, leading to a rise in the old age dependency ratio. However, rapid urbanization and changing family structures have left many elderly individuals unattended, impacting their physical and mental health.[3-5]

Quality of Life (QOL) is crucial for the elderly and is influenced by various factors such as health status, socio-demographic factors, social interactions, and living environment. Activities of Daily Living (ADL) and residence type are key determinants of QOL, with studies indicating

disparities between urban and rural elderly populations in India.[6-8]

Physical comorbidities are prevalent among the elderly in India, with hypertension being a leading ailment followed by diabetes mellitus, bone disorders, anaemia, and sensory impairments. Chronic illnesses affect a significant portion of the senior citizen population, leading to challenges in accessing essential healthcare services.[9,10]

Mental health issues, particularly depression and dementia, are also significant concerns among the elderly in India. The prevalence of mental illness ranges from 11.6% to 31.1%, with dementia cases expected to rise significantly in the coming years. Malnutrition is also a notable issue, affecting a considerable proportion of the elderly population.[11]

The overall situation of the elderly in India, as reflected in government reports and research studies, highlights the need for focused interventions to improve their quality of life. Understanding the determinants of QOL and addressing physical and mental health challenges are crucial steps in ensuring the well-being of the elderly population, particularly in states like Tamil Nadu with a significant proportion of senior citizens.The study aims to comprehensively assess the Quality Of Life (QOL) of elderly individuals living in the rural field practice area of a private medical college. This assessment includes evaluating their nutritional status, activities of daily living (ADL), and identifying factors that contribute to their QOL. By combining these objectives, the study seeks to provide a holistic understanding of the well-being and challenges faced by the elderly population in this specific rural setting.

MATERIALS AND METHODS

The study on assessing the Quality Of Life (QOL) of elderly people is designed as a community-based cross-sectional study conducted in 10 villages served by the Rural Health Training Center (RHTC) of Meenakshi Medical College Hospital & Research Institute (MMCH&RI) from November 2021 to August 2022. The study includes elderly individuals aged 60 years and above residing in the study area, with inclusion criteria focusing on willingness to participate and exclusion criteria excluding terminally ill and hospitalized individuals.

The sample size calculation for the study on assessing the Quality Of Life (QOL) of elderly people was based on previous research findings by Vijayalakshmi Praveen et al indicating a mean QOL score of 49.28 among the elderly in a rural area of Thiruvallur district. [12]Using the formula for cross-sectional study , n = $Z^2PQ/d^2$and considering a 95% confidence interval, a prevalence of 49.28, an allowable error of relative precision of 10%, and a 10% non-response rate, the final sample size was determined to be 460 participants.

The sampling technique for the study on assessing the Quality Of Life (QOL) of elderly people is a 2-stage sampling technique. In Stage 1, Probability Proportion to Size (PPS) sampling was used to create sampling frames for each village based on the number of elderly males and females. In Stage 2, Simple Random Sampling was conducted from these frames using convenience sampling to achieve the desired sample size from each village. [Table 1]

The study on assessing the Quality Of Life (QOL) of elderly people obtained Ethical Committee Approval from the Institutional Human Ethics Committee at Meenakshi Medical College Hospital and Research Centre in Kanchipuram. Data collection was conducted through a House to House survey using the Interview method. Informed consent was obtained from participants, and the study followed the principles of the Helsinki Declaration. The interview included four sections: socio-demographic details, WHO QOL-BREF Scale for QOL assessment, Mini Nutrition Assessment Scale (MNA-SF) for nutritional status assessment, and Katz Activities of Daily Living Scale for ADL assessment. These scales are validated screening tools used worldwide in their respective fields.

The statistical analysis for the study on assessing the Quality Of Life (QOL) of elderly people was conducted using the Statistical Package for the Social Sciences (SPSS). The presentation of results included mean values with standard deviations (SD) and proportions as percentages. To compare categorical variables between groups, the user employed either the Chi-square test or Fisher's exact test, with statistical significance determined by a P value of less than 0.05 (95% CI). Quantitative variables were analysed using ANOVA or independent t test based on the assumption satisfactions.

RESULTS

The study on QOL in 460 elderly participants showed a diverse demographic profile: most were aged 60 to 64 years (38%), with a smaller group over 80 years (4%). Females comprised 56% of participants, and the majority were Hindu (95%). Educational levels were low, with 56% illiterate, and employment was limited (42% unemployed, 35% in unskilled work, 3% retired with pension). Widows (41%) outnumbered widowers (22%), and family structures were evenly split between nuclear and joint setups. Financial dependence on family was high (70%), and socioeconomic status varied.

Regarding COVID-19, 8% had a history of infection, with 17% among their family members. Vaccination rates were good (71% vaccinated, 64% with both doses). The study also found a high prevalence of comorbid conditions (82%), including vision impairment (40%), hearing impairment (19%), Diabetes Mellitus (36%), Hypertension (26%), and Musculoskeletal problems (38%).

Health-seeking behavior was mixed, with high rates of seeking care for Diabetes Mellitus (84%) and Hypertension (93%), but lower rates for Hearing (24%) and Vision impairments (38%). Habits included tobacco chewing (13%), smoking (11%), alcohol consumption (22%), and betel nut chewing (23%), with chronic usage common among users. Dietary patterns were varied, with most consuming mixed diets (92%), vegetables (81%), and meat (27%).

Sleep patterns showed challenges, with 38% reporting difficulties, and varying sleep durations (68% slept 3-6 hours, 23% got 7-8 hours). Napping was common (28%).

In the study, 56% were of normal weight, while 23% were underweight, 18% pre-obese, and 3% obese. Equal proportions had hypertension (27%) and high-normal blood pressure (27%), with 28% having normal blood pressure and 18% optimal. The prevalence of hypertension was 27%. Nutritional status showed 37% normal, 52% at risk of malnutrition, and 11% malnourished. 98% were completely independent, and 2% were moderately independent.

The overall quality of life (QOL) was determined using the transformed score (0 – 100) from 24 questions across 4 domains. The overall mean score for all domains was calculated (47.15), categorizing the overall QOL into Poor, Fair, Good, and Excellent categories.

Results showed that 51% of the elders had a Fair QOL, while 42% had a Good QOL. A small percentage had Poor QOL (5%) or Excellent QOL (2%). The overall QOL score for the elders was 47.15 ± 15.35, indicating a Fair QOL overall as it lies in the 2nd Quartile. [Table 2]

The study on Quality Of Life (QOL) among elderly participants revealed several key findings. Firstly, age and gender significantly impacted QOL scores, with younger elders (60 to 64 years) and males exhibiting higher scores compared to older age groups and females. Religion and education also played a role, with Muslim elders and literate participants scoring higher across various QOL domains.

Employment status and marital status were associated with QOL, as employed elders and those living with a spouse showed higher scores. Family structure and financial independence further influenced QOL, with nuclear family members and financially independent elders reporting better QOL. Socioeconomic status was another determinant, with elders in the upper class demonstrating higher QOL scores than those in the middle or lower class. Health conditions significantly impacted QOL, with elders without physical comorbidities or sensory impairments reporting higher scores.

Furthermore, habits such as tobacco or betel nut chewing were associated with lower QOL scores, while regular fruit consumption correlated with higher scores. Sleep patterns and functional independence were also crucial, as elders without sleep difficulties and those with longer nighttime sleep durations and complete independence for daily activities had higher QOL scores.

Overall, the study highlighted the complex interplay of various factors—including age, gender, socioeconomic status, health conditions, lifestyle habits, and functional independence—in determining the Quality Of Life among elderly individuals.

The study identified several factors strongly associated with determining the Quality Of Life (QOL) among elders. Religion, education, occupation, marital status, and nutritional status emerged as significant determinants. Specifically, elders belonging to the Muslim religion had a 2.475 times higher chance of having Good QOL compared to others. Additionally, currently employed elders and literate individuals had 2.267 times and 3.286 times higher chances of having Good QOL than unemployed and illiterate elders, respectively.

Marital status also played a significant role, with elders living with a spouse having a 5.085 times higher chance of having Good QOL than widows or widowers. Furthermore, nutritional status was found to be crucial, as elders with normal nutritional status had a 1.734 times higher chance of having Good QOL than malnourished individuals. [Table 3]

Table 1: Explaining the sampling frame for 10 villages

S.NO	Name of the village	Total population	Elderly people in each village	Needed sample from each village
1	Namandi	2112	200	76
2	Vadamavandal	1360	72	27
3	Hariharapakkam	1357	153	58
4	Vellakolam	1152	150	57
5	Thalikal	607	39	16
6	Ozhugavakkam	284	33	13
7	Chettithangal	395	95	36
8	Arasankuppam	1417	49	19
9	Thirupanangadu	2379	232	89
10	Pillanthangal	1652	182	69
Total		12715	1205	460

Table 2: Quality of life of the participants (n = 460)

Scores	QOL	Frequency	Percentage
0 to 25 (1st quartile)	Poor	25	5%
26 to 50 (2nd quartile)	Fair	238	51%

51 to 75 (3rd quartile)	Good	188	42%
76 to 100 (4th quartile)	Excellent	9	2%

Table 3: Binary Logistic regression (n = 460)

S.No	Variables	p value	Odds ratio	95% Confidence interval for odds ratio	
				Lower	Upper
Constant		0.999	3034296.334	-	-
1	Religion	0.022*	2.475	1.139	5.375
2	Education	0.000*	3.286	1.853	5.477
3	Occupation	0.007*	2.267	1.254	4.098
4	Marital status	0.000*	5.085	2.497	10.354
5	Nutritional status	0.020*	1.734	1.091	2.754

* Denotes statistical significance

DISCUSSION

The mean scores across all four domains for the elderly participants in this study were lower compared to those in studies conducted by Soren SK et al in Jharkand and Gupta E et al in Faridabad. Conversely, the results from the study conducted by S.E. Thadathil in Kerala showed lower mean scores in all domains compared to our study.[13-15]

Gender was found to significantly influence the Quality Of Life (QOL) of the elderly, with male elders exhibiting better QOL than female elders in our study. This observation aligns with findings from studies by S. E. Thadathil in Kerala and Sowmiya KR in Mettupalayam.[15,16]

A noteworthy discovery was the inverse relationship between age and QOL among the elders, a trend also observed in studies by Kumar S et al and Sivapragasam R et al in Puducherry, and Singh A et al in Uttar Pradesh.[17,18] This trend may stem from the increased likelihood of elderly individuals being affected by comorbid conditions and facing financial dependence as they age.

Financial dependence on family members was associated with poorer QOL among elders, consistent with findings from studies by Gupta A et al in Lucknow and Risal A in Nepal.[19,20] Conversely, financial independence, often seen in literate, employed elders from nuclear families, was linked to better QOL.

Interestingly, elders with a history of COVID-19 infection showed a slightly better QOL than others, though this difference was not statistically significant. However, elders whose family members were affected by COVID-19 experienced significantly reduced QOL. This psychological impact on elders when their family members face adversity was also noted in a study by Khorani H et al in Iran.[21]

An increase in the frequency of fruit and meat consumption was associated with improved QOL among elders, a finding consistent with Nanri H et al's study in Japan, which found a strong positive association between fruit consumption and oral health-related QOL.[22]

Malnutrition was prevalent among the elders in this study, with 11% being malnourished and 52% at risk of malnourishment according to the MNA-SF scale. This contrasts with a study by Suri M et al in

Delhi, which reported a higher malnutrition rate of 37% among elders.[23]

Functional status, assessed using the KATZ ADL scale, revealed that 2% of elders were moderately dependent on others for daily activities. Elders in this category exhibited poorer QOL, a trend also observed in studies by Soren SK et al in Jharkand and Alzeftawy A in Egypt.[13,24] This may be attributed to low self-esteem and a higher susceptibility to neglect among functionally dependent elders, contributing to their lower QOL.

CONCLUSION

The cross-sectional study found elders' overall Quality Of Life (QOL) to be Fair (mean score 47.15☐15.35). Over half were at Malnutrition Risk (52%), with 11% malnourished and 37% having normal nutrition. Most (98%) were fully ADL independent. Factors like younger age, male gender, Muslim faith, literacy, current employment, nuclear family with spouse, financial independence, higher status, no COVID-19 history, no comorbidities or tobacco use, regular fruit/meat intake, no sleep issues, longer sleep, normal nutrition, and full ADL independence were linked to higher QOL scores.

REFERENCES

1. Mitteldorf J, Fahy GM. Questioning the inevitability of aging. Proc Natl Acad Sci U S A. 2018 Jan 23;115(4):E558.
2. Karmakar N, Datta A, Nag K, Tripura K. Quality of life among geriatric population: A cross-sectional study in a rural area of Sepahijala District, Tripura. Indian J Public Health. 2018 Jun;62(2):95–9.
3. State Statistics | NITI Aayog [Internet]. [cited 2022 May 30]. Available from: https://www.niti.gov.in/state-statistics
4. Buvneshkumar M, John KR, Logaraj M. A study on prevalence of depression and associated risk factors among elderly in a rural block of Tamil Nadu. Indian J Public Health. 2018 Jun;62(2):89–94.
5. Elderly in India 2021 [Internet]. 2021 [cited 2022 May 9]. Available from: https://ruralindiaonline.org/hi/library/resource/elderly-in-india-2021/
6. Khaje-Bishak Y, Payahoo L, Pourghasem B, AsghariJafarabadi M. Assessing the quality of life in elderly people and related factors in tabriz, iran. J Caring Sci. 2014 Dec;3(4):257–63.
7. Onunkwor OF, Al-Dubai SAR, George PP, Arokiasamy J, Yadav H, Barua A, et al. A cross-sectional study on quality of life among the elderly in non-governmental organizations'

elderly homes in Kuala Lumpur. Health Qual Life Outcomes. 2016 Jan 12;14:6.

8. Khakhuen ส, Kongmaha ห, ThasanohElter ป, Phantong ว. Activities of Daily Living and Quality of Life among Older Adults in Nakhon Ratchasima Province. NJPH (วารสารพ.ส.) [Internet]. 2020 Aug. 27 [cited 2022 May 30];30(2):104-20. Available from: https://he02.tci-thaijo.org/index.php/tnaph/article/view/245828

9. Bharati DR, Pal R, Rekha R, Yamuna TV, Kar S, Radjou AN. Ageing in Puducherry, South India: An overview of morbidity profile. J Pharm Bioallied Sci. 2011;3(4):537–42.

10. Divyamol KS, Lalu JS, Vijayakumar P et al. Morbidity Pattern Among The Geriatric Population In South India: An Observational Study. Epidem Int 2018; 3(1): 11-17.

11. Vincent V, Shanmugam J, Duraisamy S, Loganathan P, Ganeshkumar V, Balakrishnan V. Prevalence of depression among elderly population in rural South India. International Journal Of Community Medicine And Public Health. 2020 May 27;7(6):2377–80.

12. Praveen V, M AR. Quality of life among elderly in a rural area. International Journal Of Community Medicine And Public Health. 2017 Feb 1;3(3):754–7.

13. Soren SK, Kumari AP, Kujur A, Sunderam S, Singh SB, Raj M. Predictors of quality of life among geriatric population in a tribal dominant state of India: A community based analytical study. J Family Med Prim Care 2022;11:918- 26

14. Gupta E, Goswami S, Aggarwal V, Singh M, Agarwalla R. Assessment of quality of life and its determinants among the elderly residing in a rural area of Faridabad: A cross-sectional survey. Indian J Community Fam Med 2021;7:130-4.

15. S. E. Thadathil, R. Jose& S. Varghese; Assessment of domain wise quality oflife among elderly population using WHO-BREF Scale and its Determinantsin a rural setting of Kerala . International Journal of current Medical and Applied sciences; 2015, 7(1), 43-46.

16. Kr S, nagarani. A Study on Quality of Life of Elderly Population in Mettupalayam, A Rural Area of Tamilnadu. national journal of research in community medicine. 2012 Jul 7;1:123–77.

17. Kumar S. G, Majumdar A, G. P. Quality of Life (QOL) and Its Associated Factors Using WHOQOL-BREF Among Elderly in Urban Puducherry, India. J Clin Diagn Res. 2014 Jan;8(1):54–7.

18. Sivapragasam R, Rajini S, Kannan K. A Cross sectional study about the quality of life among the elderly population in rural Puducherry. Indian J Forensic Community Med. 2019;6:86-92.

19. Gupta A, Mohan U, Tiwari SC, Singh SK, Singh VK. Dimensions and determinants of quality of life among senior citizens of Lucknow, India. Int J Med Public Health 2014;4:477-81.

20. Risal A, Manandhar S, Manandhar K, Manandhar N, Kunwar D, Holen A. Quality of life and its predictors among aging people in urban and rural Nepal. Quality of Life Research. 2020 Dec;29(12):3201-12.

21. Khorani H, Mohammadi F, Hosseinkhani Z, Motalebi SA. Predictive factors of Quality of Life in older adults during the COVID-19 pandemic. BMC Psychol. 2022 Jul 17;10:176.

22. Nanri H, Yamada Y, Itoi A, Yamagata E, Watanabe Y, Yoshida T, et al. Frequency of Fruit and Vegetable Consumption and the Oral Health-Related Quality of Life among Japanese Elderly: A Cross-Sectional Study from the Kyoto-Kameoka Study. Nutrients. 2017 Dec 15;9(12):1362.

23. Suri M. A pilot study on prevalence of malnutrition, pain, depression and anxiety in elderly population in Delhi. Journal of Clinical Gerontology & Geriatrics. 2018;9(3):91-8.

24. Alzeftawy A. Physical and Psycho-Social Health Problems among Elderly People in Rural Area and Its Effects on Their Quality of Life. International Journal of Novel Research in Healthcare and Nursing. 2018 Aug 7; Issue 2, pp: 236-250.

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