

# Health related quality of life of the geriatric population living in rural areas of West Tripura district of India: a cross-sectional study

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## Abstract

Growing life expectancy is challenging the quality of health care for elderly. Information regarding health related quality of life (QOL) may help policy makers to design need based health programs for this population. The objectives of this study were to estimate health related QOL of the geriatric population living in rural areas of West Tripura district and to compare it between ethnic and non-ethnic populations in respect to important domains. This community based cross-sectional study was conducted during 1<sup>st</sup> February 2019 to 31<sup>st</sup> March 2020 among 225 geriatric subjects of rural West Tripura district chosen by multistage sampling. World Health Organization's QOL-BREF scale was used for data collection. Among the study population 46.2% had overall good health related QOL. About 52.9% had good QOL in environment and 37.3% had good QOL in social relationship domains. Marginally higher proportion of the subjects from ethnic origin had better QOL than the non-ethnic but it was not significant. Higher proportion of the Muslim subjects had better QOL than the rest, but it was also not significant. Bivariate analysis showed significant associations of QOL with age, sex, literacy, financial condition, socioeconomic status and type of family. Multivariate analysis identified male sex, younger age and living with spouse as significant predictors of good QOL. Overall health related QOL of the geriatric people living in rural areas of West Tripura district is poor but younger male subjects, of ethnic origin and living with spouse may enjoy relatively better QOL.

## Introduction

Quality of life (QOL) is defined by the World Health Organization (WHO) as 'the condition of life resulting from the combination of the effects of the complete range of factors such as those determining health,

happiness, education, social and intellectual attainments, freedom of action, justice and freedom of expression'.<sup>1</sup>

All the aspects of health status, lifestyle, life satisfaction, mental state and well-being together reflect the multidimensional nature of QOL.<sup>2</sup> As life expectancy keeps on rising, the biggest challenge to public health remains the improvement in the quality of life during the later phase of life.<sup>3</sup> In old age, there is increased risk of morbidity due to limitations of movements due to pain and discomfort and this is exacerbated by financial burden and difficulties in accessing health care services. Geriatric health care services being relatively newer discipline in the developing world, modern physicians need to be sensitized regarding the clinical and social implications of ageing.

The medical and psycho-social challenges being faced by the elderly should be highlighted and strategies for bringing about an improvement in their quality of life should be implemented.<sup>4</sup> In India, the share of population over the age of 60 yr. is 8.6%, which will increase to 19 % in 2050.<sup>5</sup> According to census 2011, there were nearly 104 million elderly (aged 60 yr.) in India.<sup>6</sup>

Tripura has the highest proportion of elderly population (7.9 %) among all the North-Eastern states of India, which is 206 per thousand general populations in the rural areas.<sup>7</sup> Though there are many global and Indian studies regarding assessment of QOL among geriatric population, limited studies have been conducted in North-East India and the scenario in Tripura is further unexplored. In this context the present study was designed to estimate the health-related QOL among geriatric population living in rural areas of West Tripura district of India and determine the associations of various factors with their QOL.

## Materials and Methods

This community based cross-sectional study was conducted during 1<sup>st</sup> February 2019 to 31<sup>st</sup> March 2020 in the rural areas of West Tripura district. A predesigned, pretested and structured interview schedule containing socio-demographic information and WHOQOL-BREF scale were used for collecting data.

Minimum sample size requirement for this study was calculated using the formula:  $n = Z^2 \cdot \sigma^2 / d^2$ .<sup>8</sup> Where, n=sample size;  $\sigma$ =standard deviation of overall quality of life (10.21 in this study).<sup>9</sup>  $Z_{\alpha/2} = 1.96$  (value of the standard normal deviate at 5% level of significance),  $d$ =absolute precision=2 and additional 10% for the incomplete respons-

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Contributions: AD has prepared the study protocol, collected data after obtaining approval from Institutional Ethics Committee, performed data entry and analysis. She has also drafted the manuscript. HB has guided the first author in preparing the study protocol, collecting data and data entry in computer. Also analyzed data and scrutinized the manuscript.

Conflict of interest: the authors declare no potential conflict of interest.

Ethics approval: this study was approved by the institutional Ethics Committee of Agartala Government Medical College.

Place of conducting the study: this study was conducted among the geriatric population living in rural areas of West Tripura district of Northeast India during 1<sup>st</sup> February 2019 to 31<sup>st</sup> March 2020.

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es was considered for this study. Thus, final sample size was calculated to be 220 geriatric subjects.

Multistage random sampling was adopted for selecting the study subjects. West Tripura district has 9 blocks. Block-wise list of sub-centers was obtained from the Directorate of Family Welfare and Preventive Medicine and used to construct sampling frame. One sub-center from each of these blocks was selected by simple random sampling without replacement. Thus 9 sub centers were selected from 9 blocks. Households having geriatric subjects were identified by studying the family registers

maintained at different sub-centers and sub-center level sampling frames were prepared. Equal number of study subjects was planned to be selected from each sub-center. Thus,  $(220 \div 9) = 24.44 \sim 25$  geriatric individuals were selected from each sub-center area by simple random sampling without replacement. Only one geriatric individual from each of these identified houses were selected by lottery and thus total 225 geriatric individuals were enrolled in this study.

WHOQOL-BREF<sup>10</sup> questionnaire considered 4 domains namely: physical health, psychological, social relationships and environmental domain with 26 questions. Likert's 5-points scale in the positive direction was used for rating each domain. As per the WHO guidelines scores for each domain was calculated by adding the scores of all items of that domain and transforming them into a value ranging from 4-20. Overall total and mean score of all the domains were calculated. The mean score for overall quality of life was considered as cut-off. Those who scored equal, or more than the mean score were considered as having good QOL and those scored below the mean were considered as having poor QOL.

Subjects aged  $\geq 60$  years were considered as geriatric subjects and those residing in block or village panchayet areas were considered as rural subjects. Subjects belonging to the tribal communities were considered as ethnic. Socio economic status of the study subjects was determined using BG Prasad's socioeconomic classification scale 2019. Subjects having no formal schooling were considered as illiterate, schooling at to any level up to class V as primary, any level between class V to XII as secondary and beyond class XII were considered as graduate and above.

Data were analyzed using SPSS-25 for windows (IBM Corp. Released 2017; IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.). For summarizing the qualitative data frequency and percentages and for quantitative data mean and SD were used. Chi-square statistic was applied to test the associations of QOL with various socio-demographic parameters. Binary logistic regression was applied to study the effect of predictor variables in determining QOL. P value  $< 0.05$  was considered as statistically significant. IEC of Agartala Government Medical College has approved this study.

## Results

Overall QOL was found to be good in 46.2% of the geriatric subjects. Marginally higher proportion of the subjects from ethnic

origin had better quality of life than the non-ethnic but was not significant. The study subjects perceived physical health as the most important factor [mean (SD) score 73.18 (9.65)] and social health as the least [mean (SD) score 27.5 (6.43)] for QOL. It was found that 52.9% of the study subjects were enjoying good QOL in the domain of environment and 37.3% in the social domain.

Regarding socio-demographic parameters, mean (SD) age of the study subjects was 69.67 ( $\pm 8.8$ ) yr. The study shows female preponderance of 53.3% and majority (86.2%) followed Hindu religion. 72% study subjects were married, 41.8% belonged to scheduled tribe *i.e.*, of ethnic origin. 66.1% were illiterate, 53.3% were unemployed. Majority (72%) of the study subjects belonged to joint families, 67.6% were living in kutcha houses, 36.4% of the study subjects belonged to lower middle class socioeconomic status and 46.7% subjects possessed APL category ration cards (Table 1).

Chief complaints reported by the study population are shown in Table 2. On clinical examination 23.9% of the study subjects were normotensive, 30.7% pre-hypertensive, 25.8% stage I and 14.2% stage II hypertensive. Majority (68%) of the study subjects were euglycaemic followed by 19.1% pre-diabetic and 12.9% diabetic. Among all 53.3% had normal BMI.

Domain-wise quality of life of the study subjects as per WHO QOL BREF shows majority *i.e.*, 52.9% were enjoying good QOL in environmental domain, followed by physical domain (51.1%), psychological domain (40%) and social domain (37.3%) (Table 3).

Subjects aged either 70 yr. or less had significantly higher QOL in physical and social domains than those aged  $> 70$  yr. ( $P < 0.05$ ). Male subjects had significantly higher QOL in physical and psychological domains than the females. It also showed that subjects belonging to ethnic origin had

**Table 1. Socio-demographic profile of the study population (n=225).**

Variables	Sub-groups	Frequency (%)
Age	60-69 yrs.	126 (56)
	>69-80 yrs.	62 (27.6)
	>80 yrs.	37 (16.4)
Sex	Male	105 (46.7)
	Female	120 (53.3)
Marital status	Married	162 (72)
	Widow/widower	59 (26.2)
	Unmarried	02 (0.9)
	Separated	02 (0.9)
Religion	Hindu	194 (86.2)
	Muslim	03 (1.3)
	Christian	27 (12)
	Others	01 (0.4)
Caste	General caste	43 (19.1)
	Scheduled caste	41 (18.2)
	Scheduled tribe	94 (41.8)
	Other backward community	47 (20.9)
Literacy	Illiterate	151 (67.1)
	Primary	57 (25.3)
	Secondary	09 (4)
	Graduate and above	08 (3.6)
Occupation	Housewife	31 (13.8)
	Service holder	04 (1.8)
	Unemployed	120 (53.3)
	Retired	15 (6.7)
	Businessman	26 (11.6)
	Others	29 (12.9)
Type of family	Nuclear	63 (28)
	Joint	162 (72)
Socioeconomic status (BG Prasad scale 2019)	Upper class	14 (6.2)
	Upper middle class	37 (16.4)
	Middle class	54 (24)
	Lower middle class	82 (36.4)
Type of ration card	Lower class	38 (16.9)
	APL	105 (46.7)
	BPL	120 (53.3)

significantly higher QOL in social domain than those of non-ethnic origin ( $P < 0.05$ ). Subjects who were Hindu had higher QOL in all four domains than those belonging to

other religious groups, though these were not significant. Subjects living with spouse had significantly higher QOL in all four domains than those living singly. Higher

QOL in all four domains was enjoyed by economically independent and literate subjects though statistically not significant ( $P > 0.05$ ) (Table 4).

Age, sex, marital status, literacy, economic condition, type of family and type of ration card possessed by the study subjects were significantly associated with their QOL ( $P < 0.05$ ) [\*Fisher's exact test] (Table 5).

Binary logistic regression analysis shows that female subjects had 45.5% less-

**Table 2. Chief complaints reported by the geriatric study population (n=225).**

Chief complaints	Frequency (%)
Joint pain	50 (22.2)
Breathing problem	09 (4.0)
Tooth ache and loosening of teeth	07 (3.1)
Diminution of vision and other eye problems	14 (6.2)
Generalized body ache	21 (9.3)
Low backache	09 (4.0)
Tingling and numbness over limbs	08 (3.6)
Heartburn and acidity	15 (6.7)
Sleeplessness	12 (5.3)
Generalized weakness	40 (17.8)
Reeling of head	14 (6.2)
Lack of appetite	21 (9.3)
Diminished hearing	05 (2.2)

**Table 3. Domain wise quality of life of the study subjects as per WHO QOL BREF (n=225).**

Domain of quality of life	Quality of life	
	Good	Poor
Physical domain	51.1%	48.9%
Psychological domain	40.0%	60.0%
Social domain	37.3%	62.7%
Environmental domain	52.9%	47.1%

**Table 4. Quality of life in different domains by socio-demographic parameters (n=225).**

Domains →	Physical	Psychological	Social	Environment
Age ≤70yr	74.41 (9.440)	64.60 (9.317)	28.51 (6.882)	58.97 (8.667)
Age >70yr	71.62 (9.734)	62.26 (9.235)	26.30 (5.601)	59.07 (9.334)
t-value	2.176	1.878	2.585	0.083
P-value	0.031	0.062	0.010	0.933
Male sex	74.76 (9.108)	65.03 (9.908)	28.11 (6.456)	59.73 (9.708)
Female sex	71.80 (9.932)	62.30 (8.641)	27.03 (6.393)	58.38 (8.213)
t-value	2.319	2.207	1.259	1.130
P-value	0.021	0.028	0.209	0.260
Ethnic origin	73.23 (9.331)	63.83 (9.475)	28.72 (6.425)	58.13 (9.669)
Non ethnic origin	73.15 (9.907)	63.39 (9.262)	26.69 (6.323)	59.65 (8.370)
t-value	0.068	0.348	2.367	1.229
P-value	0.946	0.728	0.019	0.220
Hindu religion	73.47 (9.584)	63.90 (9.343)	28.77 (5.881)	59.39 (8.694)
Other religions	71.35 (10.018)	61.55 (9.161)	27.34 (6.507)	56.65 (10.229)
t-value	1.136	1.303	1.154	1.593
P-value	0.257	0.194	0.250	0.113
Living with spouse	74.99 (9.127)	65.32 (9.474)	28.75 (6.681)	60.11 (8.615)
Living singly	68.63 (9.488)	59.19 (7.378)	24.50 (4.536)	56.25 (9.234)
t-value	4.669	4.644	4.670	2.972
P-value	0.000	0.000	0.000	0.003
Illiterate	72.85 (9.268)	62.94 (8.833)	27.02 (6.213)	58.41 (9.064)
Literate	73.86 (10.418)	64.86 (10.220)	28.59 (6.774)	60.24 (8.632)
t-value	0.742	1.457	1.733	1.447
P-value	0.459	0.147	0.084	0.149
Dependent	72.60 (9.873)	63.20 (9.458)	27.11 (6.249)	58.77 (8.968)
Independent	74.81 (8.868)	64.61 (8.969)	28.75 (6.827)	59.69 (8.927)
t-value	1.516	0.993	1.687	0.680
P-value	0.131	0.322	0.093	0.497

er chance of having good QOL than males and it was statistically significant [95% CI=0.230-0.901; P=0.024]. Subjects aged more than 70 yr. had 43.5% lesser chance of having good QOL than those aged 70 yrs. or less [95% CI=0.207-0.912; P=0.027] similarly subjects living singly had 35.3% lesser chance of having good QOL than those living with their spouse [95% CI=0.164-0.761; P=0.008]. The rest did not attain the level of statistical significance (Table 6).

## Discussion

This cross-sectional study was conducted after approval by institutional ethics committee of Agartala Govt. Medical College and getting written informed consent. The present study has found that only 46.2% of the elderly subjects were enjoying good QOL. This is at par with the result of the study conducted by Dasgupta A *et al.*<sup>11</sup> where 45.1% of the elderly had good QOL.

In a study conducted by Shah V *et al.*<sup>12</sup> 3.3% of the study subjects had fair, 46% had good and 50.8% had excellent QOL, but none of them had poor QOL. On the other hand, Qadri SS *et al.*<sup>4</sup> in their study found that 68.2% of the elderly subjects had good QOL, 30.9% had average and 0.9% had poor QOL. These differences may be because the studies were conducted in different settings.

Highest proportion of the study subjects *i.e.*, 52.9% had good QOL in the environ-

**Table 5. Quality of life by socio-demographic parameters of the geriatric subjects (n=225).**

Parameters	Subgroups	Quality of life		Significance
		Good	Poor	
Age group	≤70 yr	77 (53.1%)	68 (46.9%)	$\chi^2=7.009$ P=0.008
	>70yr	27 (33.8%)	53 (66.3%)	
Sex	Male	59 (56.2%)	46 (43.8%)	$\chi^2=7.870$ P=0.005
	Female	45 (37.5%)	75 (62.5%)	
Ethnicity	Ethnic	44 (46.8%)	50 (53.2%)	$\chi^2=0.022$ P=0.881
	Non-ethnic	60 (45.8%)	71 (54.2%)	
Caste	General caste	21 (48.8%)	22 (51.2%)	$\chi^2=0.875$ P=0.832
	Scheduled caste	20 (48.8%)	21 (51.2%)	
	Scheduled tribe	44 (46.8%)	50 (53.2%)	
	Other backward class	19 (40.4%)	28 (59.6%)	
Literacy	Illiterate	62 (41.1%)	89 (58.9%)	* $\chi^2=12.300$ P=0.005
	Primary educated	29 (50.9%)	28 (49.1%)	
	Secondary educated	05 (55.6%)	04 (44.4%)	
	Graduate and above	08 (100%)	00 (0%)	
Marital status	Living with spouse	90 (55.9%)	71 (44.1%)	$\chi^2=21.330$ P=0.000
	Living singly	14 (21.9%)	50 (78.1%)	
Economic condition	Dependent	60 (39.7%)	91 (60.3%)	$\chi^2=7.773$ P=0.007
	Independent	44 (59.5%)	30 (40.5%)	
Type of family	Nuclear	36 (57.1%)	27 (42.9%)	$\chi^2=4.198$ P=0.040
	Joint	68 (42.0%)	94 (58.0%)	
Type of ration card	BPL and similar	59 (56.2%)	46 (43.8%)	$\chi^2=7.870$ P=0.005
	APL	45 (37.5%)	75 (62.5%)	

\*Fisher's exact test.

**Table 6. Binary logistic regression analysis predicting quality of life of the study population (n=225).**

Variables	OR (95% CI)	P-value
Sex	Male	1
	Female	0.455 (0.230-0.901)
Age group	≤70yrs	1
	>70yrs	0.435 (0.207-0.912)
Marital status	Living with spouse	1
	Living singly	0.353(0.164-0.761)
Literacy	Illiterate	1
	Literate	1.064 (0.517-2.188)
Socioeconomic status	Upper class	1
	Lower class	0.545(0.087-3.417)
Type of family	Nuclear	1
	Joint	0.558 (0.289-1.076)
Economic condition	Independent	1
	Dependent	0.670 (0.310-1.447)
Type of ration card	BPL and similar	1
	APL	1.007 (0.164-6.180)

mental domain whereas only 37.3% of the subjects had good QOL in the social domain. Pravin and Rani<sup>13</sup> in their study also had similar findings in the environmental domain. This may be because the elderly people living in rural areas were relatively more satisfied about their natural environment. Mudey *et al.*<sup>14</sup> in their study concluded that the QOL of the rural elderly was good in the physical and psychological domains whereas QOL among the elderly of the urban slums was better in areas of social relationship and environmental domains.

In the present study mean (SD) age of the study subjects was found to be 69.67 (8.8) yr., which is like the findings of a study conducted in urban Mangalore, India, where the mean age was 68.62±6.59 yr.<sup>15</sup> Majority (56%) belonged to 60-69 yr. age group. Ghosh *et al.*<sup>2</sup> also found 68.25% of the subjects to be in the age group of 60-69 yr. Present study revealed that subjects aged 70 yrs. or less had significantly higher QOL in physical and social relationship domain than the older.

Present study showed female preponderance (53.3%), which is comparable with the studies conducted by Sowmiya *et al.*<sup>16</sup> where female participants outnumbered males. In the present study significant gender-related differences were found in the physical and psychological domains of QOL scores. The present study also revealed that females had 45.5% lesser chance of having good QOL as compared to the males [95% CI=0.230-0.901; P=0.024]. Study conducted by Lokare *et al.*<sup>17</sup> at Vidyanagar, Karnataka showed that mean score of male and female differed significantly only in the physical domain but not in others.

In the present study the subjects were predominantly Hindu (86.2%) by religion. In the studies conducted by Akbar *et al.*<sup>18</sup> and Karmakar *et al.*<sup>19</sup>, majorities of the subjects were Hindu by religion. In the present study relatively higher proportion of the subjects of Muslim religion had over all good quality of life as compared to the rest. Subjects belonging to Hindu religion had higher quality of life than the non-Hindu in all four domains of QOL, though statistically it was not significant (P>0.05). Study conducted by Karmakar *et al.*<sup>19</sup> showed significant association between QOL and religion of the respondents in the psychological domain.

In the present study lower middle class constituted 36.4% of the subjects which is contrary to the finding of Karmakar *et al.*<sup>19</sup> where lower middle class constituted only 14.5%. Karmakar *et al.*<sup>19</sup> also found socioeconomic status to have significant associations with psychological and environmental domains of the QOL. Study conducted by Nilsson *et al.*<sup>20</sup> in Bangladesh also reported

economic status as a significant determinant of QOL among the elderly.

In the present study good QOL was found among the subjects living with their spouse and it was at par with the findings of a study conducted by Qadri *et al.*<sup>4</sup> Sowmiya *et al.*<sup>16</sup> also reported better mean QOL score in all the domains among the elderly subjects except the psychological domain.

Present study showed that overall QOL increased with the increment in the level of education. Literacy showed significant association with the overall QOL of an individual but not in domain wise QOL. In a similar study, Qadri SS *et al.*<sup>4</sup> also reported literacy of an individual to be significantly associated with QOL.

In the present study occupation of the participants had significant association with their QOL, which was at par with the findings of Rajput *et al.*<sup>21</sup> Karmakar *et al.*<sup>19</sup> in their study have shown occupation to have significant association in the environmental domain of QOL.

This study revealed that 72% of the study participants were from joint families, which was at par with the findings of Karmakar *et al.*<sup>19</sup> and Rajput,<sup>21</sup> where 77.6% and 73.8% of the subjects were from the joint families respectively. Joshi K *et al.*<sup>22</sup> observed better social support to the elderly with the increment in household size, but the present study did not support this finding.

## Conclusions

Geriatric people living in rural areas of West Tripura district have got poor overall health related quality of life. Age, sex, literacy, marital status, socioeconomic status, relationship with family members and type of ration card were significantly associated with their QOL. Living with spouse, young old age and male sex were the predictors of perceived good QOL in this population. Ethnic subjects had better QOL than the non-ethnic.

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