

ORIGINAL ARTICLE

Quality of Life (QOL) among the Elderly in Rural Dehradun

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Citation

Kritika, Kakkar R, Aggarwal P, Semwal J. Quality of Life (QOL) among the Elderly in Rural Dehradun. Indian J Comm Health. 2017; 29, 1: 39-45.

Source of Funding: Nil **Conflict of Interest:** None declared

Article Cycle

Received: 09/03/2017; **Revision:** 12/03/2017; **Accepted:** 29/03/2017; **Published:** 31/03/2017

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Abstract

Background: The assessment of quality of life (QOL) is a particularly important public health tool for the elderly in an era when life expectancy is increasing. **Aims & Objectives:** To measure Quality of Life among the elderly and identify its determinants. **Material & Methods:** This cross-sectional study was conducted on 220 elderly residing in rural areas of Dehradun district after taking written informed consent. Multistage random sampling was done, WHOQOL-OLD questionnaire was used to assess the QOL and data were analyzed by SPSS-22. **Results:** 55.5% subjects were females and the rest were males. Maximum percentage of respondents were in the age group of 66-75 years (46.4%). The mean (\pm SD) of transformed total QOL score (TTS) was 57.76 (\pm 10.97). The mean score of facet V (death and dying) was the highest (82.58) and the lowest mean score was observed in facet VI, intimacy (44.83). Overall QOL scores were found to be associated with education and financial dependency. Variation was observed between the determinants of QOL facet scores. **Conclusion:** Quality of life is a multidimensional concept. Education and financial dependency were found to be the possible determinants of QOL. More extensive studies are recommended to identify other factors affecting QOL.

Keywords

Quality of Life (QOL); Elderly; World Health Organization; Quality of Life Assessment of Older Adults (WHOQOL-OLD)

Introduction

The annual increase in global geriatric population aged ≥ 60 years is faster than that in any other age group and it will nearly double from 12% in 2015 to 22% by 2050 with 80% of older people living in middle and low income countries including India (1-3). Most of the Indian population resides in rural areas with limited access to facilities; hence the needs of rural elderly should be identified and addressed. The WHO definition of health emphasizes

on well-being and the elderly population is a vulnerable group; ergo, the concept of quality of life becomes an exigent element to be considered in geriatric research. As life expectancy continues to rise, one of the greatest challenges of public health is to improve the quality of later years of life (4,5). 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

(6). Some studies have shed light on some of the determinants of QOL (7). However, there are grey areas in the complete understanding of these determinants that need to be explored and clarified.

Aims & Objectives

To measure Quality of Life among the elderly and identify its determinants.

Material & Methods

Study type: cross-sectional, study population: elderly people aged ≥ 60 years, study area: rural areas of Dehradun district, study duration: one year. Sample size calculation: considering the expected Standard Deviation (SD) of QOL score in the elderly population to be 10.88 (8) and tolerable 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. Inclusion criteria: elderly people aged ≥ 60 years, willing to participate and able to answer. Exclusion criteria: Mentally sick elderly and who did not give consent. Strategy for data collection: Multistage random sampling method was employed to select the study subjects. Out of six community development blocks, one block was selected randomly; from this block one Nyay Panchayat was selected out of five and from this Nyay Panchayat four villages were selected randomly. 55 subjects were included in the study from each of the selected villages. All the elderly in the selected villages constituted the sampling frame, house to house survey was done and eligible geriatric people were selected by consecutive sampling till the accomplishment of sample size. If more than one eligible elderly was present in a family, only one was selected by lottery method. Study tools: The data on socio-demographic variables were collected by a self-structured questionnaire. Standardized WHO questionnaire on QOL for the elderly (WHOQOL-OLD) was used to assess the QOL. This questionnaire consists of 24 Likert-scaled items assigned to six facets: "Sensory Abilities" (SAB), "Autonomy" (AUT), "Past, Present and Future Activities" (PPF), "Social Participation" (SOP), "Death and Dying" (DAD) and "Intimacy" (INT). Each of these six facets has 4 items on 5-point Likert scale. The scores of these six facets or the values of the 24 single items of the WHOQOL-OLD questionnaire can be combined to produce a general ("overall") score for quality of life in older adults (9).

Ethical approval: Permission was taken from the World Health Organization for using this questionnaire for the present study. Approval from the University's research and ethical committee was obtained prior to the initiation of the study. Consent: Written informed consent was taken from each subject. Data analysis: All statistical analyses were carried out by using statistical software SPSS -22. Categorical variables were summarized in percentages and were presented in tables. For positively worded items, a higher value represented higher quality of life. For negatively worded items, recoding was done by reversing the assigned numeric values. Hence, after recoding a higher value represented higher quality of life. Transformed scale score (TFS) was calculated for all the six facets individually and for the overall score, transformed total score (TTS) was calculated according to the guidelines given by WHO. These scores were summarized in terms of mean with standard deviation. Independent samples t-test and ANOVA followed by Post hoc test were used for exploring the association between categorical variables and the transformed scores. The homogeneity of variance for transformed scores was tested by Levene's test.

Results

[Table 1](#) summarizes the socio-demographic variables of study subjects. Out of 220 subjects, 55.5% were females and the rest were males. Maximum percentage of respondents were in the age group of 66-75 years (46.4%), followed by the age groups 60-65 years (30.5%) and 76-99 years (23.2%). More than half of the elderly (60.5%) were illiterate, most of the subjects were Hindus and 85.9% of the elderly in this group belonged to joint family. Majority were currently married (75.9%). There was very little variation in financial dependency status.

[Table 2](#) shows the descriptive statistics associated with the six facets of quality of life, viz. "sensory abilities (OLD – SAB)", "autonomy (OLD – AUT)", "past, present and future activities (OLD – PPF)", "social participation (OLD – SOP)", "death and dying (OLD - DAD)" & "intimacy (OLD - INT)" and the transformed total QOL scores (TTS) among the study population. The mean score of facet V was the highest (82.58) and the lowest mean score was observed in facet VI (44.83). The standard deviation of the mean scores was highest for facet V (18.90) and lowest for facet III (14.91). The mean (\pm SD) of transformed total QOL score (TTS) was 57.76

(± 10.97). The maximum value of TTS was 84.38 and the minimum value was 10.97.

[Table 3](#) shows the association of quality of life scores (total as well as facet scores) with various socio-demographic variables. The mean overall QOL score (TTS) was higher in males, elderly residing in joint families, currently married elderly and literates. The homogeneity of variance was tested by Levene's test. The significance of the difference between means was tested by independent samples t-test at 5% significance level which showed a significant difference between the means of overall QOL scores of literates and illiterates. Facet scores showed a slightly different trend as compared to the overall score. Statistically significant association was found between gender and three QOL facets (AUT, PPF and DAD), where males had higher mean scores in AUT and PPF and females in DAD; between religion and two QOL facets (AUT and PPF), where Hindus showed a lesser mean score as compared to other religions; marital status and three QOL facets (PPF, SOP and DAD); where currently married elderly showed a higher score as compared to others in PPF and SOP but not in DAD; between education and four QOL facets (AUT, PPS, SOP and INT), where literates had higher mean scores in all these four facets as compared to illiterates. The difference between the means of QOL facets scores and type of family (nuclear and joint) was not found to be statistically significant for any of the QOL facets. Age was not found to be associated with QOL. The relationship between financial dependency and QOL was seen by ANOVA. Overall QOL and two of its facets (AUT and PPF) were found to have statistically significant association. Post hoc tests revealed that the mean scores of overall QOL had statistically significant difference between financially independent and dependent as well partially dependent groups. Similar relationship was seen between financial dependency and AUT facet of QOL by post hoc test.

Discussion

Identifying QOL as an important determinant of the health status of elderly, the present study was designed and conducted to measure the QOL and to identify the factors affecting it in a sample of rural elderly population by using WHOQOL-OLD questionnaire in which six facets have been given for QOL of old people, viz. sensory abilities (SAB); autonomy (AUT); past, present and future activities (PPF); social participation (SOP); death and dying

(DAD), and intimacy (INT). WHO has designed two short questionnaires for the assessment of QOL, WHOQOL-BREF and WHOQOL-OLD, both have been derived from WHOQOL-100 questionnaire. So, the results for all these questionnaires are comparable. These tools have been tested transculturally, enabling international comparisons.

The overall quality of life, measured as transformed total score (TTS), was calculated as 57.76% which was comparable to a TTS of 56.02% calculated for Turkish elderly in 2010 (10). A cross-cultural comparison of QOL between Brazil and India was done by Figueira *et al.* in 2009 (11). For Brazilian elderly, the TTS (calculated by WHOQOL-OLD) was 48% and for Indian elderly, it was 51% (calculated by WHOQOL 100), both of which were less as compared to the present study. The differences in QOL as perceived by the elderly belonging to different countries could arise because of cultural differences and differences in the perception of various aspects of life. The slight difference that was observed in the present study and the above mentioned Indian study might be due to the use of a different tool of QOL measurement.

Comparing the facets of QOL, the "death and dying" facet showed the highest score (82.58%) while the score of the facet "intimacy" was lowest (44.83%). The scores of other facets were: 63.43% for SAB, 45.11 for AUT, 52.24% for PPF and 58.32% for SOP. From the above findings, we can conclude that the elderly consider death as a natural phenomenon and hence the values for DAD were found to be highest. Consistent with the results of this study, another study showed that the highest QOL score was in the facet DAD but the lowest score was found to be in AUT (11). The physical, emotional and social changes occurring in old age may be attributed to the lowest QOL values in the facet "intimacy" in our study.

In a study conducted in Turkey, the highest score was seen for the facet INT followed by AUT and PPF (10). Intimacy had been kept under the concept of "respect to older persons" in the Turkish version of WHOQOL-OLD and a maximum score in this facet showed that this was a high prevalent dimension in Turkey.

In Brazil, it was found that PPF had a high score and DAD had the lowest score of just 38% (14). The scores for all the facets were less as compared to the present study which suggested that the QOL of elderly in India is better as compared to Brazil. This poor QOL shown by the study was explained by the

author as a result of social inequalities and selection of elderlies from a low-income group.

Gender was not found to be significantly associated with overall QOL. But males showed significantly higher values in two facets, viz. AUT and PPF whereas females in DAD. Males enjoy greater decision making power in Indian society and have better health in general, hence this could be the reason for better QOL of males in AUT and PPF facets. In studies by Sowmiya *et al.* (15), Akbar *et al.* (16), Raj *et al.* (17) and Quadri *et al.* (18), gender was found to be associated with QOL but not in the studies done by Praveen *et al.* (19) and Barua *et al.* (12).

Similar to the findings of Hameed *et al.* (20), we did not find any significant association between the type of family and QOL. Other studies done in India, e.g. studies by Kumar *et al.* (21), Sowmiya *et al.* (15) 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 relationship with family members rather than the type of family alone.

Marital status was shown to affect three facets of QOL (PPF, SOP and DAD) but not the overall QOL. Currently married elderly had better QOL in PPF and SOP facets whereas unmarried / separated / divorced / widowed elderly had better QOL in DAD facet. Elderly living with their spouse are more cared and take interest in social activities, which explains the better QOL in PPF and SOP facets. Those who have lost their spouses live in despair and accept death more easily, so they have better QOL in DAD facet. Better QOL was found for married elderly in studies by Sowmiya *et al.* (15), Hameed *et al.* (20), Raj *et al.* (17), Quadri *et al.* (18), Kumar *et al.* (21), Barua *et al.* (22) and Gupta *et al.* (23) but no association was found in a study by Praveen *et al.* (19).

Education was found to affect the overall QOL as well all the facets of QOL except SAB and DAD with literate elderly enjoying better QOL as compared to illiterate ones. This is concordant with the findings of studies by Hameed *et al.* (20), Raj *et al.* (17), Quadri *et al.* (18) and Kumar *et al.* (21) but Barua *et al.* did not find any significant association between education and QOL (12). Literacy brings better understanding of life and better opportunities of livelihood which could be the factors accounting for better QOL in literate elderly.

Similar to the findings of Praveen *et al.* (19), this study did not find any significant association between age and QOL in the elderly. This was contradicted by few studies by Sowmiya *et al.* (15) and Kumar *et al.* (21). Barua *et al.* did not find significant association between education and QOL (12).

Financial independence was found to afford better QOL in elderly, affecting the overall QOL as well as AUT and PPF facets of QOL. Gupta *et al.* had also found relationship between financial dependency and QOL (23). Financial independency brings the power of autonomy, opportunities to fulfil the needs in an independent way and a more satisfactory life which might explain the better QOL.

Conclusion

This study, aimed at measuring the QOL among rural elderly and identifying its determinants, showed the mean (\pm SD) of transformed total QOL score (TTS) to be 57.76 (\pm 10.97). Education and financial dependency were found to be the possible determinants of overall QOL. Variations were observed between the determinants of QOL facet scores with financial status affecting two facets, gender and marital status affecting three facets each whereas education affecting four facets.

Recommendation

The variation in the factors affecting the overall QOL and its facets shows that QOL is a multidimensional concept and more extensive studies are required to reveal these factors by using the old-age specific questionnaire on QOL developed by the World Health Organization (WHOQOL-OLD).

Limitation of the study

Being a small-scale study, the results may not be necessarily generalized. The results might have been affected by some unknown confounders due to the multidimensionality of QOL.

Relevance of the study

With increase in life expectancy, the assessment of QOL in the advanced ages is an important public health tool to promote healthy and active ageing. Due to sketchy literature on QOL in old age from India and limited use of old-age specific questionnaire on QOL.

Authors Contribution

All the authors have made substantial contribution to the design of the study, collection, analysis and

interpretation of data as well as preparation of manuscript.

Acknowledgement

The authors are thankful to the Department of Community Medicine (Himalayan Institute of Medical Sciences, Dehradun) and Swami Rama Himalayan University for permitting this research and for the help provided in conducting this study. The authors are extremely grateful to the World Health Organization and the developers of WHOQOL tools for allowing the use of these tools for this study and sharing the requisite information.

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Tables

TABLE 1 DISTRIBUTION OF SOCIODEMOGRAPHIC VARIABLES AMONG STUDY SUBJECTS

| Sociodemographic variables | Number | Percentage |
|---|--------|------------|
| Gender | | |
| Male | 98 | 44.5 |
| Female | 122 | 55.5 |
| Age (years) | | |
| 60-65 | 67 | 30.4 |
| 66-75 | 102 | 46.4 |
| 76-99 | 51 | 23.2 |
| ≥100 | 0 | 0.0 |
| Education | | |
| Illiterate | 133 | 60.5 |
| Literate | 87 | 39.5 |
| Religion | | |
| Hindu | 207 | 94.1 |
| Others | 13 | 5.9 |
| Type of family | | |
| Nuclear | 31 | 14.1 |
| Joint | 189 | 85.9 |
| Marital status | | |
| Currently married | 167 | 75.9 |
| Unmarried/ Separated/ Divorced/ Widowed | 53 | 24.1 |
| Financial dependency | | |
| Dependent | 75 | 34.1 |
| Partially dependent | 75 | 34.1 |
| Independent | 70 | 31.8 |

TABLE 2 DESCRIPTIVE STATISTICS OF TOTAL AND FACET QOL SCORES AMONG THE STUDY POPULATION

| QOL Scores | Mean | SD# | Range |
|--|-------|-------|---------------|
| QOL Facet I (Sensory Abilities) | 63.43 | 16.30 | 16.33 – 81.25 |
| QOL Facet II (Autonomy) | 45.11 | 16.29 | 16.29 – 100.0 |
| QOL Facet III (Past, Present and Future Activities) | 52.24 | 14.91 | 14.91 – 100.0 |
| QOL Facet IV (Social Participation) | 58.32 | 16.46 | 16.46 – 87.50 |
| QOL Facet V (Death and Dying) | 82.58 | 18.90 | 18.90 – 81.25 |
| QOL Facet VI (Intimacy) | 44.83 | 18.78 | 18.78 – 100.0 |
| Overall QOL Scores | 57.76 | 10.97 | 10.97 – 84.38 |
| # Standard deviation | | | |

TABLE 3 ASSOCIATION OF QOL SCORES WITH SOCIODEMOGRAPHIC VARIABLES

| Determinants | QOL scores (Mean ± SD) | | | | | | |
|-----------------|------------------------|------------------|------------------|------------------|------------------|------------------|-----------------|
| | SAB | AUT | PPF | SOP | DAD | INT | TTS |
| Gender | | | | | | | |
| Male (n=98) | 41.45 (±12.4) | 48.79 (±16.8) | 54.84 (±15.3) | 60.01 (±15.6) | 13.84 (±16.7) | 45.66 (±18.4) | 44.10 (±9.0) |
| Female (n=122) | 42.37 (±13.4) | 42.16 (±15.3) | 50.15 (±14.3) | 56.96 (±17.1) | 20.29 (±20.1) | 44.16 (±19.2) | 42.68 (±9.9) |
| p value* | 0.60 | 0.03 | 0.02 | 0.17 | 0.01 | 0.56 | 0.27 |
| Religion | | | | | | | |
| Hindu (n=645) | 42.21 | 44.41 | 51.72 | 58.21 | 17.63 | 45.14 | 43.22 |

| | | | | | | | |
|--|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| | (±12.9) | (±15.9) | (±14.8) | (±16.4) | (±19.2) | (±18.7) | (±9.7) |
| Others (n=15) | 37.98 (±13.8) | 56.25 (±19.4) | 60.58 (±15.0) | 60.10 (±17.8) | 13.94 (±13.8) | 39.90 (±20.7) | 44.79 (±7.3) |
| p value* | 0.25 | 0.01 | 0.04 | 0.69 | 0.50 | 0.33 | 0.57 |
| Type of family | | | | | | | |
| Nuclear (n=136) | 45.56 (±14.7) | 42.34 (±18.6) | 47.78 (±16.0) | 54.03 (±13.2) | 17.94 (±23.1) | 41.93 (±19.0) | 41.60 (±12.0) |
| Joint (n=534) | 41.37 (±12.6) | 45.57 (±15.9) | 52.98 (±14.6) | 59.03 (±16.9) | 17.33 (±18.2) | 45.30 (±18.7) | 43.60 (±9.1) |
| p value* | 0.09 | 0.31 | 0.07 | 0.12 | 0.87 | 0.36 | 0.28 |
| Marital status | | | | | | | |
| Currently married (n=476) | 41.77 (±13.0) | 45.39 (±16.0) | 53.51 (±15.5) | 60.67 (±16.1) | 15.01 (±18.2) | 46.23 (±19.0) | 43.76 (±9.8) |
| Unmarried/ Separated/ Divorced/ Widowed (n=184) | 42.52 (±13.0) | 44.31 (±17.2) | 48.55 (±12.6) | 51.45 (±15.8) | 24.44 (±19.2) | 40.74 (±17.8) | 42.00 (±8.5) |
| p value* | 0.71 | 0.67 | 0.03 | <0.001 | 0.001 | 0.06 | 0.23 |
| Education | | | | | | | |
| Illiterate (n=213) | 42.01 (±13.4) | 41.59 (±15.0) | 49.29 (±12.3) | 56.20 (±15.6) | 17.90 (±18.7) | 41.63 (±17.1) | 41.44 (±8.6) |
| Literate (n=447) | 41.88 (±12.3) | 50.50 (±16.7) | 56.75 (±17.4) | 61.57 (±17.3) | 16.67 (±19.3) | 49.71 (±20.3) | 46.18 (±10.2) |
| p value* | 0.94 | <0.001 | 0.001 | 0.02 | 0.64 | 0.002 | <0.001 |
| Age (Years) | | | | | | | |
| 60 – 65 (n=248) | 63.71 (±18.0) | 43.75 (±15.6) | 54.94 (±15.7) | 59.98 (±15.0) | 83.21 (±19.4) | 44.68 (±19.9) | 58.38 (±10.7) |
| 66 – 75 (n=269) | 64.28 (±15.0) | 47.61 (±16.7) | 51.59 (±15.1) | 57.60 (±17.2) | 80.88 (±19.3) | 46.02 (±18.4) | 58.00 (±11.0) |
| 76 – 99 (n=143) | 61.40 (±16.8) | 41.91 (±15.8) | 50.00 (±13.2) | 57.60 (±17.1) | 85.17 (±17.4) | 42.65 (±18.0) | 56.45 (±11.3) |
| p value* | 0.58 | 0.09 | 0.17 | 0.62 | 0.40 | 0.58 | 0.61 |
| Financial dependency | | | | | | | |
| Dependent (n=193) | 64.17 (±13.6) | 39.83 (±11.5) | 50.08 (±13.0) | 55.25 (±16.1) | 80.83 (±18.8) | 43.00 (±16.3) | 55.53 (±9.1) |
| Partially dependent (n=138) | 60.00 (±17.4) | 43.92 (±17.6) | 50.83 (±14.8) | 58.33 (±15.9) | 81.75 (±20.3) | 44.83 (±20.6) | 56.61 (±11.6) |
| Independent (n=329) | 66.34 (±17.4) | 52.05 (±16.9) | 56.07 (±16.3) | 61.61 (±17.0) | 85.36 (±17.4) | 46.78 (±19.3) | 61.37 (±11.4) |
| p value | 0.06# | <0.001! | 0.03# | 0.07# | 0.32# | 0.48# | 0.003# |

*Independent samples t-test, #One way ANOVA, !Welch ANOVA