Assessment of morbidity pattern, quality of life and awareness of government facilities among elderly population in South India

Nitin Joseph[1], Maria Nelliyanil[2], Sriraksha R. Nayak[1], Vyom Agarwal[1], Arjun Kumar[1], Harsh Yadav[1], Gourav Ramuka[1], Kshirabdhi Tanaya Mohapatra[1]

[1]Department of Community Medicine, Kasturba Medical College, Manipal University, Mangalore, [2]Department of Community Medicine, A.J Institute of Medical Sciences, Mangalore, Karnataka, India

ABSTRACT

Background: This study was done to assess the determinants of morbidity pattern, quality of life (QoL) and awareness of elderly about various government schemes and social security legislations. **Materials and Methods:** Data was collected by house to house survey among participants aged 60 years and above using a structured interview schedule. The QoL was assessed using Kannada version of WHOQOL-BREF instrument following language validation. **Results:** Mean age of 206 participants was 69.6±6.7 years. Half of them were males and majority were graduates 54 (26.2%). Morbidity was present among 194 (94.2%) participants (95% CI 89.5–98.9%), most common being hypertension 96 (46.6%). Morbid conditions were seen more among less educated ($P = 0.007$). Only 68 (33%) were under medical insurance coverage, 17 (8.3%) were under old age government pension and 74 (35.9%) were under retirement pension scheme. Social relationships, psychological health and environmental domain scores were associated with socio-economic status. Social relationship domain score was significantly better among well educated participants and those without morbidities. Level of ambulation was significantly associated with QoL scores in all domains ($P < 0.001$). Majority of the participants 132 (64.1%) had moderate level of awareness about government facilities for senior citizens. Awareness level was significantly better among males ($P < 0.001$), well educated ($P < 0.001$), better socio-economic status respondents ($P < 0.001$) and those currently working ($P = 0.026$). **Conclusion:** Health status of elderly needs improvement which would also improve their QoL. Awareness about various government schemes needs to be enhanced to improve its utilization. The results of this study are expected to help policy makers in planning comprehensive services for elderly residing in this area.

Keywords: Awareness, community based study, geriatric population, government facilities, morbidity, quality of life

Introduction

In India, currently 8% of the populations are elderly (60+) and by 2025 it is expected to be 12.7%.[1,2] This rapid growth in elderly population in India is expected to outpace its social and economic development and hence we may not be sufficiently prepared to meet their requirements.[2]

Elderly also form a high risk group for various morbidities due to accumulation of known and unknown risk factors with time. The current demographic profile of people living longer with less time spent in good health makes quality-of-life (QoL) assessment essential for elderly people. The QoL could also be influenced by the social environment and living conditions. The current age of rapid urbanization and societal modernization has brought in its wake a breakdown in family values and the framework of family support, economic insecurity, social isolation and elderly abuse leading to a host of psychological illnesses.[3] In case of neglect in care, the elderly can seek legal action against their family members as mandated in Article 41 (5) of constitution of India.[4] Moreover, government has offered facilities for the welfare of senior citizens. But underutilization of the existing government facilities due to ignorance and other factors is another area of concern.

Previous studies have not assessed all the above mentioned geriatric problems comprehensively as a single study. Therefore, this study was done to assess and study the determinants of morbidity pattern, QoL and awareness of elderly about

Address for correspondence: Dr. Nitin Joseph, Department of Community Medicine, Kasturba Medical College, Manipal University, Light House Hill Road, Mangalore, Karnataka, India. E-mail: drnitinjoseph@gmail.com

various government schemes and social security legislations in Mangalore, a coastal city of south India.

Materials and Methods

This cross-sectional study was done in April 2013 in two wards namely Lady Hill and Attavar in Mangalore city chosen simple randomly. The ethical approval for conducting this study was obtained from the institutional ethics committee (IEC).

The sample size of 187 participants was calculated at 95% confidence limits, 90% power and based on the expected prevalence of good QoL among elderly to be 68.2% from a previously done Indian study.[5] These participants were chosen by house to house visit using a convenient sampling method. The eldest person in a house aged ≥60 years was chosen and the nature and purpose of this study was explained. All participants who gave written informed consent were subsequently enrolled in this study. Elderly people who were seriously ill, bed ridden, audio-visually impaired and mentally unstable were excluded from participation. Data was collected using a pre-designed structured interview schedule. The information on current morbidities and awareness of various government facilities provided for their welfare were enquired by the investigators. The QoL was assessed using Kannada translated version of WHOQOL-BREF instrument.[6] Only the question 21 in this questionnaire on satisfaction with sex life was replaced with a question on satisfaction with relationship with neighborhood following recommendations from the IEC. The questionnaire was language validated by translation to Kannada and back translation to English by language experts. Socio-economic status (SES) was assessed using Modified Kuppuswamy's classification of 2012.[7] Questions to assess awareness about government schemes and social security legislations for geriatric welfare were given self-assigned weighted scores ranging from 1 to 3 based on its importance. Summation of scores falling in the interval 0–8 was categorized as poor, 9–19 as moderate and 20–24 as good awareness level. Data was entered and analyzed using SPSS Inc., Chicago, IL version 11.0. Chi-square, *t* test and ANOVA were used to test the association of various variables with awareness level and QoL scores among participants. *P* value ≤ 0.05 was taken as significant association.

Results

In this study the mean age of participants was 69.6±6.7 years [Table 1]. Out of the four elderly staying at old age home, one of them said that none of their children or relatives used to visit them.

Most of the participants, 194 (94.2%) (95% CI 89.5–98.9%), had morbidities. The proportion of morbidities was found to be 60 (89.6%) in the age group of 60 to 65 years, 55 (93.2%) in the age group of 66 to 70 years, 42 (97.7%) in the age group of 71 to 75 years, 37 (100%) in the age group above 75 years (P =0.114). Greater proportion of well-educated (professionals) participants did not suffer from any morbidities at the time of the

study (*P* = 0.007). A total of 37 (19.1%) participants had single morbidity, 66 (34%) had two, 55 (28.3%) had three, 28 (14.4%) had four and remaining 8 (4.1%) had five or more morbidities. Mean number of morbidities reported were 2.4 ± 1.2. It was slightly more among females 2.4 ± 1.8 compared to males 2.3 ± 1.3 (*P* = 0.471). The most common morbidities were hypertension 96 (46.6%), diabetes mellitus 81 (39.3%) and joint problems 63 (30.6%). Other morbidities reported were cardiac diseases 39 (18.9%), hearing disorders 37 (17.9%), respiratory diseases 27 (13.1%), visual defects 41 (19.9%), digestive disorders 24 (11.7%), skin diseases 13 (6.3%), cancers 9 (4.4%), stress 18 (8.7%), anxiety 12 (5.8%) and depression 8 (3.8%). Most participants with morbidities 175 (90.2%) were on medications. Awareness of medical insurance was present among 90 (43.7%) participants and 68 (33%) were under medical insurance coverage. Greater proportion of well-educated

Table 1: Socio demographic distribution of study participants		
Characteristics	Number	Percentage
Age group (years)		
60-65	67	32.5
66-70	59	28.6
71-75	43	20.9
76-80	26	12.6
>80	11	5.3
Gender		
Males	103	50.0
Females	103	50.0
Marital status		
Unmarried	23	11.2
Married	123	59.7
Divorced	16	7.8
Widow/widower	42	20.4
Living away from spouse	2	1.0
Educational status		
Up to PUC or below	110	53.4
Graduation and above	96	46.6
Socio-economic status		
Middle	119	57.8
Lower	87	42.2
Employment status		
Currently working	19	9.2
Not working	187	90.8
Currently staying with/in		
Spouse and children	85	41.3
Spouse only	27	13.1
Children only	51	24.8
Living alone	34	16.5
Old age home	4	1.9
Others	5	2.4
Source of income (n=186)		
Children	61	29.6
Old age government pension	17	8.3
Retirement pension	74	35.9
Friends and relatives	12	5.8
Non-governmental organizations	7	3.4
Other sources	15	7.3
Total	206	100.0

PUC: Pre University Course

participants (graduates or above) 48 (50%) were aware about medical insurance compared to 42 (38.2%) among others (*P* = 0.088).

Medical insurance cover was taken by 40 (41.7%) elderly who were graduates or above compared to 28(25.5%) among the rest participants educated up to PUC or below (*P*=0.014). Insurance coverage was taken by greater proportion of males 37 (35.9%) compared to females 31 (30.1%) (*P* = 0.374).

The QoL for physical health domain was 23.8 ± 3.5 (transformed score 63 out of 100), for psychological health domain was 20.6 ± 3.1 (transformed score 63), for social relationships domain 11.4 ± 2.1 (transformed score 69) and for environment domain was 29.3 ± 4.2 (transformed score 69).

Majority of the elderly 146 (70.9%) reported good satisfaction with self. Personal relationship with other family members and support from friends each was reported well by 142 (68.9%) participants [Table 2].

Scores of psychological health (*P* = 0.016), environment (*P* = 0.002) and social relationships domain (*P* = 0.001) were associated with SES. Social relationships domain score was found to be more in better educated (*P* = 0.012) and participants without morbidities (*P* = 0.037). The quality of ambulation was found to significantly influence QoL scores [Table 3]. No other socio-demographic variables were found to have association with QoL scores.

Hardly 31 (15%) participants were aware of Mangalore Senior Citizens Association. However, only 18 of them possessed a senior citizenship card. Two each were members of non-governmental organizations (NGOs) like "Help age India" and "Action for elderly." Only 89 (43.2%) participants were aware of various NGOs working for welfare of elderly in their neighborhood. Awareness about the correct government declared age of being labeled as a senior citizen (60 years and above) was known only to 151 (73.3%) participants.

The overall awareness of economic benefits was not known to about one third of elderly, nutrition-related benefit was unknown to over 80%, transport facilities unknown to around 40% and legal legislations unknown to over 60% elderly [Table 4].

Of the 206 participants, 69 (33.5%) had poor awareness, 132 (64.1%) had moderate awareness and 5 (2.4%) had good awareness about government facilities provided to senior citizens.

Awareness level was significantly more among males (*P* < 0.001), well-educated (graduates and above) respondents (*P* < 0.001), those belonging to upper middle SES (*P* < 0.001) and those currently working (*P* = 0.026) [Table 5].

As many as 160 (77.7%) participants felt that they were better informed about various government-given facilities after participating in this study.

Table 2: Distribution of the satisfaction level with respect to quality of life based on WHOQOL-BREF instrument

Characteristics	Poor/dissatisfied/ rarely or not at all	Neutral/ moderate	Good/satisfied/ very much	Total
Self-reported rating of QoL	9 (4.4)	52 (25.2)	145 (70.4)	206
Satisfaction with health	15 (7.3)	66 (32)	125 (60.7)	206
Physical pain interfering with daily routine	71 (34.5)	70 (34)	65 (31.5)	206
Role of medication in daily life	57 (27.7)	77 (37.4)	72 (34.9)	206
Enjoyment in life	19 (9.2)	75 (36.4)	112 (54.4)	206
Extent of feeling life meaningful	16 (7.8)	73 (35.4)	117 (56.8)	206
Ability to concentrate	24 (11.7)	82 (39.8)	100 (48.5)	206
Feeling of safety	15 (7.3)	68 (33)	123 (59.7)	206
Healthiness in physical environment	11 (5.3)	75 (36.4)	120 (58.3)	206
Energy levels in daily life	38 (18.5)	82 (39.8)	86 (41.7)	206
Acceptance of bodily appearance	14 (6.8)	69 (33.5)	123 (59.7)	206
Financial satisfaction	12 (5.8)	74 (35.9)	120 (58.3)	206
Availability of information required in routine life	13 (6.3)	94 (45.6)	99 (48.1)	206
Opportunities for leisure activities	21 (10.2)	83 (40.3)	102 (49.5)	206
Ambulation	18 (8.7)	66 (32)	122 (59.2)	206
Sleeping habits	18 (8.7)	69 (33.5)	119 (57.8)	206
Performance in daily activities	20 (9.7)	64 (31.1)	122 (59.2)	206
Capacity to work	18 (8.7)	69 (33.5)	119 (57.8)	206
Satisfied with self	14 (6.8)	46 (22.3)	146 (70.9)	206
Personal relationship with other family members	16 (7.8)	48 (23.3)	142 (68.9)	206
Support from friends	10 (4.9)	54 (26.2)	142 (68.9)	206
Satisfaction with neighborhood relationships	10 (4.9)	55 (26.7)	141 (68.4)	206
Conditions at living place	13 (6.3)	65 (31.6)	128 (62.1)	206
Accessibility to health services	7 (3.4)	69 (33.5)	130 (63.1)	206
Accessibility to transport facilities	11 (5.3)	66 (32.1)	129 (62.6)	206
Frequency of negative feelings	111 (53.9)	54 (26.2)	41 (19.9)	206

WHOQOL: World health organization quality of life

Table 3: Association between socio-economic status, educational status, morbidity status and quality of ambulation among participants with various domains of WHOQOL-BREF instrument (*n*=206)					
Domain	**SES**	**Number**	**Mean (SD)**	**F value**	**P**
Psychological health					
	Upper middle	51	20.2 (2.7)	4.21	0.016
	Lower middle	67	21.5 (3.1)		
	Upper lower	86	20.2 (3.2)		
Social relationships					
	Upper middle	51	12.0 (1.6)	7.686	0.001
	Lower middle	67	11.7 (2.1)		
	Upper lower	86	10.8 (2.1)		
Environment					
	Upper middle	51	29.08 (3.3)	6.174	0.002
	Lower middle	67	30.64 (4.16)		
	Upper lower	86	28.29 (4.52)		
Domain	**Educational status**	**Number**	**Mean (SD)**	**t value**	**P**
Social relationships					
	PUC or below	110	11 (1.9)	2.54	0.012
	Graduation or above	96	11.8 (2.1)		
Domain	**Morbidities**	**Number**	**Mean (SD)**	**t value**	**P**
Social relationships					
	Present	194	11.3 (2)	2.104	0.037
	Absent	12	12.6 (1.4)		
Domain	**Level of ambulation**	**Number**	**Mean (SD)**	**F value**	**P**
Social relationships					
	Very poor	3	7.3 (2.1)	11.3	<0.001
	Poor	15	10.7 (2.0)		
	Average	66	10.6 (2.1)		
	Good	94	11.7 (1.6)		
	Very good	28	12.7 (1.9)		
	Total	206	11.4 (2.0)		
Psychological health					
	Very poor	3	16.0 (1.7)	15.1	<0.001
	Poor	15	17.5 (2.2)		
	Average	66	19.6 (2.3)		
	Good	94	21.3 (3.0)		
	Very good	28	22.7 (3.1)		
	Total	206	20.6 (3.1)		
Physical health					
	Very poor	3	15.3 (4.6)	25.8	<0.001
	Poor	15	19.5 (2.4)		
	Average	66	22.5 (2.6)		
	Good	94	25.2 (3.2)		
	Very good	28	25.7 (2.5)		
	Total	206	23.8 (3.5)		
Environment					
	Very poor	3	21.0 (7.8)	9.1	<0.001

Contd...

Table 3: Contd...				
Domain	**Socioeconomic status**	**Number**	**Mean (SD)**	**F value**	**P**
	Poor	15	27.1 (3.4)		
	Average	66	28.0 (3.3)		
	Good	94	30.1 (3.7)		
	Very good	28	31.4 (5.4)		
	Total	206	29.3 (4.2)		

SD: Standard deviation; SES: Socioeconomic status

Table 4: Awareness of old age benefits provided by the government and social security legislations for senior citizens among participants (*n*=206)		
Benefits	**Aware (%)**	**Not aware (%)**
Greater income tax rebate	145 (70.4)	61 (29.6)
Higher interest on fixed deposits in banks	139 (67.5)	67 (32.5)
Higher interest on post office savings schemes	124 (60.2)	82 (39.8)
Old age pension for those not covered under retirement pensions	98 (47.6)	108 (52.4)
Annapurna scheme (provision of 10 kg of free food grains per month)	38 (18.4)	168 (81.6)
Concessions in public transport services	115 (55.8)	91 (44.2)
Reserved of seats in public transport services	124 (60.2)	82 (39.8)
Toll free helpline number	51 (24.8)	155 (75.2)
Right to claim maintenance from children[†]	66 (32.0)	140 (68)
Right to claim back property from children/relatives	36 (17.5)	140 (82.5)
Special court for elderly in every district	70 (34.0)	136 (66.0)

[†]Maintenance and Welfare of Parents and Senior Citizens Act 2007

Discussion

In this study 94.2% participants had one or other morbidities. In studies done in other parts of the world prevalence of morbidities among elderly ranged from 65.2% to 88.9%.[4,8-12] The mean number of morbidities reported in this study was 2.4, which ranged from 1.6 to 6.1 in other studies.[8,11-14] The age-specific prevalence of morbidities reported in a study done in Tamil Nadu, India, was 56.9% for 60–64 years, 66.7% for 65–69 years and 82.7% for ≥ 70 years which was lower than our observations.[9] From these observations it is obvious that morbidities were very common among elderly in this region. Hence, comprehensive geriatric health services (preventive, curative and rehabilitative services) need to be provided focusing on the common morbidities in these areas.

Morbid conditions were seen significantly less among well-educated participants in this study which was similar to the findings of a study done in Haryana, India.[8] This could be because of better self-care practices and compliance with medications among well educated participants.

Coverage under medical insurance in this study was more than that reported in other parts of India where it ranged from 5.1% to 24% leading to greater treatment seeking practices.[15,16] Greater insurance coverage could be as a consequence of better educational status in the settings. Financial insecurity resulting from out of pocket health expenditure remains the most commonly reported

Table 5: Association between socio demographic variables with awareness level among participants			
Socio-demographic variables	Poor awareness	Average/good awareness	Total
Age group (years)			
60-65	22 (32.8)	45 (67.2)	67
66-70	20 (33.9)	39 (66.1)	59
71-75	16 (37.2)	27 (62.8)	43
76-80	7 (26.9)	19 (73.1)	26
>80	4 (36.4)	7 (63.6)	11
Gender			$\chi^2=0.828, P=0.935$
Male	23 (22.3)	80 (77.7)	103
Female	46 (44.7)	57 (55.3)	103
			$\chi^2=11.5, P<0.001$
Marital status			
Unmarried	8 (34.8)	15 (65.2)	23
Married	34 (27.6)	89 (72.4)	123
Widow/widower/separated	27 (45)	33 (55)	60
			$\chi^2=5.47, P=0.065$
Educational status			
Primary school	2 (40)	3 (60)	5
Middle school	13 (72.2)	5 (27.8)	18
High school	23 (54.8)	19 (45.2)	42
PUC	14 (31.1)	31 (68.9)	45
Graduate	8 (14.8)	46 (85.2)	54
Post graduate	5 (18.5)	22 (81.5)	27
Professional/honours	4 (26.7)	11 (73.3)	15
			$\chi^2=32.2, P<0.001$
Socio-economic status			
Upper middle	8 (15.4)	44 (84.6)	52
Lower middle	19 (28.4)	48 (71.6)	67
Lower	42 (48.3)	45 (51.7)	87
			$\chi^2=17.0, P<0.001$
Type of family			
Joint family	50 (36.8)	86 (63.2)	136
Nuclear family	5 (18.5)	22 (81.5)	27
Staying alone	11 (32.4)	23 (67.6)	34
Others	3 (33.3)	6 (66.7)	9
			$\chi^2=3.4, P=0.335$
Currently working			
Yes	2 (10.5)	17 (89.5)	19
No	67 (35.8)	120 (64.2)	187
			$\chi^2=5.0, P=0.026$
Total	69	137	206

PUC: Pre University Course

reason for not seeking treatment in India. This even more emphasizes the need for awareness about medical insurance and its benefits to be made readily available to the elderly.[15]

Qadri *et al.* found the mean WHO BREF scores of physical health, psychological health, social relationships and environment domain to be 74.3, 80.3, 88.2 and 74.3, respectively, among participants which were higher than our findings. This could be probably due to lesser prevalence of morbidities in the former study as supported by other studies which observed greater prevalence of morbidities deteriorates

QoL.[17,18] Moreover, scores of psychological health, environment and social relationships domain were significantly better among middle compared to poor SES groups which was similar to the observations of a study done in Brazil and Iran where financial discontent was found to impair QoL.[18,19] This infers the need of financial security schemes to be provided by the government in order to improve the QoL of elderly.

In this study social relationships domain score was found to be significantly more in better educated participants similarly to observations in other studies.[5,18,19] This could be probably due to better communication skills among well-educated respondents which is most essential for social networking. Another important factor influencing the QoL in this study was the quality of ambulation as also supported by other studies.[18,20] Improvement of ambulation by physiotherapy and good nursing care would prevent physical handicap an essential aspect of geriatric services.

In a study done in Udaipur, India, feeling of neglect was reported by 17.3% and feeling of loneliness by 23.3% participants.[4] While a study done in Bhopal, India, 38% participants reported insecurity.[16] These perceptions were higher than our observations and reveals issues which cannot be solved without community support and consideration.

In the present study 8.3% participants were benefitted by old age government pension which was almost similar to the scenario in northern India where 10% elderly received this benefit.[21]

The latter study also reported awareness of social programs implemented by the government in 7.25% participants much lesser than our observations.[21] In another nationwide study conducted in selected states, awareness about Indira Gandhi National Old Age Pension Scheme was 78.5% and Indira Gandhi National Widow Pension Scheme was 71.6% which was better than the our observations. Moreover awareness of Annapurna Scheme in the above mentioned study was 39.1% which was again more than our findings. However the awareness regarding train ticket concession for senior citizens observed among 40%, bus seat reservation among 37.1%, higher interest rate on deposits in bank/post office among 22.7% and income tax benefits among 12.7% participants in the former study was lesser than our observations.[15] In a study done in Jamaica 45% of the elderly received social welfare benefits and pensions, about a third received food stamp (34%) and employment-related pensions (32%) while about a quarter received national insurance payments (26%) which was higher than our observations.[22] From these observations it is quite evident that awareness of government given facilities need to be made known to all senior citizens for their welfare and its utilization in this region. The government also needs to overcome the inadequacies of these programs in terms of meager budget, improper identification of beneficiaries, lengthy procedures and irregular payment to make it more user friendly.[23] Further, government needs to involve civil society groups and engage private sector in creating more elderly friendly environment.[15]

The wards were chosen by simple random sampling. The participants were enrolled by the convenience sampling method. Hence the sample chosen may not be representative of the entire elderly population in Mangalore. Another limitation could be chances of misreporting of information by the respondents due to age-related recall bias.

Conclusion

Most participants in this study suffered from morbidities which were also found to affect their QoL. The overall awareness about various social security schemes was poor in one third of participants which was also reflected upon by poor utilization of these benefits.

The results of this study are expected to help policy makers and NGOs in planning awareness programs and specialized health care services for providing decent living environment for elderly residing in this area.

Acknowledgements

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