Health related quality of life among rural elderly using WHOQOL-BREF in the most backward district of India

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Abstract

Background: In India, the population of above 60 years was approximately 8.2% in 2011, which is expected to rise to 11.6% by 2026. Due to epidemiological transition of diseases, morbidity of chronic nature will increase with increase of elderly population and it will affect the elderly quality of life (QOL). **Aim:** This study made an attempt to capture health-related quality of life HRQOL and its correlates among elderly subjects in most backward district of India. **Methods:** This cross-sectional study was conducted in Nagina for a duration of 4 months and included 430 elderly (60 years or above) dwelling in the same place for more than 1 year as participants. The information on sociodemographic details, WHOQOL-BREF scale details and history of chronic diseases or disorders was collected by multipurpose health workers female using a pretested, predesigned, standardized questionnaire. An association between variables and poor quality of life was significant if the *P* value was less than 0.05. **Results:** Nearly half of study participants were living in joint families (45.3%) and 67.7% of elderly gave history of chronic morbidity. There were nearly half of participants (48.8%) with poor QoL in physical health domain. Multiple linear regression analysis revealed that older age, male, no schooling, without spouse, lower economic status and chronic disorder were independently associated with low QOL score. **Conclusion:** The study reported that nearly half of the elderly (46.7%) had poor health QoL. The family physicians shall provide preventive and promotive measures to reduce the chronic morbidity among elderly to improve QOL.

Keywords: Environment, health center, morbidity, quality of life, rural

Introduction

The aging is part and parcel of life and its progress differs from person to person. This is due to different factors that influence this aspect of the course of life, such as physiological, social, psychological, economic, environmental, and cultural factors.[1] Worldwide it is observed that due to increased elderly life expectancy, there has been increased curiosity for assessing the quality of life (QOL) among elderly. Even in developing countries, demographic transition results in increasing life expectancy and increase in proportion of elderly population in near future. Elderly being a vulnerable population, QOL among them is an essential area to explore as it represents their health status and wellbeing.[2]

As per World Health Organization (WHO), QOL is individual's perception towards his or her life position in the culture or value system in which they inhabit, and in addition, it is related to one's life goals, expectations, standards, and concerns.[3] The WHO Quality of Life (WHOQOL) group has developed a brief QOL assessment scale, and it has good reliability and validity among Indians too.[2,4]

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For India, the population of above 60 years was approximately 8.2% in 2011, which is expected to rise to 11.6% by 2026.[5,6] Due to epidemiological transition of diseases, morbidity of chronic nature will increase with the increase of the elderly population and it will affect the elderly QOL.

Moreover, studies have suggested that QOL scores of elderly people are different from that of the general population.[7] Very few studies had been conducted to assess the QOL among elderly in India.[7-9] Many studies were conducted on QOL among elderly in other countries.[10,11] It was known that sociodemographic factors like age, education, marital status, and family structure influence the QOL among elderly population.[8,10] In addition, various studies have shown that chronic morbid conditions are associated with low QOL.[12] Nuh (Mewat) is one of the most backward districts in India as declared by NITI Aayog recently.[13] The manpower and infrastructure is already poorly developed. There is no data regarding the current status of the QOL among the elderly population residing in the Mewat region and hence this study made an attempt to capture the health-related QOL and its correlates among elderly subjects in this area. The present study will provide an opportunity to the primary care physicians and family physicians to understand the health QOL status among elderly, various domains of QOL and to be aware of factors associated with poor QOL. This will prioritize the need for developing geriatric clinics at the primary healthcare level.

Materials and Methods

Study area and study period

The present study was conducted during August–November 2018 in the service area of rural health center, Nagina, which also happens to be field practice area under the aegis of Department of Community Medicine, SHKM GMC, Nalhar, Haryana.

Study design and the participants

This cross-sectional study included elderly (60 years or above) dwelling in the same place for more than 1 year as participants.

Study population and sample size

The updated data for population coverage for health centers from Civil Surgeon office showed that rural health center (Nagina), which was study area, caters a population of 91,548 and those population resides in 42 villages of Nagina Taluk. Out of these 42 villages, one village was randomly selected for the present study, which had a total population of 13,258 of and total households are 1746.

The sample size was calculated (n = 384) considering the proportion of poor QOL as 50% (studies in Haryana not found) with confidence level of 95% and 5% absolute allowable error by applying the following formula: n = $(Z^{1-a/2})^2$ x p (1-p)/d²; where Z = Standard normal variate for level of significance [at 5% type I error ($P < 0.05$), Z = 1.96 for 2-sided test], a = Level of significance (0.05), P = Prevalence (proportion- 50%), d = Absolute Allowable error (5%), n = Sample Size.

As this study was novel to this field practice area and as it is being for the first time and being exploratory, nature of study, feasibility and acceptability of it was unsure; so expecting a drop out of 10%, a final sample size calculated was 426, which was rounded off to 430. A list of households in that was prepared and every fourth of the household was selected via systematic random sampling technique to obtain a sample size of 430 (approximately 24% of total households were covered). The household at ground floor was considered for the presence of the eligible subjects and one elderly subject was selected randomly from the selected household. If a household was not having any elderly subject or was found locked on three consecutive visits, then the next adjoining household was considered for sampling without disturbing the sampling interval. This was done continuously until the desired number of sample size is obtained. Subjects who were mentally or physically restricted to understand or respond to the questionnaire were excluded from the study.

Study tool

A pretested, predesigned, standardized questionnaire was prepared. The questionnaire included sociodemographic details, WHOQOL-BREF scale details and history of chronic diseases or disorders. Sociodemographic details included age, gender, education, marital status, family type, pension, religion, and socioeconomic status. Self-reported history of chronic diseases included insomnia, musculoskeletal disorder, hypertension, diabetes, low vision, and hearing impairment. The questionnaire was first prepared in English and then translated into Hindi by an expert and to check the translation of questionnaire, it was back translated into English by two independent researchers (unaware of the first English version). The questionnaire was presented to 15 faculty members to make it more acceptable. The questionnaire was piloted among 10 elderly and the average time taken to complete the questionnaire was about 20 minutes. Each and every attempt was done to make questions simple and unambiguous.

The questionnaire focusing on WHOQOL-BREF scale consisted of four domains namely physical health, psychological, social relationships and environment with a total of 26 questions.[2] Each of these domains were rated on a 5-point Likert scale with higher scores indicative of higher QOL. The raw scores were calculated for each domain and then it was transformed to a score with a range between 0 and 100, with higher scores indicative of higher QOL. For each domain and for total score mean and median were calculated. There is no clear cut-off to determine "good" from "poor" QOL or feeling satisfied with health. However, it was decided to classify subjects into those who had score less than median (poor QOL/unsatisfied feeling with health) and those who had score equal or more than median (good QOL/satisfactory feeling with health).

Modified B.G. Prasad socioeconomic status classification (revised for year 2018, CPI 2001 as base) was used to assess the SES of elderly.[14]

Data collection

Before conducting the study in the practice field area, the Multi-Purpose Health Worker Female (MPHW-F) themselves were needed to be educated on QOL, so keeping this in mind, seven MPHW-F were given training about the importance, application of the instrument WHOQOL-BREF, and data collection process. While data collection, the MPHW-F had face-to-face interaction with study subjects for questionnaire filling and they were supervised by the investigators. The filled-in questionnaire was collected and were thoroughly checked to rule to out any incompleteness. For ethical reasons, the subjects having the history and/or symptoms of chronic disease were directed to the nearest government health facility for investigation and treatment.

Statistical analysis

The data collected during the study was simultaneously entered into Microsoft Excel spreadsheet. The variables were coded in an appropriate manner. The IBM SPSS Statistics for Windows, Version 26.0 (IBM Corp. Armonk, NY, USA) was used for carrying out analysis of entered data. In SPSS, while data was cleaned, new variables were also created so that association between variables can be facilitated. Categorical data were presented as percentages (%), whereas continuous data were presented as mean and standard deviation. The difference in the WHOQOF-BREF scores between various groups were analyzed using Independent t test and ANOVA. Multivariate linear regression had been done to find out the strength of association between QOL score and independent variables. All tests were performed at a 5% level of significance; thus, an association was significant if the *P* value was less than 0.05.

Ethical consideration

Ethical approval was obtained from the SHKM GMC Institutional Ethical Committee, Nalhar (Approval letter number: EC/22/2018). Written informed consent from the elderly was obtained and anonymity and confidentiality of the participants was maintained throughout the study.

Results

There was nearly an equal participation of male (56.7%) and female (43.3%) in the study. Around half of participants (48.1%) belonged to 60–69 years of age group and mean age of study participants was 71.23 years. More than one-fourth of participants (26.7%) had widowed as their marital status. Being the most backward district of India, more than half of participants (50.2%) were illiterate. As the study was done in rural area, nearly half of participants were living in joint families (45.3%). More than two-third of participants (67.7%) gave history of suffering from one or more of chronic

morbidity [Table 1]. Being elderly, the most common chronic morbidity as observed in Figure 1 were musculoskeletal disorders such as arthritis followed by diabetes (26.5%), and low vision (20.7%).

Table 2 shows the raw mean score for WHOQOL-BREF items/domains and it was observed that mean score (SD) for overall QOL and general health items was 3.05 ± 1.06 and 3.00 ± 1.13, respectively. The WHOQOL-BREF mean score for social relationships domain was maximum (52.79 + 22.91) and was minimum for the environmental domain (44.79 + 23.41). Considering median as the cut off for defining QOL as "good" or "poor" there were nearly half of participants (48.8%) with poor QOL in physical health domain [Table 3].

The association between mean score of various domains and with sociodemographic factors and morbidity status was analyzed in the Table 4 by applying Independent sample t test and ANOVA test and it was observed that there was no significant difference (p > 0.05) in the mean score of psychological health and social relationships for elderly male and female. Similarly,

Table 1: Baseline sociodemographic characteristics and morbidity status of study subjects (*n*=430)		
Variable	**Frequency/mean**	**Percentage/SD**
Gender		
Male	244	56.7
Female	186	43.3
Mean age (in years)	71.23	7.60
Age group (in years)		
60-69	207	48.1
70-79	132	30.7
80 and above	91	21.2
Marital Status		
Married	253	58.8
Unmarried	45	10.5
Widowed	115	26.7
Divorced	17	4.0
Education		
Illiterate	216	50.2
Primary	69	16.0
Middle	57	13.3
Secondary	32	7.4
Graduation or above	56	13.0
Socioeconomic status		
Class I	48	11.2
Class II	106	24.7
Class III	94	21.9
Class IV	109	25.3
Class V	73	17.0
Family type		
Joint	195	45.3
Nuclear	96	22.3
Extended	139	32.3
Chronic morbidity		
No	139	32.3
Yes	291	67.7

there was no significant difference (p > 0.05) in the mean score of psychological health, social relationships and environment for joint, nuclear, and extended families of elderly. Multiple linear regression analysis revealed that older age, male, no schooling, without spouse, lower economic status, and chronic disorder were independently associated with low QOL score [Table 5].

Discussion

In present study the mean age of elderly was found to be 71.23 ± 7.60 years, which was in contrast to the studies done by Devraj *et al.*,[15] and Praveen *et al.*,[16] where the mean age of study

Table 2: Scores of WHOQOL-BREF items among study subjects (*n*=430)

	Mean (Raw)	Standard deviation (SD)
WHOQOL-BREF Items/Domains		
Q1 Overall QOL	3.05	1.06
Q2 General health	3.00	1.13
Domain 1: Physical Health	20.99	7.78
Q3 Physical pain	3.10	1.39
Q4 Medical treatment	3.09	1.33
Q10 Energy	2.79	1.27
Q15 Mobility	2.88	1.36
Q16 Sleep	3.07	1.17
Q17 Daily living activities	3.07	1.26
Q18 Working capacity	2.98	1.24
Domain 2: Psychological Health	17.32	5.50
Q5 Life enjoyment	2.56	1.22
Q6 Meaningfulness of life	2.81	1.25
Q7 Concentration	2.55	1.09
Q11 Bodily appearance	3.23	1.22
Q19 Self-satisfaction	3.43	0.92
Q26 Negative feelings	2.74	1.41
Domain 3: Social Relationships	9.33	2.69
Q20 Personal relationship	3.25	1.01
Q21 Sex life	2.86	1.21
Q22 Social support	3.22	0.96
Domain 4: Environment	21.82	7.46
Q8 Day-to-day safety	2.56	0.98
Q9 Physical environment	2.89	1.04
Q12 Financial resources for needs	2.47	1.38
Q13 Daily information	2.70	1.24
Q14 Leisure activities	2.13	1.25
Q23 Home environment	3.14	0.90
Q24 Access to health	3.05	1.13
Q25 Transport facility	2.88	1.15

participants was 65.59 ± 6.53 and 66.33 ± 6.7 years, respectively. The present study witnessed the negative linear relationship between age and QOL, showing an increase in age and a decrease in health-related QOL, which can be understood from the effect of chronic conditions among older people. Similar results were revealed in the studies conducted by Kumar *et al.*[4] and Sivapragasam *et al.*[17] But surprisingly, study by Low *et al.*[7] from developed nations did not confirm such a relationship between age and QOL; and age was not having any effect over QOL.[3]

In this study, the female elderly WHOQOL-BREF score was higher than males in all four domains and similar findings were observed in the studies done by Karmakar *et al.*[18] and Brajesh *et al.*,[19] whereas studies done by Shah *et al.*[20] and Mittal *et al.*,[21] showed that males have a better QOL in almost every domain than females.

Present study showed that while comparing QOL with educational status of elderly, it was quite clear that the QOL scores were higher among elderly with higher literacy level or vice versa. Previous studies by Ghosh *et al.*,[22] Mondal *et al.*,[23] and Elsous *et al.*,[1] have also confirmed a similar relationship between education and QOL among the elderly; and with the increase in education the QOL is also enhanced.

In the present study, the marital status of elderly was also significantly associated with QOL scores with married elderly having higher QOL scores as compared to unmarried or divorced or widowed and similar pattern was observed in the studies done by Brajesh *et al.*,[19] Bansal *et al.*,[24] and Dasgupta *et al.*,[25] where staying with partners was found to be significant determinant of better QOL, whereas in the study by Varghese *et al.*,[26] there was no association found between QOL of the elderly people and
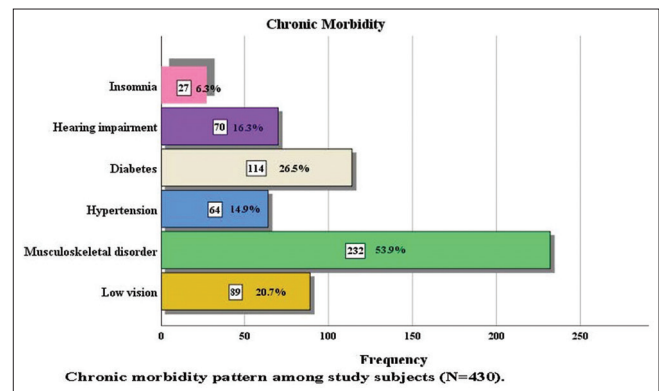

Figure 1: Quality of life

Table 3: Scores of the WHOQOL-BREF various domains among study subjects (*n*=430)

WHOQOL-BREF Domains	Mean	SD	Minimum	Maximum	Median	Poor QOL *n* (%)
Physical Health	50.47	27.77	13	94	50	48.8%
Psychological Health	47.44	23.26	6	94	44	44.0%
Social Relationships	52.79	22.91	6	94	53	50.0%
Environment	44.78	23.41	6	94	38	42.3%
Overall QOL score	48.86	21.93	15	92	39	46.7%

Table 4: Association of WHOQOL-BREF domain score with socio-demographic factors and morbidity status (*n*=430)

Variable	Mean±SD			
	Physical Health	Psychological Health	Social relationships	Environment
Age group (in years)				
60-69	51.44±29.63	47.10±22.85	52.83±24.92	41.48±25.24
70-79	64.74±21.54	54.31±24.61	62.91±15.69	57.97±19.87
80 and above	27.54±12.54	38.26±18.65	38.02±18.75	33.14±12.73
P	<0.001	0.002	0.015	0.002
Gender				
Male	46.57±28.60	45.16±23.14	52.13±25.98	43.39±26.61
Female	55.58±25.83	50.44±23.14	53.66±25.986	46.59±18.28
P	0.001	0.019	0.492	0.161
Marital Status				
Married	62.00±27.43	55.95±22.83	61.85±21.48	50.20±24.22
Unmarried	31.91±12.95	24.51±11.61	37.62±19.09	40.00±23.09
Widowed	34.41±18.99	38.39±18.83	39.62±18.97	35.46±17.94
Divorced	36.53±25.72	42.76±12.86	47.18±3.08	39.71±22.63
P	<0.001	0.107	0.007	0.039
Education				
Illiterate	30.23±17.86	32.49±13.83	40.50±18.24	29.75±13.37
Primary	60.48±23.05	56.52±19.11	58.59±17.56	47.32±21.69
Middle	73.39±21.68	62.79±23.70	67.58±18.78	65.05±12.86
Secondary	68.75±8.98	51.50±20.62	51.50±18.15	43.75±18.20
Graduation or above	82.43±8.57	76.00±12.01	78.71±17.13	79.57±9.37
P	<0.001	<0.001	<0.001	<0.001
Socioeconomic status				
Class I	87.83±3.80	83.50±9.49	80.33±10.59	80.33±8.56
Class II	68.20±18.54	60.73±14.04	64.99±14.66	58.42±18.98
Class III	58.18±23.80	48.17±22.47	50.35±26.33	42.66±17.60
Class IV	30.12±14.00	30.46±12.83	42.33±16.26	29.77±15.09
Class V	20.60±7.48	28.86±7.08	35.73±15.95	26.73±12.50
P	<0.001	<0.001	<0.001	<0.001
Family type				
Joint	58.69±26.45	50.91±22.24	56.41±24.07	48.45±24.26
Nuclear	41.06±21.36	39.48±19.06	44.81±22.17	37.42±17.90
Extended	45.43±30.28	48.07±25.98	53.23±20.38	44.71±24.47
P	<0.001	0.264	0.205	0.144
Chronic morbidity				
No (*n*=139)	75.25±18.43	61.87±22.50	65.33±17.44	56.38±23.86
Yes (*n*=291)	38.63±23.32	40.55±20.30	46.80±22.80	39.23±21.07
P	<0.001	<0.001	<0.001	<0.001

Table 5: Multivariate linear regression analysis of overall WHOQOL-BREF score (*n*=430)

Variables	Standardized beta coefficient	*P*
Age (in years)	-0.145	<0.001
Gender	0.156	<0.001
Marital status	-0.087	0.003
Education	0.299	<0.000
Socioeconomic status	-0.495	<0.001
Family type	0.054	0.056
Chronic morbidity	0.105	<0.001

R^2=0.734; Adjusted R^2=0.729; SE=11.411

their marital status. At advanced age, people feel lonely and have fewer social networks. In such situations, being married plays an important role and living with a partner might help to get social and emotional support with a better score in QOL.

In present study, majority of the respondents (67.7%) were reporting to suffer from morbidity conditions such as musculoskeletal disorders (53.9%), diabetes (26.5%), hypertension (14.9%), and vision problems (20.7%). Similar results were found in the study conducted by Rent *et al.*,[5] wherein 22.8% of the elderly population reported arthritis. Above findings clearly reflect that those chronic morbidities are quite prevalent in aged population and primary care physicians shall focus on such morbidities and shall provide health services of comprehensive nature to geriatric population. In present study, it was also found that as the number of morbidities increased, there were significant reductions in the QOL score of the elderly, which was in coherence with the studies done by Dasgupta *et al.*[25] and Thadathil *et al.*,[27] where absence of co-morbidity was found to be the determinant of better QOL score.

The study reported that nearly half of the elderly (46.7%) had poor health QOL, and it was comparable to the studies done by Sivapragasam *et al.*[17] and Missiriya *et al.*,[28] where 54.8% and 48.3% had poor health QOL, respectively. But studies by Swain *et al.*,[8] (61.5%), Qadri *et al.*,[9] (68.2%) and Devraj *et al.*,[15] (74.7%) showed higher good health QOL among elderly as compared to present study.

In this study, the highest score was observed for the social relationships with a mean value of 52.79 ± 22.91 and the lowest score was observed for the environment domain with a mean value of 44.78 ± 23.41. Moreover, high social relationships score reflects the strong socio-cultural position of elderly. In rural areas, respect and holiness are given to older people and culturally it is unacceptable to keep them in old age homes and thus they remain under family care. Global studies of Elsous *et al.*[1] and Tavares *et al.*[29] had reflected similar findings where minimum score was observed for the environment domain (60.5 ± 12.5 and 73.87 ± 9.76, respectively), and the maximum score was achieved in the social relationship domain (65.4 ± 15.3 and 63.33 ± 1.21, respectively). Other studies by Varela *et al.*[10] and Varghese *et al.*[26] also reported that social relationship domain score was comparatively higher than scores for psychological, physical, and environmental domains. But such pattern was not consistent as seen in the studies by Praveen *et al.*,[16] (score for social relationship domain was minimum), Thadathil *et al.*[27] and Panday *et al.*,[30] (the mean scores of QOL domains was maximum in physical health), and Devraj *et al.*,[15] (the mean scores of QOL domains was maximum in environment domain). Similar relationship for various domains with the sociodemographic variables was observed in studies from developed counties.[31,32]

To summarize, in present study, the nearly half of elderly participants had poor overall QOL score and multiple linear regression analysis revealed that older age, male, no schooling, without spouse, lower economic status, and chronic disorder were independently associated with low QOL score.

Limitations

The present study has got its own limitations such as subjective biasness incurred while interviewing the participants, reporting of lower prevalence of chronic diseases and related complications among participants as only documented diagnosed chronic diseases were noted. Also, due to limited trained human resource, we skipped to capture the mental health status of elderly. But despite such limitations, the present study conducted at the level of community and cross-sectional in design, using a standardized questionnaire provides an important finding about the QOL among elderly and factors associated with poor QOL scores.

Conclusions

The present study reflected that quality of life (QOL) related to health was poor among nearly half of elderly participants. It is a well known fact that with the progression of age, the disorder and disability are part and parcel of life, though the disorder and disability cannot be prevented completely; but family physicians at the level of primary health care shall provide preventive and promotive measures to reduce the progression of disorder and disability among elderly, which would in turn lead to enhancement of their health status and as well as QOL. Preventive and promotive measures at the level of primary care includes making elderly aware of health-related schemes available to them, preventing and managing disease of chronic nature via geriatric clinics and family visiting physician to counsel the elderly with poor QOL.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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