

Why are our elderly distressed? A cross-sectional study in a rural community of West Bengal

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ABSTRACT

Context: Population across the globe are aging rapidly due to demographic transition. More than 50% of the elderly in India suffer from one or more chronic diseases and psychological distress is one of the most common morbidities among them. **Aims and Objective:** This study was conducted with the objective to assess the status of psychological distress among the elderly. **Settings and Design:** A community based, cross-sectional study among 347 elderly aged 60 years and above. **Methods and Materials:** This study was done in 30 villages (clusters) in Singur block of West Bengal. A predesigned and pretested schedule was used to collect data. **Statistical Analysis:** Data were analysed by univariate and multivariate analyses. **Results:** The mean (\pm SD) age of the elderly was 67.67 (\pm 7.15) years, majority (67.4%) were in the 60–69 years age group. Most (62.8%) of the elderly were suffering from psychological distress which is significantly associated with below primary education level [AOR (95% CI) = [25.09 (11.88-52.96)], living without spouse and child [AOR (95% CI) = 7.88 (3.90-15.89)], financial dependence [AOR (95% CI) = 20.23 (7.58-54.00)], dependent functional activity (assessed by ADL) [AOR (95% CI) = 3.84 (1.25-11.76)], and decision for healthcare taken by others [AOR (95% CI) = [3.84 (1.25-11.76)]. **Conclusions:** Alarmingly, the proportion of psychological distress was found to be high among the elderly of this rural area. Therefore, all steps must be taken with special focus on the mental health of the old people so that they may continue to contribute to the upliftment of the society.

Keywords: ADL, elderly, PHQ4, psychological distress, rural area of West Bengal

Introduction

The last few decades were marked by a considerable increase in the proportion of older people because of a phenomenon called population aging. “Population aging,” a phenomenon due to increased life expectancy and declined fertility, has resulted in increasing number of elderly persons all over the world.^[1]

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The world’s population aged 60 years and above is estimated to reach a total of 2 billion by 2050, up from 900 million in 2015.^[2]

The National Policy on Older Persons (NPOP) was adopted by Government of India in January 1999 which defines a senior citizen or elderly as a person who is aged 60 years or above.^[3] According to population census data 2011, the total elderly population aged 60 years and older in India was around 104 million which was 8.6 per cent of the total population.^[4] This elderly population is projected to increase to 324 million, constituting 20% of the total population by 2050.^[5]

West Bengal, a state in the eastern part of India, is no exception to this phenomenon of population aging in the country, where

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8.5% of the total population belong to elderly population. There are 74, 90, 514 persons above 60 years of age with 68% (51.4% males and 48.6% females) residing in rural areas and 32% residing in the urban locales.^[6]

Psychological distress is characterized by the symptoms of depression and anxiety, and sometimes could be tied with somatic symptoms.^[7]

The current statistics depicting the large number of elderly in India, point toward new sets of medical, social, economic, and psychological problems which might arise if appropriate and timely initiatives are not taken in these issues by the program managers and policy makers.

There is dearth of community-based studies on psychological stress of elderly in this part of the country. An evaluation of psychological distress in elderly might help the policy makers to formulate appropriate programmes for this vulnerable population. With this background, a study was undertaken with the following objectives:

- a. To assess the status of psychological distress among the elderly population
- b. To determine the predictors of psychological distress.

Subjects and Methods

A community-based cross-sectional study was conducted from June 2017 to August 2019 among the elderly population residing permanently in randomly selected villages of Singur block of Hooghly district, West Bengal,

Inclusion criteria

Those who had given informed written consent were included.

Exclusion criteria

Those who were bed ridden, critically ill, and not able to respond were excluded.

The proposed study intended to get an estimate of depression among elderly. Therefore, the researchers had considered 58.8%^[8] as the prevalence (p) to calculate the minimum sample size for this study, using the formula

$$n = Z_{\alpha}^2 \times p \times (1-p) / L^2$$

Where Z_{α} = standard normal deviate at desired 95% confidence level, and is 1.96, $P = 0.588$, $q (1-p) = 0.412$, $L =$ Relative error as 15% of p, and design effect as 3, minimum sample size calculated was 360 elderly. However, data could be collected from 347 participants.

Sampling technique

There are 64 villages in Singur, which is the rural field practice area under the purview of the All India Institute of Hygiene

and Public Health (AIHH and PH).^[9] The World Health Organization (WHO) recommended 30-cluster sampling technique was followed to select the required number of elderly population, i.e. 347, from the study area. For this study, the villages were clustered and from each selected cluster $360/30 = 12$ elderly persons of age 60 years and above were selected.

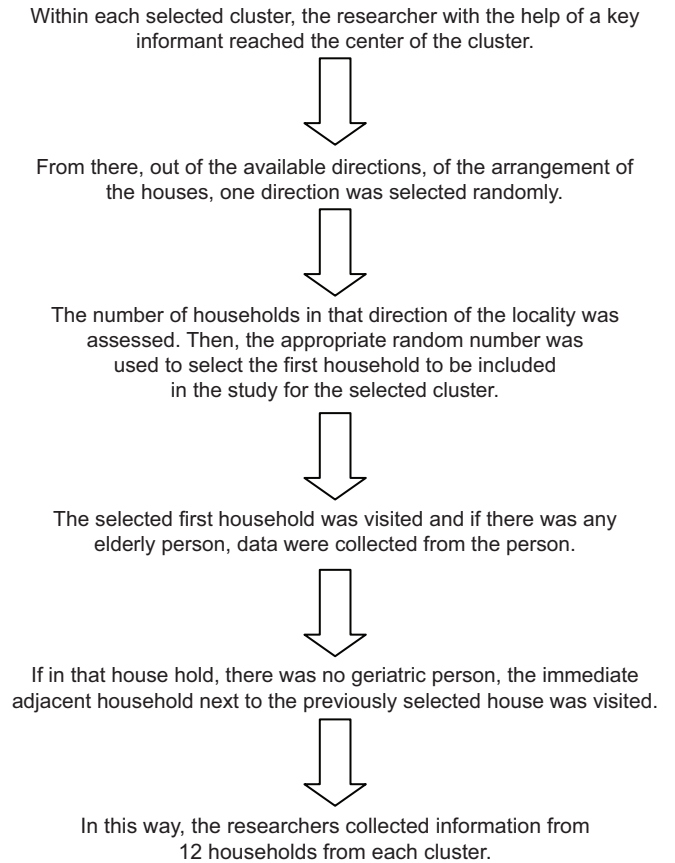


Table showing the selected villages (cluster) with population:

Selected village	Population	Selected village	Population
Habos pota	1691	Anandanagar	4151
Khosalpur	1037	Pownan	1048
Banchipata	3711	Noyapara	2802
Rajabuthan	1615	Ganderpukur	3112
Kaliarah	1525	Taherpur	907
Mollasimla	3042	Balitipa	808
Nasibpur	4113	Baijala	640
Nanda	3118	Subipur	798
Bagdanga	2011	Pairaurah	1324
Chutipur	1108	Telipukur	1897
Ayma	1056	Ghanashyampur	1251
Durgrampur	673	Paltagarh	2025
Dewanbheri	4698	Ramnagar	1908
Harishnagar	1909	Diarah	2119
Natunbheri	1067	Rasulpur	1412

Study tools

The tool used for data collection during this study was an interview schedule, which was developed at the Institute with

valuable inputs from the faculty members and other experts in relation to geriatrics. The predesigned and pretested structured schedule consisted of the following sections:

- Questions related to demographic and socioeconomic characteristics.
- Validated Patient Health Questionnaire (PHQ4) questionnaire to assess psychological distress.^[10]
- Katz Activity of Daily Living (ADL) scale to assess the functional status.^[11]

The schedule was translated in Bengali (local language) and English, and the latter was retranslated into Bengali. The final Bengali questionnaire was unambiguous, simple to understand, had semantic equivalence, and conformed to the objectives of the study. Pretesting of the study tool was done in nearby villages outside the service area on 30 elderly people who were not included in the study population, and the schedule was modified according to the feedback. Face and content validity were ensured by the experts at the Department of PSM, AIHH and PH, Kolkata and the final schedule was used for the study.

Variables: Table showing study variables

Independent variables	Dependent variables
Age	Psychological distress
Sex	
Education	
Living arrangement	
Financial dependence	
Decision for healthcare	
Functional dependency	
[Katz Activity of Daily Living (ADL)].	

Operational definitions

Living arrangement- For analytic purpose, living arrangement was categorized into two categories as living with spouse and without spouse.

Education level- was categorized into two categories (below primary and primary and above) for analyses purpose.

Financial dependency- Self reported by elderly

Functional status- Assessed by the Katz index of independence in Activities of Daily Living (ADL), is an instrument to assess the functional status of the elderly based on the ability to perform daily activities. The performance is based on six activities of bathing, dressing, toileting, transferring, continence, and feeding. For independent activity, 1 point is given, and if dependent for doing the activity, 0 point is given. They were scored on the response as yes or no for independence in each of the six functions. It is considered fully independent if they score above 5, partially dependent if a score of 3 and 4 is achieved, and fully dependent if they score 2 and below.

Decision for healthcare- categorized into self and others for analytical purpose.

Psychological distress- Assessed using the PHQ4 questionnaire; the total score ranges from 0 to 12, with the following categories of psychological distress according to the obtained score:

None	0-2	Mild	3-5
Moderate	6-8	severe	9-12

For analytical purposes, psychological distress “None” was considered as the absence of psychological distress while others “Mild, Moderate, Severe” were all considered as the presence of psychological distress.

Data entry and analysis

Data were entered and analyzed by univariate and multivariate analyses and the association between psychological distress and other covariates was found by using IBM SPSS version 16.0 and were represented by various tables.

Ethical issues

The study was conducted in accordance to the Declaration of Helsinki for ethical consideration. Informed written consent for participation in the study were obtained from every participant selected for the study after explaining to them the purpose of the study and ensuring their confidentiality. At the end of the interview, any misconceptions or queries regarding the morbidity and health care seeking behaviour were clarified and the elderly participants were thanked for extending their co-operation.

Results

Table 1 shows the gender-wise distribution of the sociodemographic characteristics of the study participants. The mean (\pm SD) age of the elderly was 67.67 (\pm 7.15) years, 67.4% were in the 60–69 years of age group, whereas 29.3% and 9.1% were in the 70–79 years and 80 years and above age group, respectively. The number of females (56.7%) was more in comparison to the number of males (43.3%). Among the total elderly persons, 57.3% were literate. Among the study population, 8.9% of the elders lived alone by themselves. The majority (68.3%) of the elderly were financially independent and it was observed that 73.2% elders took their own decision for their healthcare.

Table 2 depicts the functional status of the elderly. Majority (86.5%) of the elderly persons were found to have independent functional status according to the total scores obtained from the Activities of Daily living (ADL). About 13.5% percent elderly needed some assistance.

Table 3 shows that among the study population, 37.2% had no psychological distress, whereas 23.3%, 37.2%, and 2.3% had mild, moderate, and severe psychological distress, respectively.

Table 4 shows that psychological distress was significantly associated with below primary education level [AOR (95% CI)] = [25.09 (11.88–52.96)], living without spouse and child

Table 1: Gender-wise distribution of socio-demographic characteristics of the study participants (n=347)

Characteristics	Male Number (%)	Female Number (%)	Total Number (%)
Age category (in completed years)			
60-64	81 (54.0)	68 (34.5)	149 (42.9)
65-69	30 (20.0)	55 (27.9)	85 (24.5)
70-74	9 (6.0)	45 (22.8)	54 (15.6)
75-79	2 (1.3)	11 (5.6)	13 (3.7)
80-84	23 (15.3)	15 (7.6)	38 (11.0)
85 and above	5 (3.3)	3 (1.5)	8 (2.3)
Total	150 (100)	197 (100)	347 (100)
Education			
Illiterate	33 (22.0)	115 (58.4)	148 (42.7)
Below primary	21 (14.0)	24 (12.2)	45 (13.0)
Primary	61 (40.7)	46 (23.4)	107 (30.8)
Middle	11 (7.3)	12 (6.1)	23 (6.6)
Secondary	10 (6.6)	5 (2.5)	15 (4.3)
Higher secondary and above	7 (6.6)	2 (1.0)	9 (2.6)
Living arrangement			
Living with spouse only	20 (13.3)	37 (18.8)	57 (16.5)
Living with spouse and children	114 (76.0)	40 (20.3)	160 (46.1)
Living with children only	15 (10.0)	90 (45.7)	99 (28.5)
Living alone	1 (0.7)	30 (15.2)	31 (8.9)
Financial dependency			
Dependent	18 (12.0)	92 (46.7)	110 (31.7)
Independent	132 (88.0)	105 (53.3)	237 (68.3)
Decision for healthcare			
Self	127 (84.7)	127 (64.5)	254 (73.2)
Spouse	8 (5.3)	33 (16.7)	41 (11.8)
Children	12 (8.0)	32 (16.3)	44 (12.7)
Other relative	3 (2.0)	5 (2.5)	8 (2.3)
Total	150 (100)	197 (100)	347 (100)

Table 2: Distribution of participants according to their functional status for basic activities (n=347)

Basic activities	Functional dependence*	Number (%)
Toilet	Independent	311 (89.6)
	Needs assistance	36 (10.4)
Bathing	Independent	300 (86.5)
	Needs assistance	47 (13.5)
Continence	Continent	339 (97.7)
	Occasional incontinent	8 (2.3)
Mobility	Independent	300 (86.5)
	Needs assistance	47 (13.5)
Functional status*	Independent	300 (86.5)
	Partially dependent	47 (13.5)

* According to the total scores obtained by ADL.

AOR (95% CI) =7.88 (3.90–15.89)], financial dependence AOR (95% CI) =20.23 (7.58–54.00)], dependent functional activity AOR (95% CI) =3.84 (1.25–11.76)], and decision for healthcare taken by others [AOR (95% CI) = [3.84 (1.25–11.76)].

Discussion

Sociodemographic characteristics

In this study, the mean (\pm SD) age of the elderly was 67.67 (\pm 7.15) years; majority (67.4%) was in the 60–69 years

of age group, whereas 29.3% and 9.1% were in the 70–79 years and 80 years and above age group, respectively. Majority (56.7%) were females in comparison to male (43.3%) elderly. Among them 42.7% were illiterate. Illiteracy was more among females (58.4%) in comparison to males (22.0%). Karmakar PR *et al.* conducted a study in Singur block of West Bengal and found that there were more female (52%) population than male (48%) population, majority (60.35%) of the elderly were in the 60–69 years of age group, and illiteracy was a predominant feature among the females (91.59%).^[12]

Functional status

In our study, majority (86.5%) of the elderly was having independent functional status according to obtained ADL scores whereas about 13.5% percent elderly needed some assistance. A community-based study by Mandal PK *et al.* in a rural area of West Bengal to assess disability according to ADL found that 17.47% elderly had disability. This difference in the findings with the present study might be explained by the fact that seriously ill elderly were excluded from our study.^[13] Another community-based cross-sectional study conducted by Bala K *et al.* showed that 16.0% elderly were partially/totally dependent as assessed by ADL and the total dependency was found to increase with age.^[14]

Psychological distress

In our study, most (62.8%) of the elderly participants were suffering from psychological distress. Psychological distress was significantly associated with below primary education level [AOR (95% CI)] = [25.09 (11.88–52.96)], living without spouse and child AOR (95% CI) =7.88 (3.90–15.89), financial dependence AOR (95% CI) =20.23 (7.58–54.00), dependent functional status AOR (95% CI) =3.84 (1.25–11.76), and decision for healthcare taken by others [AOR (95% CI)] = [3.84 (1.25–11.76)].

In a community-based cross-sectional study conducted among the elderly by Naveen KH *et al.* in rural areas of Uttar Pradesh showed that depression was found in 19.7% of the participants according to geriatric depression scale (GDS score >5) and depression was significantly associated with female gender [AOR = 2.4, 95% CI 1.1–5.1], in elderly not being cared for during illness by family members [AOR = 3.9, 95% CI 1.2–12.9].^[15]

Another community-based cross-sectional study conducted in Puducherry by Laksham KB *et al.* showed that the majority (69%) of elderly suffered from depression which was associated with being single/widow elderly [AOR = 3.9, 95% CI 2.0–7.5].^[16]

A community-based cross-sectional study conducted by Goswami S *et al.* in the rural areas of Maharashtra found 41.7% elderly had depression. Depression was found to have significant positive association with female sex, living without spouse,

lacking in decision-making capability in univariate analysis, though after adjusting for other factors in multivariate logistic regression it became insignificant.^[17]

A comparative cross-sectional study on the psychological status of elderly in rural and urban areas in Karnataka found that higher proportion (32.6%) of rural elderly were at risk of developing depression when compared to urban area (30.4%). Illiteracy, poor perceived mental health, having no one to take care of when they have a problem, and the perception of financial insecurity were significantly associated with risk of depression.^[18]

A community-based cross-sectional study conducted by Rahman M *et al.* found that 68.2% elderly had depressive symptoms, with 31.5% having severe depression. Higher educational status of the respondents and family of higher income were shown as important protectors of depression. Female sex (CI 1.83–3.57), respondents without spouse (CI 1.61–3.37), elderly who are unable to work (CI 1.27–2.43), absence of personal source of income (CI 1.37–2.75), dependence on others (CI 1.65–3.46), nuclear families (CI 1.0–1.99), and elderly having comorbid physical illness (CI 1.76–3.31) were the important predictors for depressive symptoms.^[19]

A study conducted by Shivakumar P *et al.* found that about 50% of the elderly screened suffered from psychological distress. Female sex, illiteracy, and multiple comorbidities were the factors that were associated with psychological distress.^[20]

A cross-sectional study conducted in the same area of West Bengal by Dasgupta *et al.* found that 58.8% elderly population was suffered from depression and was found to be significantly associated with elderly staying in nuclear family, poor income, financial dependence, and also the presence of disease.^[8]

Another study conducted by Mullick TH *et al.* found that 45.8% had no depression, 15.1% had mild depression, 30.7% had moderate depression, and 8.4% had severe depression. Age, marital status,

Table 3: Showing distribution of study participants according to psychological distress as assessed by PHQ4 score (n=347)

Psychological distress	Number (%)
None (0-2)	129 (37.2)
Mild (3-5)	81 (23.3)
Moderate (6-8)	129 (37.2)
Severe (9-12)	8 (2.3)
Total	347 (100)

Table 4: Univariate and multivariable logistic regression showing factors associated with psychological distress (n=347)

Variables	Psychological distress Yes, n (%)	OR (95% CI)	*AOR (95% CI)	# P
Education level				
Below primary	162 (83.9)	9.14 (5.51-15.15)	25.09 (11.88-52.96)	<0.05
Primary and above	56 (36.4)	1	1	
Living arrangement				
With spouse and child	59 (38.3)	1	1	
Others	159 (82.4)	7.53 (4.60-12.32)	7.88 (3.90-15.82)	
Financial dependence				
Dependent	76 (69.1)	1.49 (1.01-2.41)	20.23 (7.58-54.00)	<0.05
Independent	142 (59.9)	1	1	
Decision for healthcare				
Self	142 (55.9)	1	1	
Others	76 (81.7)	3.52 (1.97-6.30)	15.90 (5.02-50.37)	<0.05
Functional dependency				
Dependent	45 (95.7)	2.32 (1.24-4.32)	3.84 (1.25-11.76)	<0.05
Independent	173 (57.7)	1	1	

OR= Odds Ratio, CI =Confidence Interval, AOR= Adjusted Odds Ratio. # P <0.05 was considered to be statistically significant; Hosmer and Lemeshow Goodness of fit-0.34; Nagelkerke R2-0.54, Cox and Snell R2-0.42

education, financial dependency, Katz ADL, and chronic diseases were significantly associated with geriatric depression.^[21]

Limitations

The study was conducted in only one block of a district of West Bengal; therefore, the findings are not representative of the whole district or state. Being a cross sectional study, the possibility of recall bias could not be ruled out. The possibility of misreporting/misunderstanding and chance of recall bias in elderly population may be slightly higher.

Conclusion and Recommendations

As psychological distress is barely recognized, we used the simple PHQ 4 screening tool to address this challenge. Alarmingly, the proportion of psychological distress was observed to be quite high in this rural elderly population. These might lead to their isolation, feeling of uselessness, and even lack of impetus to go on with life. Since today a large proportion of the population consist of aged persons, it is quite distressing if these persons survive with mental ill health. This, in the long run will be very detrimental for the society and these old people will become a burden to their younger counterpart. Evidence from this study might help primary care physicians to screen the psychological distress and their associated factors to take appropriate action at the primary care level. Therefore, all steps with special focus on psychological health must be considered to bring our elderly persons to the mainstream of the society so that they may contribute to the uplifting of the society and advancement of the nation.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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