

Original Research Article

Depression among elderly and their perceived social support in a community development block of Purba Bardhaman district, West Bengal: a cross sectional study

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ABSTRACT

Background: Elderly depression is major public health concern. It causes significant morbidity and mortality burden worldwide. The study aimed to estimate prevalence of elderly depression in a rural area of Purba Bardhaman district, West Bengal and to ascertain their level of perceived social support.

Methods: A community-based, cross-sectional study was conducted in Bhatar community development block of Purba Bardhaman district, West Bengal, during period of August 2022 to January 2023. A calculated sample of 238 elderly people were selected by simple random sampling and interviewed with a predesigned, pretested schedule containing geriatric depression scale (GDS-15) for assessing depression, Katz index for independence in activities of daily living (ADL) and multidimensional scale for perceived social support (MSPSS) to assess level of perceived social support. Multivariable logistic regression was done to find out predictors of elderly depression.

Results: Out of 238 study participants, 160 (67.2%) were suffering from depression. Prevalence of mild, moderate and severe depression was 49.2%, 14.6% and 3.4% respectively. Low, medium and high level of perceived social support was found in 36.6%, 44.1% and 19.3% study participants, respectively. Impairment in ADL [AOR: 5.045 (2.145-11.868)], presence of financial dependence [AOR: 2.977 (1.330-6.665)], pre-existing one or more co-morbidities [AOR: 2.044 (1.114-3.749)] and educational status below secondary level [AOR: 0.379 (0.199-0.720)] were found to be significant predictors of elderly-depression.

Conclusions: Prevalence of depression is high among elderly, along with low perceived social support. Health promotion, awareness generation about social security schemes and family support are crucial to prevent elderly depression.

Keywords: Depression, Elderly, Perceived social support

INTRODUCTION

India is in a process of demographic transition and currently in late expanding stage. Trends in life expectancy show that people are living longer with improvement in health care.¹ They have every right to a long life in good health rather than one of pain and disability. The world health organization (WHO) has estimated that the proportion of world's elderly population will be doubled from 11% to 22% between the year 2000 and 2050.² The last years of someone's life,

known as "twilight years", is a very sensitive phase. Old age should be a time of happiness, relaxation and contentment but unfortunately this is not the case with many of the elderly population. A meta-analysis report has shown that the worldwide prevalence rate of depressive illness in elderly is between 4.7% to 16% with comparatively higher prevalence of 21.9% in India.³

Social support is defined as any information leading the subject to believe that he/she is cared for, loved and is an esteemed member of a network of mutual obligation.

Social support plays a major role in maintaining well-being in the aged. Lack of social support results in physical and mental health problems.⁴ Social support can be divided into two categories-first one is objective social support which indicates what support people have actually received and second one is subjective perception which captures an individual's belief about available support. Subjective perception is more persistently related to health and well-being of elderly than objective measures.⁵

A developing country like India comprises of 8.6% elderly in its total population (India Census 2011) and it is proposed to reach 19% by 2050.⁶ Proportion of elderly is higher in rural areas than urban and usually more among females than males.⁷ Chronic disease, loss of income, elderly disrespect, limited mobility, bereavement and isolation are the leading risk factors for depression among elderly people.⁸ It decreases quality of life, limits prognosis of chronic disease and eventually worsens disability. Therefore, elderly people with depression have significantly higher mortality from suicidal and non-suicidal incidents.⁹ There is an urgent need for early recognition and social control of depression among these at-risk people. However, in low and middle-income countries like India, health care systems are not resilient enough to deal with mental health problems. Previous studies in India have shown prevalence of depression ranging from 6 to 80% among elderly population.¹⁰

Compared with other findings, evidences of depressive disorders tend to be relatively weak in our country and level of its burden among elderly is not well addressed in our state of West Bengal. Lack of adequate evidence about depression in elderly is a contributory factor for weak or inconsistent mental health care at community level.^{11,12}

With this scenario, the present study aimed to estimate the prevalence of depression among elderly and to ascertain the level of perceived social support by them in a rural community of Purba Bardhaman district, West Bengal.

The study objectives were to estimate the prevalence of depression among elderly residing in Bhatar community development block of Purba Bardhaman district, West Bengal, to ascertain the level of perceived social support among them and to find out relationship, if any, between socio-demographic characteristics, elderly depression and perceived social support.

METHODS

Study design, area and duration

It was a community-based study with cross sectional design. The study was conducted in Bhatar community development block of Purba Bardhaman district, West Bengal, which is the rural field practice area of Burdwan

medical college.¹⁷ The duration of the study was six months (August 2022 to January 2023).

Study population

Elderly people (age ≥ 60 years) residing in the study area were included in the study population.

Inclusion criteria

Elderly people (age ≥ 60 years) residing in the study area for minimum six months were included in the study.

Exclusion criteria

Not ready to give informed consent and bed-ridden, seriously ill were excluded from the study.

Sample size and sampling technique

As per a previous similar study in Kannur, North Kerala, India, taking the prevalence of depression among elderly as 72.4%, the minimum sample size was calculated as¹³:

$$(n) = z^2 p(1-p)/d^2$$

[Where (z)=1.96, absolute precision (d)=6%, (p)=72.4%, Confidence Interval (CI)=95%]

≈ 214 .

Considering non-response rate of 10%,

Final sample size came to be ≈ 238 .

By simple random sampling (SRS), one village was selected from each gram panchayet (GP) -- constituting 14 villages in total (as 14 GPs present within the block). Then, in each of these 14 villages, list of households with elderly people was prepared by the help of respective ASHA/ANM. From each village, $238/14=17$ samples were taken by SRS. If more than one study subjects were available within single household, one of them was selected by SRS.

Data collection, tools and techniques

Data was collected after ethical clearance and approval of synopsis by the institutional ethics committee of burdwan medical college and hospital, Burdwan, West Bengal. Prior to data collection, chief medical officer of health (Purba Bardhaman) and block medical officer of health (Bhatar block) were communicated and briefed about purpose of the study, their permissions were taken. Interviews with study participants were done at household level. Data was collected twice per week. A pre-designed, pre-tested schedule comprising of geriatric depression scale-15 (GDS-SF), Katz index for independence in ADL and multidimensional scale for perceived social support (MSPSS) was applied for data collection.

The semi-structured, pre-designed and pre-tested schedule had the following components-Background information regarding study participants. Geriatric depression scale-15 (GDS short version) for assessing depression:¹⁴ It consisted of 15 questions with answers in yes/no mode. For each response either 1 or 0 score awarded. Higher the score greater was the depression. Cut-off score for detecting depression was ≥ 5 . The scores were categorized as $\approx 5-8$ (mild depression), 9-11 (moderate depression) and 12-15 (severe depression). The tool was validated in Indian context.¹⁸

Katz index of independence in ADL for assessing functional activity:¹⁵ The tool had acceptable validity with reference to Indian geriatric population.¹⁹

It assessed six functions (bathing, dressing, toileting, transferring, continence and feeding). Score 6 indicated full function, 5 indicated mild impairment, 3-4 indicated moderate impairment and ≤ 2 indicated severe functional impairment.

Multidimensional scale of perceived social support (MSPSS)¹⁶: MSPSS was a valid tool in Indian context.²⁰ It consisted of 12 questions and responses were recorded in a 7-point Likert scale. Minimum score was 12 and maximum score was 84; 12-35 indicated low perceived support, 36-60 indicated medium perceived support and 61-84 indicated high perceived support.

Pre-testing was done on 25 elderlies in Kurmun village of Purba Bardhaman district, adjacent to the study area and necessary modifications of the schedule were done accordingly.

Interviews were done with study participants at their household level with semi-structured, pre-designed and pre-tested schedule.

Ethical considerations

Ethical clearance was obtained from the institutional ethics committee of Burdwan medical college and hospital, Burdwan, West Bengal. Prior to data collection informed consent was obtained from each study participant. Confidentiality and anonymity of information was maintained.

Data management and analysis

Collected data was checked for completeness and consistency. Data was analyzed using statistical package for social sciences (SPSS) version 23. Descriptive statistics were used and results were expressed in frequencies and percentages. Categorical variables were compared using Chi-Square test. Multivariable logistic regression was done to identify significant independent risk factors for developing depression. $P \leq 0.05$ was considered as statistically significant.

RESULTS

Background characteristics of study participants

A total of 238 study participants were included in the study. Study participants were aged from 60 to 84 years, mean age 68.54 years ($SD \pm 9.12$). Half of the (53.8%) study participants belonged to 60-69 years age group, 50.4% males and 55.4% Hindu. The 64.3% study subjects were married and 29.8% were widows or widowers. 6.4% study subjects were illiterate and 43.3% were having education below secondary level. The 34% study participants belonged from lower and lower-middle socioeconomic class and 21.1% from upper and upper-middle class. 26.5% study subjects showed financial dependence, 49.1% had one or more co-morbidities (i.e., diabetes, hypertension, hypothyroid, cardiac diseases). The 47.4% study participants were taken care at home by their children. The 31.5% study subjects were fully functional and another 31.5% were having moderate to severe impairment in ADL (Table 1).

Magnitude of depression among the study participants

Out of the 238 study participants, 160 (67.2%) were found to have depression. As per categorization of depression, 49.2% study participants were found to have mild depression, 14.6% with moderate depression and 3.4% with severe depression (Figure 1).

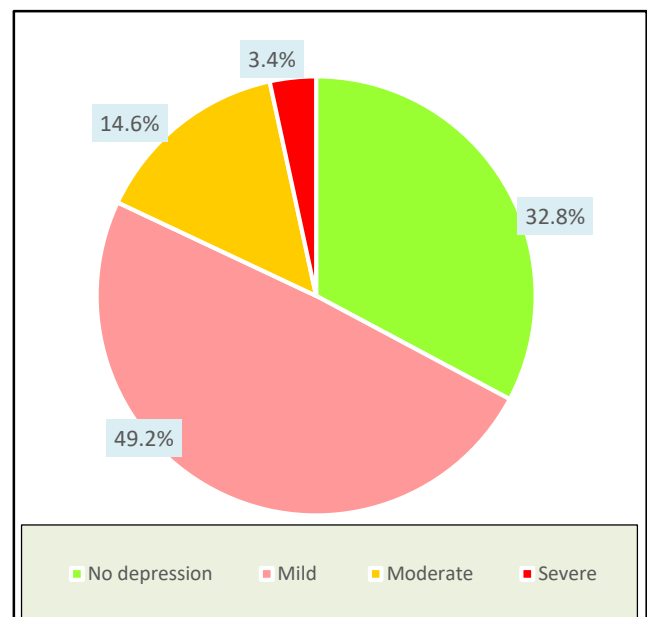


Figure 1: Distribution of study participants as per different categories of depression, (n=238).

Level of perceived social support among the study participants

Out of the 238 study participants, 36.6% had low level of perceived social support, 44.1% with moderate level of

perceived social support and the remaining 19.3% with high level of perceived social support (Figure 2).

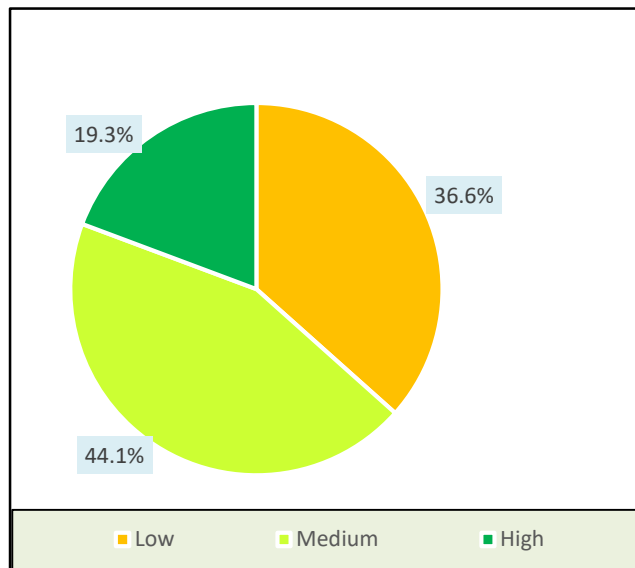


Figure 2: Distribution of study participants as per their perceived levels of social support, (n=238).

Relationship between socio-demographic characteristics, perceived social support and elderly depression

Elderly depression significantly associated with their educational status ($p=0.003$), socioeconomic status ($p=0.003$), financial dependence ($p=0.001$), pre-existing one/ more co-morbidities ($p=0.021$), impairment in ADL ($p=0.000$), perceived social support ($p=0.000$) (Table 1).

Multivariable logistic regression analysis done between background characteristics of study participants and presence of depression in elderly. After adjustment of variables, impairment in ADL at moderate to severe level [AOR: 5.045 (2.145-11.868)], presence of financial dependence [AOR: 2.977 (1.330-6.665)] and pre-existing one or more multiple co-morbidities [AOR: 2.044 (1.114-3.749)] and educational level < secondary level [AOR: 0.379 (0.199-0.720)] found to be significant predictors of elderly depression. Nagelkerke $R^2=0.234$ which suggested that 23.4% variation in dependent variable (presence of elderly depression) could be explained by model. Hosmer-Lemeshow test=0.066, non-significance of which suggested goodfit of model (Table 2).

Table 1: Bivariate analysis between socio-demographic characteristics, perceived social support and elderly depression, (n=238).

Characteristics	Total numbers (n=238) (%)	Depression among elderly		Chi-square test (χ^2)		
		Yes (n=160)	No (n=78)	(χ^2) value	Degree of freedom (df)	P value
Age (Years)						
60-69	128 (53.8)	90	38	3.044	2	0.218
70-79	72 (30.2)	49	23			
≥80	38 (16.0)	21	17			
Sex						
Male	120 (50.4)	78	42	0.545	1	0.460
Female	118 (49.6)	82	36			
Religion						
Hindu	132 (55.4)	90	42	0.278	2	0.870
Muslim	77 (32.4)	50	27			
Others	29 (12.2)	20	9			
Marital status						
Married	153 (64.3)	106	47	1.295	2	0.523
Un-married	14 (5.9)	10	4			
Spouse death	71 (29.8)	44	27			
Educational status						
Illiterate	15 (6.4)	12	3	15.952	4	0.003
Primary (I-IV)	88 (36.9)	67	21			
Secondary (V-X)	98 (41.2)	65	33			
High-sec (XI-XII)	23 (9.6)	8	15			
Above higher-sec	14 (5.9)	8	6			
Socio-economic status ¹						
Lower	13 (5.4)	9	4	16.290	4	0.003
Lower-middle	68 (28.6)	43	25			
Middle	107 (44.9)	83	24			
Upper-middle	41 (17.3)	23	18			
Upper	9 (3.8)	2	7			

Continued.

Characteristics	Total numbers (n=238) (%)	Depression among elderly		Chi-square test (χ^2)		
		Yes (n=160)	No (n=78)	(χ^2) value	Degree of freedom (df)	P value
Financial dependence						
Yes	63 (26.5)	53	10	11.107	1	0.001
No	175 (73.5)	107	68			
Pre-existing one or more co-morbidities						
Absent	121 (50.9)	73	48	5.313	1	0.021
Present	117 (49.1)	87	30			
Recent demise of close family member						
Yes	82 (34.5)	57	25	0.297	1	0.586
No	156 (65.5)	103	53			
Person looking after at home						
Spouse	49 (20.5)	35	14	4.313	4	0.365
Children	113 (47.4)	69	44			
Daughter in law	61 (25.5)	44	17			
Grand children	7 (2.9)	6	1			
None	8 (3.7)	6	2			
Impairment in ADL ²						
No impairment	75 (31.5)	46	29	25.721	3	0.000
Mild	88 (36.9)	47	41			
Moderate	70 (29.4)	62	8			
Severe	5 (2.1)	5	0			
Perceived social support ³						
Low	87 (36.5)	55	32	46.907	2	0.000
Medium	105 (44.2)	91	14			
High	46 (19.3)	14	32			

Note: 1. As per Modified B G Prasad scale, CPI-IW value July 2021:330. 2. As per Katz index of independence in ADL. 3. As per MSPSS.

Table 2: Multivariable logistic regression of socio-demographic characteristics and perceived social support with presence of elderly depression, (n=238).

Background characteristics	Total participants, (n=238)	Depressed study participants, (n=160), (%)	Adjusted odds ratio (AOR) (95% CI)	P value
Educational status				
<Secondary	103	79 (76.7)	0.379 (0.199-0.720)	0.003
≥Secondary	135	81 (60.0)	Ref	
Socioeconomic status*				
Lower and lower-middle	81	52 (64.2)	0.520 (0.270-1.002)	0.06
Upper, upper-middle and middle	157	108 (68.8)	Ref	
Financial dependence				
Yes	63	53 (84.1)	2.977 (1.330-6.665)	0.008
No	175	107 (61.1)	Ref	
Pre-existing one or more co-morbidities				
Present	117	87 (74.3)	2.044 (1.114-3.749)	0.021
Absent	121	73 (60.3)	Ref	
Impairment in ADL**				
Moderate to severe	75	67 (89.3)	5.045 (2.145-11.868)	0.000
Full function to mild	163	93 (57.1)	Ref	
Perceived social support				
Low	87	55 (63.2)	0.625 (0.335-1.164)	0.138
Medium to high	151	105 (69.5)	Ref	
Nagelkerke R ² value			0.234	
Hosmer-Lemeshow test value			0.066	

*As per modified B G Prasad scale, [CPI-IW value January 2021: 330]. **ADL-Activities of daily living.

DISCUSSION

This study presented the prevalence of elderly depression, its predictors and the level of perceived social support among them in rural community of our country. The global scenario of depression and perceived social support among elderly was somewhat similar with wide variability. Several foreign studies like in Nepal, Japan, Pakistan as well as Indian studies in Rajasthan, Tamil Nadu, Maharashtra, and West Bengal hint about varying degree of depression and perceived social support level among elderly people.

Elderly depression

In this study, prevalence of depression among elderly was found to be 67.2%, incompatible to this finding, a similar study done in Japan by Kaneko et al showed 10.4% prevalence of elderly depression.²¹ The probable reason might be difference in cultural background, genetic and environmental factors between two countries. The Japanese study used Zung's self-rated depression scale to assess prevalence, which was methodologically different from geriatric depression scale-15 used in current study.

Another similar study done in Nepal by Simkhada et al using GDS-15 tool, provided slightly lower prevalence of elderly depression (60.6%) than the current study.²² Compatible to current study finding, the study in Nepal showed that presence of co-morbidities and impairment in ADL were significant predictors of elderly depression.

A similar study done in Pakistan by Bhamani et al using GDS-15 tool showed 40.6% prevalence of elderly depression.²³ This study showed higher prevalence of elderly depression in women than men (50% vs 32%), contrary to this, current study showed almost equal prevalence of elderly depression in both sex (50.4% vs 49.6%).

In Indian context, a similar study done in rural population of Tamil Nadu, India by Bincy et al showed compatible findings to current study, where prevalence of elderly depression was around 67.5%.²⁴

Another similar study done in Jodhpur, India by Patel et al showed 17% severe depression, contrary to this finding, our current study revealed only 3.4% severe depression among elderly.²⁵ In both the studies, mean age of study participants was somewhat similar (68.54 years vs 67.9 years) but illiterate study subjects in Jodhpur was 53.6% which was much higher than current study (6.4%). In both the studies, educational level of study subjects was a significant predictor of elderly depression, which was probably the reason behind obtaining such high prevalence of severe depression in Jodhpur.

A similar study done in rural area of Maharashtra by Goswami et al showed 41.7% prevalence of elderly depression, slightly lower than current study, but this

study showed 15.1% severe depression in elderly, which was much higher than current study (3.4%).²⁶ Suffering from chronic co-morbidities was a significant predictor of elderly depression was found in this study which was in line with the current study.

A similar study done in rural area of West Bengal by Dasgupta et al used similar tool (GDS-SF 15) and the study showed 58.8% prevalence of elderly depression, which was slightly lower than current study.²⁷ But this study showed that financial dependence and presence of co-morbidities were significant predictors of elderly depression, such finding went in line with our current study.

Perceived social support

Current study showed that depression in elderly was associated with their perceived social status. Compatible to this finding, a study done in Mumbai, Maharashtra, India by Patil et al about study on perceived and received social support in elderly depressed patients showed that when level of depression increased, level of perceived social support substantially decreased.²⁸ Although, the study did not find any relationship between elderly depression and their received social support. A similar study done in Kolkata, West Bengal by Malakar et al on impact of perceived social support on depression among elderly people in Kolkata showed that they differed significantly in terms of depression due to variation in perceived social support.²⁸

The current study has assessed the prevalence of depression and perceived social support in elderly people in a rural community and it also has found out the predictors of elderly depression. But this does not deter future researchers to conduct larger studies in this domain, particularly involving both urban-rural elderly population, in a mixed method design to explore the root-causes of elderly depression. This study paves the way for future studies to diminish the gaps between elderly depression and inconsistent mental healthcare in our country.

CONCLUSIONS

To conclude, the study shows that prevalence of depression is high among elderly, along with low perceived-social support among them. Health promotion, awareness generation about social security schemes and family support are crucial to prevent elderly depression. Study may be limited by its scope that it did not involve all villages of Bhatar community block and GDS-15 and MSPSS are only screening tool, they provide probable diagnosis that should be confirmed by further evaluation.

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