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Original Research Article

Depression and its predictors among geriatric population in the urban slum of Bankura town of Eastern India

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ABSTRACT

Background: Depression is the leading cause of disease burden ranked as third worldwide and also common among elderly people. The study was conducted to find out the prevalence of depression and its correlates among geriatric slum dwellers.
Methods: This community based cross-sectional, an observational analytical epidemiological study was conducted from January 2018 to April 2018 among geriatric people residing in the urban slums of Bankura town. Out of 295 slums, 30 slums were selected by cluster sampling method. From each cluster 7 geriatric people were selected by systematic random sampling method and data were collected by interview method using interviewer-administered both close and open-ended, the predesigned pretested questionnaire which included 15 items Geriatric depression scale short form (GDS-SF). To reveal the ultimate predictor variables, bivariate analysis and followed by logistic regression was done.
Results: Out of 210 people 59.1% was suffering from depression. In multiple logistic regression, we found that people who were suffering from chronic illness were 10.3 times more depressed. Married people were 6 times more depressed than others and 60 to 69 years people were found 4.4 times more depressed than elder geriatrics. People who belonged to poor socio-economic status (IV+V), were found as 2.7 times more depressed. Decision maker within the family was observed more depressed 1.8 times than others.
Conclusions: Chronic illness, economic insecurity due to lower socio-economic status, over-thinking of marital people for their spouse's security and health and newer identity as 'senior citizen' attributed to depression among geriatrics people.

Keywords: Geriatric, Depression, Geriatric depression scale short form, Logistic regression

INTRODUCTION

In the world, depression has been considered as most disabling clinical disease. World Health Organization (WHO) estimated that by the year 2020 the burden of the disease will increase to 5.7% of the total burden if current trend continues.[1] It is a disorder that is characterized by sadness, changes in appetite, altered sleep patterns, feelings of dejection or hopelessness and sometimes suicidal tendencies. Currently it is one of the most profound human problems facing the global health care system.[2]

Depression among the elderly population in India has been recognized as one of the major public health problems with a prevalence of 8 to 22%. It causes significant suffering and accounts for 5.7% of the years lived with disability (YLDs).[3–6] It is projected that by the year 2020, there will be one billion elderly people (65+ years) in the world and 71% of whom will live in low-income countries.[7] As per the census 2011, 7.4%

population of India are geriatric.[8] Due to demographic transition by 2050, the number is expected to increase to 315 million, which will constitute 20 per cent of the total population.[9]

According to the WHO global burden of disease report 2004, depression was the leading cause of burden of disease during 2000-2002, ranked as third worldwide.[10] The fatal contribution of depressive disorders to suicide is also widely recognised.[11] Studies in primary care settings found higher prevalence (10 to 25%) of depressive disorders amongst the elderly (with chronic co-morbid diseases).[12] In this background the present study was conducted in the urban slum of Bankura district of West Bengal to find out the prevalence of depression and its correlates among geriatric slum dwellers.

METHODS

This community based cross-sectional, observational analytical epidemiological study was conducted from January 2018 to April 2018 among geriatric people residing in the urban slums of Bankura town. Bankura town, a small town of eastern India comprises of 1,37,386 population. In this town have 295 slums where 63324 populations are living, 46.1% of total town's population.[13-14] All the geriatric people living permanently in the area since last 5 years were included in this study. Those who were seriously ill, could not be communicated due to language barrier, insanity or diagnosed with serious psychological illness, deafness or dumbness and unwilling persons were excluded from the study. Prevalence of depression among geriatric population was found 46.9% in an urban slum of Kolkata, West Bengal by Dasgupta et al.[15] A total of 206 sample size was calculated by using the formula $n=z^2pq/l^2$ and considering 5% non-response rate (where, n=sample size, z=standard normal deviate=1.96 at 95% confidence interval, p=prevalence of depression among geriatric population, q=1-p, l=absolute precision). All the slums of the town are comparable to each other in terms of size and composition. Out of 295 slums 30 slums were selected by cluster sampling method and each slum is considered as a single cluster. For this cluster sampling method, 2111 (63,324/30) was calculated as cluster interval. After identification of the clusters, from each 7 geriatric people were selected by systematic random sampling method to fulfil the required sample size. Data were collected by interview method using interviewer administered both close and open ended, predesigned pretested questionnaire which included 15 itemed geriatric depression scale short form (GDS-SF).[16] GDS-SF is a screening tool for depression. Total score greater than five indicates probably depression. GDS-SF has demonstrated moderate reliability. Friedman and colleagues reported moderate internal consistency (a Cronbach α coefficient of 0.749). Sensitivity and specificity of the tool are 92% and 89% respectively.[17] Before the starting of interview, purpose of the study was explained to them and informed consents were opted. Data were entered in Microsoft Excel worksheet and subsequently analysed using Microsoft Excel functions and IBM SPSS software (version 19.0). Bivariate analysis was performed to assess the association between depression and different independent variables. Factors which were found statistically significant in bivariate analysis were considered for logistic regression to reveal the ultimate predictor variables. Before conducting the study, ethical permission were opted from appropriate authorities.

RESULTS

Present study included 210 people ultimately. Among them 68.1% were belonged to young old age group (60-69 years) and rest were older old (70-80 years) or oldest old (>80 years). Study population comprised of 54.3% male, 39.5% illiterate and 18.6% were employed. Among them 57.1% was living with their spouse. Most of the geriatric people (62.9%) were belong to lower socio economic status (IV and V) [according to modified Dr B.G. Prasad scale] and 74.3% were belonged to joint family. Decision within the family were making by 33.3% people. One third populations (33.3%) were found economically secured and 43.8% were self-dependent. Addiction behaviour observed among 63.8% population. 61.4% of geriatrics was suffering from different type of chronic illness. The current study revealed 59.1% people was suffering from depression, screened by the GDS-SF 15 scale. In bivariate analysis Chi square test was performed as data were qualitative in nature. Phi and Cramer's V tests were also used to evaluate the strength of association between variables. In bivariate analysis it was found that people who were between 60-69 years age group, married, belonging to joint family, decision makers within family, belonging to class IV socio-economic status, economically in-secured and chronically ill, were more depressed and these findings were statistically significant ($p<0.05$) (Table 1). Statistically significant variables were considered for logistic regression. Statistically significant categorical variables were transformed to dummy variables. Among the all categories of independent variable which one is explaining the output, was coded with higher value and rest of the categories were coded accordingly (Table 2).

A linear relationship was found between continuous independent variables and the logit transformation of the dependent variables. Dependent variable was coded dichotomously 0 and 1 as not depressed and depressed accordingly. The logistic regression model was significant, as evident from omnibus chi-square test ($\chi^2=115.225$, $p=0.00$). Goodness to fit model was checked by Hosmer Lameshow test [χ^2 (7) =7.928, $p=0.339$]. Collectively, all the independent variables could explain between 42.2% and 56.9% variance of the dependent variable (i.e. depression), as evident from

Cox and Snell and Nagelkerke R square. The regression model is able to correctly predict 88.7% geriatric people. Overall, the model predicts 81.9% of depression correctly, as calculated in classification table of the logistic regression model. In multiple logistic regression, we found that people who were suffering from chronic illness were 10.3 times more depressed. Married people were 6 times more depressed than others and 60 to 69 years people were found 4.4 times more depressed than elder geriatrics. People who were belong to poor socio-economic status (IV+V), were found as 2.7 times more depressed. Decision maker within family were observed more depressed 1.8 times than others (Table 3).

Table 1: Distribution of socio-demographic variables according to depression status of the geriatric population (n=210).

Depression/socio-demographic variables		Present	Absent	Test of significance
Age (in years)	Young old (60-69)	97 (67.8)	46 (32.2)	X^2=14.303, df=1, p<0.0001*
	Old old and oldest old (≥70)	27 (40.3)	40 (59.7)	
Gender	Male	71 (62.3)	43 (37.7)	X^2=1.078,df=1, p=0.299
	Female	53 (55.2)	43 (44.8)	
Education	Illiterate	46 (55.4)	37 (44.6)	X^2=4.542, df=2, p=0.103
	Primary	37 (53.6)	32 (46.4)	
	Secondary and above	41 (70.7)	17 (29.3)	
Marital status	Married	91 (75.8)	29 (24.2)	X^2=32.625, df=1, p<0.0001*
	Single, widow/widower	33 (36.7)	57 (63.3)	
Type of family	Joint	99 (63.5)	57 (36.5)	X^2=4.888, df=1, p=0.027*
	Nuclear	25 (46.3)	29 (63.7)	
Role within the family	Decision maker	47 (67.1)	23 (32.9)	X^2=10.315, df=2, p=0.006*
	Views get importance	47 (66.2)	24 (33.8)	
	Neglected	30 (43.5)	39 (56.5)	
Socio-economic status	I	4 (20)	16 (80)	X^2=37.455, df=4, p<0.0001*
	II	27 (58.7)	19 (41.3)	
	III	4 (33.3)	8 (66.7)	
	IV	63 (82.9)	13 (17.1)	
	V	26 (46.4)	30 (53.6)	
Employment status	Employed	21 (53.8)	18 (46.2)	X^2=0.536, df=1, p=0.464
	Retired	103 (60.2)	68 (39.8)	
Economical security	Secured	33 (47.1)	37 (52.9)	X^2=6.154, df=1, p=0.013*
	Not secured	91 (65)	49 (35)	
Dependency pattern	Self-dependent	50 (54.3)	42 (45.7)	X^2=1.517, df=2, p=0.468
	Spouse dependent	16 (64)	9 (36)	
	Dependent to others	58 (62.4)	35 (37.6)	
Addiction status	Addicted	75 (56)	59 (44)	X^2=1.450, df=1, p=0.229
	Not addicted	49 (64.5)	27 (35.5)	
Chronic illness	Present	103 (79.8)	26 (20.2)	X^2=59.822, df=1, p<0.0001*
	Absent	21(25.9)	60 (74.1)	

*Statistically significant.

Table 2: Scoring of dummy variables.

Variables	0	1	2
Age	>70 and 70	<70	
Marital status	Single/widow/widower	Married	
Type of family	Nuclear	Joint	
Role within the family	Neglected	Views get importance	Decision maker
Socio-economic status	I	II+III	IV+V
Economic security	Secured	Not secured	
Chronic illness	Absent	Present	
Depression	Absent	Present	

Table 3: Multivariate logistic regression analysis.

Variables in the equation									
		B	S.E.	Wald	df	Sig.	Exp (B)	95% CI for Exp (B)	
								Lower	Upper
Step 1[a]	Age	1.477	0.439	11.316	1	0.001	4.379	1.852	10.353
	Marital status	1.792	0.448	16.023	1	0.000	5.998	2.495	14.421
	Role within family	0.582	0.264	4.869	1	0.027	1.789	1.067	2.999
	Type of family	0.491	0.489	1.008	1	0.315	1.633	0.627	4.257
	Socio economic status	0.992	0.353	7.876	1	0.005	2.696	1.349	5.389
	Economic security	0.289	0.446	0.420	1	0.517	1.335	0.557	3.201
	Chronic illness	2.327	0.402	33.506	1	0.000	10.250	4.661	22.539
	Constant	-5.602	0.985	32.363	1	0.000	0.004		

a. Variable(s) entered on step 1: Age, marital status, role within family, type of family, socio economic status, economic status, chronic illness.

DISCUSSION

In the present study majority (68.1%) of geriatric people were belonging to young old age group (60-69 years) and this finding was mostly similar with Mullick et al study conducted in Bhubaneswar (68.45%).[18] In Dehradun city, Nautiyal et al found similar finding but proportion (58.75%) was found 10% lesser than us.[19]

The sex ratio among geriatric population varied within India as found in our study (male: female=54.3% and 45.7%) and Padda et al study (male: female=60.6%: 39.4%); but proportion of males were found greater than females everywhere.[20] In our study setting, literacy rate among geriatric generation was found quiet better (60.5%) than other studies like Mullick et al (27%) and Shashi et al (35%).[18,21] According to census (2011) 41.6% elderly were found as working in India where in this study it was only 18.6%.[22] The present study revealed 57.1% of the geriatric was living with their spouse which was at par (56.8%) with Paul et al study finding.[23]

The current study revealed 59.1% people as depressed, assessed by the GDS-SF 15 scale. In other Indian studies prevalence of depression was found as follows Nautiyal et al (29.9%), Radhakrishnan et al (58.8%), Swarnalatha et al (47%) and Thilak et al (72.4%).[19,24-26]

Prevalence of depression among geriatrics varies too much within India. Close variations of prevalence have been observed in different country studies like Assil et al study in the Sudan (41.1%), Naglaa et al study in the Egypt (46.6%), and Mullick et al study in the India (54%)).[27,28,18] However, this study finding was found quite higher than the finding of Peltzer et al study conducted among South African older adults (4%) and Beekman et al study in the Netherlands (14.9%).[29,30] In a systematic review among Caucasian population it was observed that depressive symptoms varied within 7.2% to 49% older adults.[31] This variation might be due to the difference in study areas, socio demographic variables, their life style, difference in the depression measuring scales and difference in cut off age of geriatric population.

In bivariate analysis it was found that people who were between 60-69 years age group, married, belonging to joint family, decision makers within family, belonging to class IV socio-economic status, economically in-secured and chronically ill, were more depressed and these findings were statistically significant ($p<0.05$).

Grover S et al reviewed Indian researches on geriatric depression in 2015.[32] Their finding also supported that lower socio economic status, unemployment or economically insecurity significantly associated with depression. In contrary with our study they found unmarried, divorced or widowed elderly more depressed. Grover et al revealed that in Indian studies depression increased among geriatrics with increasing of age and it was also contradictory with this study finding. Depression among younger old aged people might be attributed by multiple factors such as being newly labelled as senior citizens contributing a psychological effect, adjustment problems to new life after retirement at 60 years, and not able to interact with other people, but older geriatric population above 70 years might be adopted and habituated with the geriatric lifestyle.

When logistic regression was done for the factors which were significant in bivariate analysis revealed depression was associated with chronic illness, married geriatric people, young old geriatrics, low socioeconomic status and decision makers within family.

In the present study people with chronic illness was 10.3 times more depressed. Various studies in different socioeconomic background of the world could relate depression to be more if chronic illness or co-morbidities were present.[33,34,26] A probable explanation is that functionally less efficiency due to chronic illness may increase the development of emotional problems and/or depression among geriatrics.

The study showed a 6 time increase in depression amongst the married geriatric population. Married people might be in stressed due to health issues of their spouse and thought of security in absence of one partner, might led to depression.

The present study revealed people from low socioeconomic class were 2.7 times more depressed. Results from survey in Europe and a meta-analysis on socioeconomic inequalities in depression conducted by Lorant and colleagues revealed conclusively that low SES individuals had higher odds of being depressed.[35,36]

CONCLUSION

More than half of geriatric population was suffering from depressive disorder as screened by the GDS-SF 15 scale here. This study explored that chronic illness, economic insecurity due to lower socio-economic status, over-thinking of marital people for their spouse's security and health and newer identity as 'senior citizen' attributed to depression among geriatrics people. This study tool is used for screening purpose not as diagnostic tool. For the diagnostic confirmation needs subject expertise. So the prevalence of depression here might be varied with real prevalence. But good sensitivity and specificity of the GDS-SF 15 scale minimized the error. Where depression is a psychological disorder, in depth interview will be the best method to reveal the underneath factors or predictors.

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