Determinants of quality of life among the elderly population in urban areas of Mangalore, Karnataka

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ABSTRACT

Introduction: India is going through a phase of demographic transition progressing to population aging. Poor health-related quality of life (QOL) among the elderly is often associated with physical deterioration, psychological trauma, and mental weakness. The rise in the social and health requirements of older adults has to be addressed optimally and comprehensively.

Materials and Methods: A cross-sectional study was carried out on elderly individuals of urban Mangalore to determine their QOL. The multistage sampling design was used to obtain 384 elderlies aged 60 years or older. Results: The average QOL was observed among 74.3% of the elderly (mean score: 80.28–91.1). The factors such as age of the individual, gender, marital status, living status, education, occupation, socioeconomic status, interaction with people, use of mobile phones, and social media determined the QOL of the elderly ($P < 0.001$). Conclusion: Inclusionary measures such as participation in social clubs should be encouraged at the community level to enhance the QOL among the elderly population. Measures to improve the awareness of government schemes should be considered.

Key words: Determinants of quality of life, elderly population, quality of life, WHO Quality of Life-BREF

INTRODUCTION

The WHO defines the concept of quality of life (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.[1] As per the WHO report (2013), there are more than 600 million elderlies at a global level. The elderly population will be doubled by 2025 and rise to two billion by 2050. The global elderly population was 9.2% in the year 1990, and it is estimated to be 21.1% by 2021.[2]

India is going through a phase of demographic transition progressing to population aging. Poor health-related QOL among the elderly is often associated with physical deterioration, psychological trauma, and mental weakness. The increase in life expectancy among the elderly is because of demographic transition in developing countries. In 2011, India had an 8.6% elderly population and was estimated to be 11.6% by 2026.[3]

As the elderly population increases, health demands, along with other social requirements, are also set to increase. It is evident from the studies that physical deterioration, psychological trauma, and mental weakness are associated with aging.[4] In India, the social security system for the elderly is not as well equipped as in developed countries. Globally, an urban population often faces mounting pressure on various socioeconomic fronts such as health-care expenditures and fiscal disciplines, which can impact the life of the elderly population.[5] Further to its work migration, reduced family size and condensed earning capacity may lead to further deterioration of QOL among the urban elderly population. Hence, it is imperative to determine the QOL among the urban elderly population. Accordingly, the present study aimed to explore the factors determining the QOL among the elderly people of urban Mangalore.

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MATERIALS AND METHODS

A community-based cross-sectional study was conducted in the urban Mangalore of Dakshina Kannada district. The Mangalore block has 60 wards, of which 10%, i.e., six wards, were selected randomly. Assuming 50% of the elderly population had a good QOL, and using an appropriate statistical formula \( n = Z^2_{1-\alpha/2}pq/d^2 \), a sample size of 384 was reached. The respondents were selected by systematic sampling from each ward, with population proportional to size. Elderly individuals who were chronically ill, bedridden, hearing, and speech impairments or mental illness were excluded from the study. A standardized tool of the WHOQOL-BREF questionnaire customized to the study setting was used as a method of assessing the health-related QOL. The English version questionnaire was translated into the local Kannada language. The survey was carried out by the public health scholar and statistical assessment by a trained statistician. Informed written consent was taken from all participants before data collection. The reliability of the questionnaire was tested using Cronbach’s alpha, and a coefficient of 0.711 was achieved. The local institutional ethics committees approved the study. All the participants were explained about the study and were recruited after obtaining written informed consent. Since the data were following a normal distribution, parametric tests were used, and analysis was done using SPSS version 20 (Released 2011. IBM SPSS Statistics for Windows, Armonk, NY: IBM Corp, USA). The WHOQOL-BREF questionnaire has four domains of QOL, i.e., physical, psychological, environmental, and social relationships. It had 26 questions, and the mean score of items within each area was used to calculate the domain score.

All the 26 items of the WHOQOL-BREF questionnaire were assigned the individual score of “1,” “2,” “3,” “4,” and “5” according to the response of the elderly people. The total score had been obtained with a mean of 85.6 ± 5.4.

This mean score was stratified into three domains to assess the level of QOL:
- \(<80.28 \text{ (mean – standard deviation [SD]) as “poor”}\)
- Varying from 80.28–91.1 (mean + SD) as “average”
- \(>91.1 \text{ (mean + SD) as “good.”}\)

RESULTS

Sociodemographic characteristics

Table 1 describes the sociodemographic characteristics of the respondents. The age of the participants ranged from 60 to 90 years, with a mean of 68.62 ± 6.59. The majority (51.6%) of the respondents were female, and 85.4% followed the Hindu religion. About 65.1% of them were married, and 3.4% were single. Most of them (42.4%) were living with spouse and children, and about 4.7% were living with a family member or friend. The maximum of the respondents were from the nuclear family (99%).

Socioeconomic characteristics

The majority of the elderly population (25.3%) had a posthigh school/diploma holder’s degree, followed by graduate/postgraduate (23.2%); only 3.6% of them had a professional degree. About 31.8% of the older adults were skilled workers, followed by 25.5% of semi-professionals. The majority of them (44%) had a monthly income between 10,357 and 15,535 INR rupees, and only 0.3% had a revenue of more than 41,430 INR. About 58.7% of the elderly population belonged to lower-middle socioeconomic status followed by upper-middle (26.8%). Regarding social security, 41.9% were receiving employee’s pension and 29.7% had some health insurance. About 77.1% of them were using a mobile phone, and 90.9% had a bank account.

Health status and social interaction

The elderly population reported suffering from morbidity conditions such as hypertension (65.4%), diabetes (39.1%), and arthritis (17.7%), whereas 83.6% of them were on some medication. About 49.2% of them were involved quite often in the process of decision-making. Regarding

| Table 1: Sociodemographic characteristics of respondents (n = 384) |
|-----------------------------------------------|
| Characteristics                          | Frequency, n (%) |
| Age (years)                              |                   |
| 60-69                                    | 237 (61.7)        |
| 70-79                                    | 116 (30.2)        |
| 80-90                                    | 31 (8.1)          |
| Gender                                   |                   |
| Male                                     | 186 (48.4)        |
| Female                                   | 198 (51.6)        |
| Religion                                 |                   |
| Hindu                                    | 328 (85.4)        |
| Christian                                | 42 (10.9)         |
| Muslim                                   | 14 (3.6)          |
| Marital status                           |                   |
| Single                                   | 13 (3.4)          |
| Married                                  | 250 (65.1)        |
| Separated                                | 2 (0.5)           |
| Divorced                                 | 3 (0.8)           |
| Widow/widower                            | 116 (30.2)        |
| Education                                |                   |
| Literate                                  | 9 (2.3)           |
| Primary school certificate               | 39 (10.2)         |
| Middle school certificate                | 51 (13.3)         |
| High school certificate                  | 85 (22.1)         |
| Posthigh school diploma                  | 97 (25.3)         |
| Graduate/postgraduate                    | 89 (23.2)         |
| Profession                               | 14 (3.6)          |
| Living status                            |                   |
| Living alone                             | 28 (7.3)          |
| Spouse                                   | 85 (22.1)         |
| Spouse and children                      | 163 (42.4)        |
| Children/relatives without a spouse      | 90 (23.4)         |
| Living with family member/friend         | 18 (4.7)          |

| Table 2: Descriptive statistics - World Health Organization Quality of Life-BREF (n = 384) |
|-----------------------------------------------|
| Domains                                      | Mean ± SD   | Range |
| Overall QOL                                  | 85.6 ± 5.4  | 66-106 |
| Physical                                     | 24.4 ± 2.7  | 12-33  |
| Psychological                                | 22.02 ± 1.7 | 15-27  |
| Social relation                              | 11.33 ± 1.3 | 8-15   |
| Environment                                  | 27.8 ± 2.2  | 22-36  |

SD: Standard deviation, QOL: Quality of life
socializing, 56.2% of them quite often interacted with people daily; however, the majority were not active in social media (Facebook, Twitter, WhatsApp, and Instagram). Nearly 21.1% of them participated in social clubs (senior citizen’s association, Rotary club, and Lion’s club). About 57.8% of them used to get visitors often at their homes, and 97.4% never desired to reside at old-age homes. The majority (91.9%) felt that they never faced negligence at home, and 99.2% were never ill-treated. It was reported that 6.2% were rarely neglected at home, and only 1.3% of them felt neglected at home sometimes.

Table 3: Association of quality of life with demographic factors (n = 384)

| Characteristics | Mean ± SD | Test values | P    |
|-----------------|----------|-------------|------|
| Gender          |          |             |      |
| Male            | 86.9 ± 5.19 | 4.356***   | < 0.001* |
| Female          | 84.55 ± 5.38 |           |      |
| Marital status  |          |             |      |
| Single          | 84.76 ± 5.29 | 7.769**    | < 0.001* |
| Married         | 86.75 ± 5.22 |           |      |
| Separated       | 80 ± 5.65  |             |      |
| Divorced        | 83.66 ± 2.3 |           |      |
| Widow/widower   | 83.65 ± 5.27|            |      |
| Living status   |          |             |      |
| Alone           | 85.85 ± 4.91 | 9.226***   | < 0.001* |
| Spouse          | 87.18 ± 5.47|           |      |
| Spouse and children | 86.51 ± 4.99 |  |      |
| Children/relatives without a spouse | 82.96 ± 5.18 |  |      |
| Family member/friend | 84.5 ± 6.04 |  |      |
| Education of the head of the family |          |             |      |
| Literate        | 84.55 ± 5.61 | 4.74**     | < 0.001* |
| Primary school certificate | 82.82 ± 5.59 |  |      |
| Middle school certificate | 84.17 ± 4.86 |  |      |
| High school certificate | 85.29 ± 6.2 |  |      |
| Post high school/diploma | 86.44 ± 4.64 |  |      |
| Graduate/postgraduate | 87.42 ± 4.86 |  |      |
| Profession      | 86.07 ± 5.62 |           |      |

Table 4: Association of quality of life with socioeconomic characteristics (n = 384)

| Characteristics | Mean ± SD | Test values | P    |
|-----------------|----------|-------------|------|
| Occupation of the head of a family |          |             |      |
| Unemployed      | 88.5 ± 5.3 | 4.07**     | < 0.001* |
| Unskilled worker | 83.57 ± 6.83 |  |      |
| Semi-skilled worker | 83.51 ± 5.46 |  |      |
| Skilled worker  | 83.53 ± 5.45 |           |      |
| Clerical/shop owner | 85.08 ± 4.43 |  |      |
| Semi-profession | 86.96 ± 4.74 |           |      |
| Professional    | 88.34 ± 6.15 |           |      |
| Socioeconomic status |          |             |      |
| Upper           | 88.5 ± 5.4 | 8.392**    | < 0.001* |
| Upper middle    | 87.5 ± 5.55|            |      |
| Lower middle    | 85.04 ± 4.89|           |      |
| Upper lower     | 83.78 ± 6.31|           |      |
| Use of social media |          |             |      |
| Yes             | 89.02 ± 5.13 | 4.505***   | < 0.001* |
| No              | 85.24 ± 5.3 |           |      |
| Participation in social clubs |          |             |      |
| Yes             | 88.11 ± 5.18 | 4.652***   | < 0.001* |
| No              | 85.04 ± 5.29|            |      |
| Ill-treated at home |          |             |      |
| Never           | 85.74 ± 5.38 | 2.269***   | 0.024* |
| Rarely          | 78.66 ± 5.5 |           |      |

Table 5: Determinants of quality of life among the respondents using multiple linear regressions (n = 384)

| Characteristics | ß   | SE** | P    |
|-----------------|-----|------|------|
| Constant        | 105.697 | 5.781 | 0.001* |
| Age (years)     | −0.147 | 0.043 | 0.001* |
| Gender          | −1.160 | 0.590 | 0.050* |
| Marital status  | −0.258 | 0.228 | 0.259 |
| Living status   | −0.296 | 0.307 | 0.335 |
| Education of the head of a family | −0.266 | 0.270 | 0.325 |
| Occupation      | 0.103 | 0.202 | 0.609 |
| Socioeconomic status | −1.234 | 0.665 | 0.064 |
| Health insurance | 0.657 | 0.586 | 0.263 |
| Use of mobile phone | 0.728 | 0.634 | 0.251 |
| Use of social media | 0.770 | 0.942 | 0.414 |
| Participation in social clubs | 0.803 | 0.731 | 0.272 |
| Medications     | −1.633 | 0.683 | 0.017* |
| Involvement of decision-making | 0.310 | 0.396 | 0.434 |
| Interaction with people | 0.637 | 0.414 | 0.125 |
| Ill-treated at home | −5.713 | 2.884 | 0.048* |

*P<0.05 is considered significant, **SE of R² = 4.87. R² = 0.221, Adjusted R² = 0.189. SE: Standard error

Table 6: Awareness of elderly schemes (n = 384)

| Pattern | Frequency, n (%) |
|---------|------------------|
| Awareness of elderly schemes | 59 (15.4) |
| Perception regarding present schemes | 325 (84.6) |
| Secure | 3 (0.8) |
| Insecure | 5 (1.3) |
| Enrolment in schemes | 45 (11.7) |
| Benefit of schemes | 14 (3.6) |
| Issued senior citizen card | 168 (43.8) |

*P<0.05 is considered significant, **SE of R² = 4.87. R² = 0.221, Adjusted R² = 0.189. SE: Standard error
Descriptive statistics – WHO Quality of Life-BREF
The overall QOL scores of the older adults ranged between 66 and 106, with a mean score of 85.6 ± 5.4. The total score of QOL was further stratified into physical, psychological, social relation, and environment domains. In the physical domain, the score ranged between 12 and 33, with a mean of 24.4 ± 2.7. In the psychological domain, it was between 15 and 27, with a mean of 22.02 ± 1.7. The social relation domain score ranged between 8 and 15, with a mean of 11.33 ± 1.3. In the environment domain, the score ranged between minimum 22 and maximum 36, with a mean of 27.8 ± 2.2 [Table 2].

Based on the above mentioned scoring, the average QOL was observed among 74.73% of the elderly, and poor QOL was among 13.02%; only 12.23% had a good QOL [Figure 1].

The relationship between age and quality of life was negatively related to the “r” value of −0.183 (P < 0.05).

Determinants of quality of life
Statistical significance was found among variables such as gender, marital status, living status, education, occupation, socioeconomic status, use of mobile phone, use of social media, participation in social clubs, interaction with people, involvement in decision-making, medication, illness-treatment at home, and health insurance with the QOL (P < 0.05) [Tables 3 and 4]. Other characteristics such as religion, monthly income of the family, pension, bank account, frequency of visitors to their home, and negligence at home were not related to the QOL.

Multiple linear regression techniques were used to assess the determinants of QOL. The characteristics which were found statistically significant (P < 0.05) in bivariate analysis were incorporated in multivariate analysis. Determinants like age, gender, elderly who were on medication and ill-treated elders at home were statistically significant with P < 0.05 [Table 5].

Awareness and utilization pattern of social welfare schemes
Table 6 describes the utilization pattern of social welfare schemes. Among the elderly, only 15.4% reported that they were aware of various government schemes; however, only 2.1% were enrolled for the same. About 0.8% reported that they were benefited from the scheme they enrolled, and about 11.7% stated that various other schemes are required. The majority (56.2%) of them did not have a senior citizen card issued by the government.

DISCUSSION
In the study, the mean age of the elderly was found to be 65.59 ± 6.53 years, similar to a study done in Pune, India, where the mean age of the respondents was reported as 66.33 ± 6.7.[9] The present study witnessed the negative linear relationship between age and QOL, showing an increase in age and a decrease in health-related QOL. Similar results were shown in a study conducted in Karkala and urban Puducherry.[3,7]

The study population, in the present study, comprises 51.6% of females and 48.4% of males. The majority (65.1%) of the respondents were married, and 99.2% were living with spouses and children. In an Iranian study, out of currently married, 86.3% of the elderly population, were living with their spouse.[8] This study witnessed that 7.4% of the elderly group were living alone; in a similar survey conducted in urban Tehran, Iraq, 15% of the elderly were living alone, which is slightly higher than the present study.[9] This study found that 41.9% of the elderly population received employment pension, whereas, in urban Gujarat, only 10.4% were receiving a pension.[10] The majority of the respondents were reporting to suffer from morbidity conditions such as hypertension (65.4%), diabetes (39.1%), arthritis (17.7%), and vision problems (5.7%). Similar results were found in the study conducted in Gujarat and rural coastal Karnataka, wherein 55.4% of the elderly population reported hypertension followed by arthritis (22.8%).[10,11] A Pune study found that 13.7% were suffering from hypertension, 6.5% were suffering from diabetes, and 76.7% never had the requirement of medications.[9] The observations inferred from these analyses are evident that the morbidities mentioned above were quite common among the elderly. Hence, comprehensive geriatric health services need to be provided, focusing on the common morbidities.

Regarding socialization, the present study reported that 56.5% of the respondents quite often interact with people and 49.2% take part in decision-making in their family. A study done in rural coastal Karnataka found that 84.3% of the elderly felt like their advice was honored at home.[11] About 7.8% of the population had a good frequency of visitors at home, and 91.9% felt that they were not neglected, whereas the study conducted in Kerala and Maharashtra reported 35.6% and 18.3% of negligence in family, respectively.[11,12]

Medical insurance coverage of older adults at urban Mangalore in the present study is 29.7%, which was <35.9% reported in a study conducted at rural Maharashtra.[12,13] Hence, this emphasizes the need for awareness about medical insurance and its benefits to be made more readily available to the elderly. The study reported that 74.73% of the elderly had an average QOL, which was a little higher than the study conducted in the urban area of Uttar Pradesh (61.45%).[14] In this study, the score in physical health domain was between 12 and 33, with a mean value of 24.4 ± 2; the score in psychological domain was between 15 and 27, with a mean value of 22.02 ± 1.7; the score in social relation domain was between 8 and 15, with a mean value of 11.33 ± 1.3; and the score in environment domain varies from 22 to 36, with a mean value of 27.8 ± 2.2. A study conducted in Ranchi had similar findings of the minimum score in the domain of the social relation of 2.82 ± 1.1, followed by the highest score achieved in the physical domain (20.45 ± 4.07).[15] The low social domain score was found to be lower and may attribute to poor communication skills which are the most essential for social networking.

In the present study, only 15.4% are aware of social welfare schemes by the government, and 0.8% are benefitting
The QOL assessed among the elderly population in urban areas of Mangalore was average (74.73%). The present study showed that determinants such as age, gender, marital status, living status, education, occupation, socioeconomic status, interaction with people, use of mobile phones, and social media have a relation with QOL. This study indicated that as health deteriorates, the interest of an elderly individual to associate with the society decreases proportionately. Although the government brings new schemes through a new mode of communication, getting access to the services is inevitably challenging for most of the older adults. Economically well-positioned older adults are well received in society, and their status has a positive impact on the QOL. Digital means of communication, which play a vital role in the presence of people, have not yielded any effect on improving the QOL of elderly people in Mangalore. Environment conditions should be improvised to enhance social support, decision-making, and interaction with society, which in turn affect the QOL. Furthermore, the elderly make up the majority of patients for many medications treating chronic conditions. Hence, individual preferences should be given to older people by treating clinicians by reducing waiting time and cost.

Inclusionary measures such as participation in social clubs should be encouraged at the community level to enhance the QOL among the elderly population. The elderly people have a lack of awareness about government schemes resulting in reduced utilization of schemes. It should guide the importance of implementing an awareness program for the welfare of the elderly population in Mangalore. The government invariably introduces various schemes to elderly people, but at the receiving end, people are neither keen on knowing them nor aspire to pursue them to their benefit. This is either due to their physical hindrances or inability to express their views in utilizing the schemes.

**Limitations**

The study has certain limitations due to the study setting and financial constraints of investigation. Since the study was carried out in the presence of family members, the participant may not openly discuss their details, leading to self-reporting bias. The possibility of incorrect responses of the participant due to recall can be expected due to age-related issues. The mixed method could be used to strengthen the current study findings. During the data collection exercise, many times, elderly people were expecting some monetary benefits for sharing their details. However, upon after knowing the study was only for academic purposes, their side was reluctant for active participation.

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**Conflicts of interest**

There are no conflicts of interest.

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