Psychiatry/Mental Health Section

Depression, Perceived Loneliness and Partial Functional Impairment among Older Adults

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ABSTRACT

Introduction: Depression is a significant public health problem among aged in all over the world. The researchers were keen to understand whether the elderly residing in rural areas of South Karnataka are affected with depression and if so whether it is correlated with their feeling of loneliness and health/activity levels.

Aim: The study aimed to determine the prevalence of depression, perceived loneliness and partial functional impairment among older adults and to find out the relationship between these variables.

Materials and Methods: A cross sectional study was conducted among 600 older adults aged 60 years and above from three villages of Udupi Taluk, Udupi district of south India. Demographic proforma, Geriatric Depression Scale, University of California Los Angeles loneliness scale and Activities of daily living assessment scale were used to collect the data.

Descriptive (frequency and percentage) and inferential (Karl Pearson correlation and Chi-square association) statistics were used to analyse the data.

Results: The prevalence of depression was 40.16%. A 23 (3.8%) subjects perceived low degree of loneliness, and 6 (1%) subjects perceived moderately high degree of loneliness. It was also found that 20(3.3%) subjects required minimum help and 1(0.2%) subject was completely dependent on their activities of daily living. There was modest negative correlation between loneliness and partial functional impairment (r=-0.018) but, no significant correlation was found between depression and perceived loneliness.

Conclusion: Study concluded that the elderly living in rural India also might be affected with depression and the depression may not be related to their perception of loneliness and partial functional impairment.

INTRODUCTION

There is a rapid growth of the proportion of older people world wide [1]. As an individual becomes older, morbidity and functional loss also increases, leading to a variety of factors causing depression and occurrence of varying life events, greatly impact on one's psychological status [2]. India is the second country with a large population and have a great number of people aged 60 years or more [3]. According to Population Census 2011, there are nearly 104 million elder persons in India; 53 million females and 51 million males [4].

Depression is one of the most common psychiatric morbidity among the older population [5,6]. Several studies from India have demonstrated the prevalence rates of depression in elderly ranging from 22 to 53% with an average of 39% [2,5-7]. Children/family members' negligence, feeling isolated, a low status in the family and a sense of insecurity, living alone, increased physical dependency, loss of the partner, poor quality of life, poor interpersonal relationship, poverty and physical ill health were the possible reasons for the high prevalence of depression in older people [5,8-12]. The older people are more likely to experience a varied kind of morbidity, including cognitive impairment, causing functional impairment, and eventually disability [13-16].

Disability of the aged people is an important public health concern that causes impairment to function independently. Self-care activities such as bathing, dressing, transferring from a bed to a chair, using the toilet, eating, climbing up staircase, performing shopping and taking medication are commonly referred to as Activities of Daily Living (ADL's) and are associated with depression [15,17-20].

Older people are often at risk for loneliness because of decreased social relationship and it is an important concern relating to their quality of life and well-being. Several studies identified the high rates of reported loneliness, factors contributing to this and its relationship with depression [21-23].

Community studies from India on depression, perceived loneliness and functional impairment are sparse. In the light of the above considerations, this study was intended to identify depression, perceived loneliness and functional impairment among elderly in a rural community, in order to assess their health needs and functional abilities, which will be useful to plan health and other supportive services for the elderly.

MATERIALS AND METHODS

The present Study was conducted from January 2015 to February 2015 (The time period of the study was for 2 months) which consists of 61 villages, out of which 6 villages were selected randomly. Among 6 villages, three villages (namely, Anjaru, Moodubelle and Kudi) were selected based on the size of the population aged 60 years and above i.e., a village with more than 350 elderly people [Table/Fig-1]. People aged 60 years and above, who consented to participate in the study were included. People with dementia or memory problem, disoriented or with mental illness were excluded from the study. Sample size was calculated based on estimation of proportion after the pilot study.

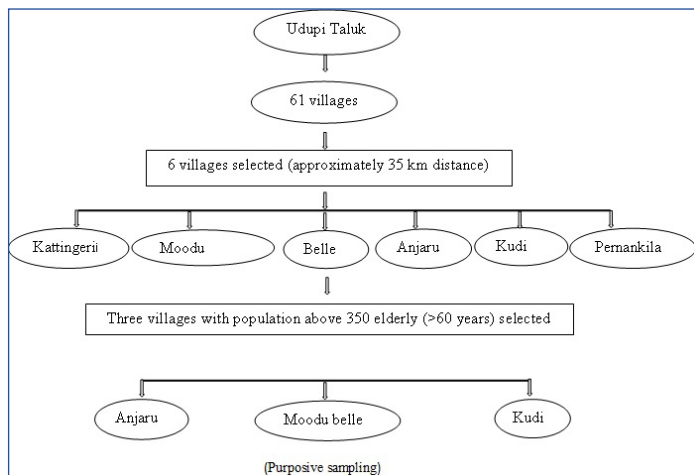$$\frac{n = Z^2 pq}{d^2} = \frac{(1.96)^2 \, (0.15) \, (0.85)}{(0.03)^2} = 545$$

n = total sample size 600

p = anticipated proportion = 0.15

d = related precision= 0.03

q = approximate proportion = 0.8

According to this, total of 545 subjects were required and study recruited 600 subjects using purposive sampling technique. The

[Table/Fig-1]: Sampling technique.

study was approved by the institutional ethics committee. Permission was taken from the respective Presidents of selected villages. An informed written consent was obtained from the study participants. The pilot study was conducted among 100 elderly people and the study was found to be feasible.

Measures: A structurally designed demographic proforma was developed by the investigators to collect the background information of the subjects, pretested and finalized with appropriate modifications (Demographic proforma is described in the [Table/Fig-2] under the heading of sample characteristics). The following tools were used in the study:

Geriatric Depression Scale (short version): Geriatric Depression Scale is a widely used, standardized self-report instrument for measuring depression in elderly constructed by Yesavage JA et al., in 1983 and it is freely usable for research [24]. The scale was found to have a sensitivity of 92% and specificity of 89% when assessed against diagnostic criteria, with a high correlation (r=0.84, p-value <0.001). The validity and the reliability of the tool have been supported both in the clinical practice and in research. The shorter version of the scale consists of 15 questions and each negative answer will carry a mark and thus the more the scoring is, the more the chances of having depression. The maximum score that one can get is 15, which indicates a severe depression. The cut-off for normal range was 10.

The revised UCLA (University of California, Los Angeles) Loneliness Scale: It is a standardized tool measuring subjective loneliness and social isolation of the individual, developed by Russel and Daniel. The original tool had 20 positively worded items whereas the Revised UCLA Loneliness Scale included 10 negatively worded and 10 positively worded items that are scored on a four-point scale (often=3, sometimes=2, rarely=1 and never=0). The total scores ranges from 0 to 60; the higher the score, the higher the perceived loneliness of the individual. The researchers have obtained permission to use the scale for the current study. Analyses of the reliability, validity, and factor structure of this new version of the UCLA have shown high reliability, both in terms of internal consistency (coefficient a ranging from 0.89 to 0.96) and test-retest reliability over a one-year period (r =0 .73) [25].

Activities of Daily Living Scale for elderly: Activities of Daily Living Assessment Scale (ADL'S) was developed by the investigators after extensive review of literature to assess the partial functional impairment. The tool consisted of 21 items with following areas: self-care needs (getting in and out of bed/chair, brushing, bathing, grooming, using the toilet, climbing the steps, walking around the premises), instrumental activities of daily living (performing housework, shopping, taking decisions on problems, money management, gardening/watering the plants, going for morning/evening walk), and recreational activities (group participatory activities like clubs religious functions, going to the religious places,

Sample characteristics	Frequency (f)	Percentage (%)
Age (in years)		
60-70	394	65.7
71-80	150	25
81-90	48	8.0
>90	8	1.3
Gender		
Male	253	42.2
Female	347	57.8
Marital status		
Single	9	1.5
Married	434	72.3
Widow	155	25.8
Widower	2	0.3
Educational Status		
Post graduate	6	1.0
Graduate	9	1.5
*PUC	22	3.7
*SSLC	49	8.2
Primary	234	39
Illiterate	280	46.6
Past occupation		
Employed	353	58.8
Not employed	247	41.1
Present occupation		
Employed	66	11.0
Retired	534	89.0
Family income (in Rupees)		
<5000	102	17
5001-10000	257	42.8
10001-15000	188	31.3
15001-20000	40	6.7
20001 and above	13	2.2
Source of income		
Salary/Pension	66	11
Children living at home/outside	519	86.5
Other family members	15	2.5
Living with whom		
Living with spouse	49	8.2
Living with spouse & children	357	59.5
Living with children	165	27.5
Living alone	11	1.8
Health problems		
Yes	247	41.2
No	349	58.8
Recreational activities		
Yes	20	3.4
No	580	96.6

[Table/Fig-2]: Frequency and percentage distribution of sample based on the socio-demographic variables.
*PUC- Pre University College (12th standard); *SSLC– Secondary School (10th standard)

spiritual activities). Each item was scored on a 3 point scale. The score ranges from 21-63 and was classified as; dependent (1-21), partially dependent (22-42) and independent (43-63). The content validity of the tool was established, the reliability of the scale was found to be 0.88 by Cronbach's alpha. Descriptive and inferential statistics such as frequency and percentage, Pearson's correlation

coefficient and Chi-square tests were used to analyse the data. Data was managed and analysed with the help of Statistical Package for Social Sciences (SPSS) version 16. All the hypotheses were tested at 0.05 level of significance.

RESULTS

Sample Characteristics: The majority of elderly 394(65.7%) in the present study were in the youngest age group (60-70 years), and the number decreased with older age groups, with the least number in the oldest age group of >90 years 8(1.3%). Most of the participants 347(57.8%) were females and majority were married 434(72.3%). However, a substantial number among the married were widowed (male 3, 0.5%; female 155, 25.8%), 280(46.6%) of the study population had no formal education. Here 530 (88.8%) participants were currently not working. A total of 357(59.5%) elderly were staying along with their spouse and children, whereas 11(1.8%) of the participants were staying alone. A total of 247(41.2%) subjects were suffering from one or other health problems. Majority 580(96.6%) subjects were not engaged in any kind of recreational activities [Table/Fig-2].

Description of Depression, Partial Functional Impairment (Activities of Daily Living) and Perceived Loneliness: The overall prevalence of depression among the older people 60 years and above was found to be 241 (40.16%). 213(35.5%) participants with mild degree of depression, 23(3.8%) participants showed moderate and 5(0.8%) participants have demonstrated severe degree of depression [Table/Fig-3]. Mild degree of loneliness was perceived by 23(3.8%) elderly, 6(1%) older people perceived moderately high degree of loneliness and 571 subjects (95.2%) had never perceived loneliness [Table/Fig-4]. A total of 20(3.3%) study participants required minimum help and 1(0.2%) subject was completely dependent in their activities of daily living [Table/Fig-5].

Depression	Frequency (f)	Percentage (%)
Mild depression	213	35.5
Moderate depression	23	3.83
Severe depression	05	0.83
No depression	359	59.83

[Table/Fig-3]: Frequency percentage distribution of depression among people aged 60 years and above. n = 600

Loneliness	Frequency (f)	Percentage (%)
No loneliness	571	95.2
Low degree of loneliness	23	3.8
Moderately high degree of loneliness	06	01
No depression	359	59.83

[Table/Fig-4]: Frequency percentage on loneliness among people aged 60 years and above.

Partial functional impairment	Frequency (f)	Percentage (%)
Dependent	01	0.2
Minimum help required	20	3.3
Independent	579	96.5

[Table/Fig-5]: Frequency and percentage of Partial functional impairment of people aged 60 years and above. n = 600

Variables	r value	p-value
Depression & perceived loneliness	0.289	1
Perceived loneliness & Partial functional impairment	-0.018	0.0667
Depression & Partial functional impairment	0.028	1

[Table/Fig-6]: Correlation between depression, perceived loneliness and partial functional impairment.
p-value >0.05; The hypothesis was tested at 0.05 level of significance. Pearson's correlation coefficient formula was used to calculate the correlation between depression, perceived loneliness and partial functional impairment.

Demographic characteristics	Normal	Mild	Moderate	Severe	Severe	df	p-value
Age (in years)							
60-70	258	118	14	4	18.929	9	0.002*
71-80	71	72	6	1			
81-90	26	19	3	0			
>90	4	4	0	0			
Gender							
Male	214	9	8	2	14.710	3	0.002*
Female	205	144	15	3			
Marital status							
Single	4	5	2	0	26.658	6	0.026
Married	282	137	13	2			
Widow	73	71	8	3			
Educational Status							
SSLC and above	74	34	5	0	27.960	6	0.063
Primary	140	61	9	4			
Illiterate	145	118	9	1			
Present occupation							
yes	50	15	2	1	7.464	3	0.280
no	309	198	21	4			
Family income (in Rupees)							
<5000	58	33	11	2	31.894	9	0.007*
5001-10000	170	84	2	2			
10001-15000	107	70	8	1			
15001 and above	25	25	2	0			
Source of income							
Children living at home	269	150	14	1	31.281	6	0.008*
Children living outside	41	37	2	4			
Pension and other	49	26	7	0			
Living with whom							
Living with spouse	40	21	5	0	28.692	9	0.018*
Living with spouse & children	229	116	10	2			
Living with children	88	67	7	1			
Living alone	2	7	1	4			
Health problems							
Yes	140	94	13	1	9.537	3	0.657
No	219	119	13	1			
Recreational activities							
yes	14	7	0	0	5.318	3	0.805
no	345	206	23	5			

[Table/Fig-7]: Association between depression and selected demographic variables. n=600
*significant at 0.05 level (p<0.05); Chi-square test was used to find the association between depression and selected demographic variables

Correlation between Depression, Perceived Loneliness and Partial Functional Impairment: [Table/Fig-6] reveals that in the elderly persons, there was no significant relationship found between depression and partial functional impairment (r=0.028), depression and loneliness (r=0.289), but there was modest negative correlation between loneliness and partial functional impairment (r = -0.018).

Association between Depression, Perceived Loneliness, Partial Functional Impairment and Selected Demographic Variables: A significant association [Table/Fig-7] was found between depression and age (χ^2=18.929, p=0.002), gender (χ^2=14.710, p=0.002), family income (χ^2=31.894, p=0.007), source of income (χ^2=31.281, p=0.008), and living status (χ^2=28.692, p=0.018). Association was found between perceived loneliness and marital status (χ^2=41.511, p=0.016), education ($\chi2$=42.164, p=0.009), family income

Demographic characteristics	Nor-mal	Low degree loneli-ness	Moder-ately High degree	Chi-square	df	p value
Age (in years)						
60-70	370	17	4			
71-80	142	6	2	3.275	6	0.774
81-90	48	3	0			
>90	8	0	0			
Gender						
Male	241	10	2	0.209	2	0.901
male	330	13	4			
Marital status						
Single	7	6	0			
Married	416	13	3	41.511	4	0.016*
Widow	148	6	1			
Educational Status SSLC and above						
Primary	100	9	4	42.164	4	0.009*
Illiterate	209	5	0			
present occupation						
yes	262	9	2	1.987	2	0.738
no	67	22	6			
Family income (in Rupees)						
<5000	504	1	0			
5001-10000	91	11	2			
10001-15000	249	4	4	24.775	6	0.006*
15001 and	182	4	0			
above	49	4	0			
Source of income						
Children living at home	425	9	3			
Children living outside	78	4	0	57.464	4	0.001*
Pension and other	68	10	3			
Living with whom						
Living with spouse	56	7	3			
Living with spouse & children	348	7	2	33.962	6	0.001*
Living with children	158	7	1			
Living alone	9	2	0			
Health problems						
yes	233	16	2	18.320	2	0.019
no	338	7	4			
Recreational activities						
yes	20	0	0	0.670	2	0.995
no	551	22	6			

[Table/Fig-8]: Association between Loneliness and selected demographic variables. n=600
*significant at 0.05 level (p<0.05)
Chi-square test was used to find the association between loneliness and selected demographic variables

Demographic characteristics	Inde-pen-dent	Mini-mum help re-quired	Depen-dent	Chi-square	df	p value
Age (in years)						
60-70	390	3	1			
71-80	140	10	0	33.336	6	6
81-90	43	5	0			
>90	6	2	0			
Gender						
Male	246	8	0	0.846	2	2
Female	333	12	1			
Marital status						
Single	11	0	0			
Married	424	10	1	9.424	4	4
Widow	144	10	0			
Educational Status						
SSLC and above	111	2	0			
Primary	209	5	0	5.911	4	4
Illiterate	259	13	1			
Present occupation						
Yes	68	0	0	0.862	2	2
No	511	20	1			
Family income (in Rupees)						
<5000	97	7	0			
5001-10000	250	6	1	14.037	6	6
10001-15000	184	4	0			
15001 and above	49	4	0			
Health problems						
Yes	234	13	0	35.469	2	2
No	345	7	1	2		
Recreational activities						
Yes	20	0	0	37.280	2	2
No	560	20	0			

[Table/Fig-9]: Association between partial functional impairment and selected demographic variables. n=600
*significant at 0.05 level (p<0.05)
Chi-square test was used to find the association between partial functional impairment and selected demographic variables.

(χ^2=24.775, p=0.006), source of income (χ^2=57.464, p=0.001) and living status (χ^2=33.962, p=0.001) [Table/Fig-8]. A significant association [Table/Fig-9] was also found between partial functional impairment and age (χ^2=33.336, p=0.001), heath problems (χ^2=35.469, p=0.001) and recreational activities (χ^2=37.280, p=0.001).

DISCUSSION

The overall prevalence of depressive disorders among the elderly of 60 years and above was found to be 40.16%. The study findings were consistent with the observations made by Barua A et al., Swarnalatha N, and Sengupta P et al., who had determined the prevalence of depressive disorders in the elderly population to be 21.7%, 47%, and 8.9% respectively [2,11,26].

Mild degree of loneliness was perceived by (3.8%) elderly, and six (1%) older people perceived moderately high degree of loneliness in the present study. Study also revealed that there was no significant correlation between depression and loneliness, depression and partial functional impairment. The study findings are inconsistent with the observations made by Singh A et al., who had determined a significant relationship between depression and loneliness [23]. The findings throw light in to the fact that though the elderly feel depressed it is not related to their functional impairment, nor it reflects their perception of loneliness. Rather it is evident that the loneliness is very minimally perceived. This revelation can be better understood with the context of the study, as it was conducted in rural India, where majority of them are living with their kith and kins. A modest negative correlation between loneliness and partial functional impairment was observed in this study which is consistent with findings of a study by Swarnalatha N who reported a statistically significant association between depression and activities of daily living [11]. This indirectly shows that the elderly do not feel dejected and unattended, especially when their health is affected. In fact, it is relieving to understand that culturally still the elderly are considered integral part of the family in rural South India.

In the present study partial functional impairment was found among twenty (3.3%) study participants, in which one (0.2%) participant was totally dependent. The study also revealed an association between partial functional impairment and demographic variables. These findings support the reports of a study by Loh KY et al., who observed partial functional impairment among 35.5 percent subjects in which two (0.8%) subjects were totally dependent [15]. There was also a significant association found between functional impairment and selected demographic variables. A significant correlation (p=0.003) between functional impairment and depressive symptoms was reported by Hatfield JP et al., [17]. Hairi NN et al., presented significant associations between functional limitations, physical disabilities and depressive symptoms [27].

LIMITATION

Small sample size and use of purposive sampling technique can limit generalization of the study findings. The study was restricted to three villages of Udupi taluk and this could limit the generalization of the study. Further the self-construction of Activities of Daily Living assessment tool may contribute to minor errors to the findings.

CONCLUSION

People aged 60 years and above are likely to have depressive features irrespective of their locality and living arrangements which could be a major public health concern. Depression need not be stemming from the perception of loneliness and functional impairment among the elderly residing in rural areas of South Karnataka. This facilitates the health care professionals in early identification of depressive features for effective interventions and notifying to primary care provider and family members for the detailed management.

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