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Original Article

Public Health Section

Prevalence and Correlates of Mental Disability among Elderly Population Residing at Rural Block of Cuttack, India

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ABSTRACT

Introduction: India is in demographic transition phase with increasing proportion of geriatric population. Along with chronic ailments during old age, mental health is also a growing matter of concern and often neglected.

Aim: To estimate the burden of mental disability among elderly population of Cuttack, Odisha.

Materials and Methods: This was a community-based, cross-sectional study was carried out among the elderly people (aged 60 years and above) residing at villages of Barang block of Cuttack district, Odisha, which was a rural field practice area of Kalinga Institute of Medical Sciences (KIMS), Odisha from October 2013 to March 2014. The information regarding socio-demographic characteristics, family type, financial support, any existing disease was collected. Indian Disability Evaluation Assessment Scale (IDEAS) was used as a tool to assess mental disability among elderly participants. The data was entered into Microsoft Excel sheet and analysed using Statistical Package for the Social Science (SPSS) software 21.0. Chi-square test, Bivariate analysis and odds ratio were calculated, and the statistical significance level was fixed at $p<0.05$.

Results: Among 793 participants, majority were female (51.3%) and in the age group of 60-69 years (53%). The mean of total IDEAS score was 6.14±2.19 and global IDEAS score (total IDEAS score+duration of illness) was 9.38±2.44, which represents moderate to profound disability. The prevalence of mental disability was 16.1%. Mental disability was found around 2 times more among 70 years and above aged people ($p<0.001$), 3.1 times more among those who had diabetes ($p=0.0007$) and 2.6 times more among those who had respiratory diseases ($p<0.001$) which was statistically significant. Mental disability was found to be 1.4 times more in those whose spouses were dead or separated ($p=0.0512$), but was not statistically significant.

Conclusion: This study showed the prevalence of mental disability was more among females and it was significantly associated with increasing age and presence of chronic diseases. There is a need to raise awareness in public about unmet needs of geriatric mental health and an integrated approach should be taken regarding preventive and curative mental health care of geriatric people.

Keywords: Depression, Hypertension, Pulmonary disease, Spouses

INTRODUCTION

India is in demographic transition phase with increasing proportion of geriatric population and they are growing very fast also known as 'population ageing' [1]. World Health Organisation (WHO) estimated that the projected proportion of elderly (60 years or above) of global population will double from 12% to 22% between 2015 and 2050 [2]. According to Census 2011 in India, total elderly population (60 years or above) was 104 million which was 8.6% of total population and estimated to reach 324 million (20%) in 2050 [3].

Old age is accompanied with many problems such as decreased functional ability, chronic physical illness, financial dependence, loneliness, boredom which often can lead to mental stress and ultimately affect quality of life [4]. Worldwide around 15% of elderly people suffer from a mental disorder. More than 50% elderly in India suffer from one or more chronic diseases and psychological stress [5]. Community based studies revealed prevalence of depression in India among elderly varies from 8.9% to 62.2%, found in different parts of the country [6]. Despite these statistics, mental disorders among geriatric people are often overlooked may be because of probable misconception that ageing is related with mental illnesses. Even nuclearisation of family, urbanisation and migration of family members led to negligence of the geriatric population and can cause mental disability [7]. The increasing proportion of geriatric population with unexplored factors related with mental health can become a public health challenge in India [8].

Very few studies have been conducted in rural population regarding mental disability among elderly population [5,6,9]. So, this study was conducted to estimate the burden of mental disability and associated factors among elderly population in rural block of Cuttack district, Odisha using Indian Disability Evaluation Assessment (IDEAS) scale.

MATERIALS AND METHODS

The present community-based, cross-sectional study was carried out among the elderly people (aged 60 years and above) residing at villages of Barang block of Cuttack district, Odisha, which was a rural field practice area of KIMS from October 2013-March 2014 for a period of 6 months. The rural field practice area of KIMS has adopted 16 (Village council), out of which 8 Gram Panchayats were selected randomly by lottery method. The cluster sampling was done among the randomly selected Gram panchayats to enumerate the desired sample size. Ethical approval was obtained from the Institutional Ethics Committee (IEC approval no: KIMS/Ethics/706/2012) and written informed consent was taken from all participants for this study.

Sample size calculation: The sample size was calculated as 793, by using the formula $n=Z^2PQ/L^2$ (where, Z=1.96, P=prevalence, Q=100-P, and L=precision) and taking the prevalence of mental illness among elderly (≥60 years) as 33.3% in Nandi DN et al., study with an allowable error of 10% [9].

Inclusion criteria: All elderly people aged 60 years and above, who were willing to participate in the study and gave their consent for the same and stayed atleast one year in that study area were included in the study.

Exclusion criteria: If a designated house was found locked during the first visit and the eligible residents could not be contacted, even after two successive revisits, they were all excluded from this study.

Data Collection

Home visit was done by principal investigator (doctor) along with medical interns and interview method was adopted for data collection. A pre-designed, semi-structured proforma in local language (Odiya) was used to enumerate socio-demographic details (age, gender, marital status, religion, family type, dietary habits), including financial status (like monthly family income, pension, financial dependence and other source of income) and health status information concerning about different medical illness. The respondents were asked to rate their emotional and physical health for last one month (Good or Bad).

IDEAS was used as a tool for assessment of mental disability in the elderly, which was developed and pre-validated by the Rehabilitation Committee of Indian Psychiatric Society with Cronbach's alpha value of 0.721 [10]. IDEAS had four items: Self care, interpersonal activities (social relationships), communication and understanding, and work. Each item was scored between 0-4 ranging from no to profound disability. Total disability score was calculated by adding scores on 4 items and further global disability score was calculated by adding MI2Y (Months In 2 Years) score and total disability score. MI2Y score ranging from 1 to 4, depending on symptoms exhibited by the person for the number of months in the last two years [11].

A global disability score of 0 (0%) corresponds to 'no disability', a score between 1 to 7 (<40%) corresponds to 'mild disability', and a score of 8 and above (>40%) corresponds to moderate to profound disability [11].

The following operational definitions were used in this study:

1. Elderly person was defined as person aged 60 years and above. The Government of India's 'National Policy on Older Persons' in January, 1999 defines 'senior citizen' or 'elderly' as a person who is aged 60 years and above [12].
2. Disability: A person with restrictions or lack of abilities to perform an activity in the manner or within the range considered normal for a human being was treated as having disability. It excluded illness/injury of recent origin (morbidity) resulting into temporary loss of ability to see, hear, speak or move [13].
3. Mental Disability: persons who had difficulties in understanding routine instructions or exhibits behaviors like talking to themselves, laughing, crying, staring, violence, fear, suspicious etc., [13].

STATISTICAL ANALYSIS

Data entry and tabulation was done in Microsoft Excel Sheet 2016 and it was analysed by SPSS 21.0. Chi-square test, Bivariate analysis and odds ratio were used, and the statistical significance level was fixed at p<0.05.

RESULTS

Out of a total of 793 participants enrolled in this study, the maximum number of participants were females (51.3%) and in the age group of 60-69 years (53%). Majority of the participants were married (75.5%). In terms of income source, 36.0% participants were dependent on pension or financial support by investment, followed by 29.9% dependent on others. Among 793 participants, 237 (29.9%) had hypertension, 141 (17.8%) had chronic respiratory disease like asthma, Chronic Obstructive Pulmonary Disease (COPD) and 114 (14.4%) had diabetes [Table/Fig-1].

According to IDEAS, the prevalence of mental disability among 793 participants was 128 (16.1%) [Table/Fig-2]. The mean of total IDEAS score was 6.14±2.19 and global IDEAS score (total IDEAS score+duration of illness) was 9.38±2.44.

Characteristics	Variables	Frequency	Percentage
Age (years)	60-69	420	53
	70-79	264	33.3
	80 and above	109	13.7
Gender	Male	386	48.7
	Female	407	51.3
Marital status	Married	599	75.5
	Unmarried	7	0.9
	Widowed	180	22.7
	Divorced/separated	7	0.9
Education	Illiterate	382	48.2
	Literate	411	51.8
Spouse	Alive	530	66.8
	Dead	263	33.2
Source of income	Job/Business	141	17.8
	Pension/Financial support by investment	286	36.0
	Agriculture	129	16.3
	Dependent on others	237	29.9
Morbid condition	Diabetes	114	14.4
	Hypertension	237	29.9
	Cardiac or Coronary artery disease	20	2.5
	Respiratory disease (Asthma/COPD)	141	17.8
	Gastro intestinal problems	101	12.7
	Renal diseases	22	2.8

[Table/Fig-1]: Socio-demographic characteristics of study participants (n=793).

Age (in years)	Male	Female	Total
60-69	18 (46.2%)	21 (53.8%)	39
70-79	29 (47.5%)	32 (52.5%)	61
>80	15 (53.6%)	13 (46.4%)	28
Total	62 (48.4%)	66 (51.6%)	128

[Table/Fig-2]: Prevalence of Mental Disability among study participants based on gender.

The mental disability was around 2 times more among participants aged above 70 years than participants aged 60-69 years, which was statistically significant (p<0.001). The association of mental disability was 1.4 times more among participants whose spouse was dead or separated (p-value=0.0512). The prevalence of mental disability was 3.1 times more among participants who had diabetes (p-0.0007), and 2.6 times more among participants who had chronic respiratory disease (p<0.001) which was statistically significant [Table/Fig-3].

DISCUSSION

The present study showed that the prevalence of mental disability among elderly population was 16.1% according to IDEAS. The mental disability was significantly associated with age, presence of disease like diabetes mellitus and respiratory illness in this study. A study done by Ramalingam A et al., in Puducherry using the IDEAS scale and reported mental disability was significantly associated with gender, marital status, nuclear family, occupation, conflicts in the family [14]. Even as per WHO reports, the prevalence of mental disability or disorders are more among elderly people [2]. In a study done by Reddy NB et al., in Tamil Nadu stated that the presence of depressive disorders was more common among elderly than other psychological issues [15]. In a study done by Kumar SG et al., in Puducherry using IDEAS scale, the prevalence of mental disability was found to be 7.1%, which was lower than our study findings [16]. The higher prevalence in this study may be due to the factors like low education level, rural-urban difference, presence of conflicts. These findings are comparable with Kumar SG et al., study, who stated that prevalence of mental disability was 4.35 times more among no

Associated factors		Mental disability absent	Mental disability present	Prevalence odds ratio (95% CI)	p-value
Age (years)	60-69	381	39	3.0615 (2.0388-4.5972)	0.001**
	70 and above	284	89		
Gender	Male	324	62	1.0114 (0.6927 to 1.4769)	0.9530
	Female	341	66		
Education	Illiterate	311	71	0.7053 (0.4821 to 1.0318)	0.0720
	Literate	354	57		
Spouse status	Alive/Staying together	454	76	1.4722 0.9980 to 2.1716	0.0512
	Dead/Separated	211	52		
Financial dependency	Independent	466	90	0.9887 (0.6536 to 1.4957)	0.9572
	Dependent	199	38		
Diabetes	No	582	97	2.2410 (1.4073 to 3.5684)	0.0007**
	Yes	83	31		
Hypertension	No	464	92	0.9033 (0.5939 to 1.3739)	0.6346
	Yes	201	36		
Cardiac problems	No	648	125	0.9148 (0.2641 to 3.1684)	0.8883
	Yes	17	3		
Respiratory disease	No	541	101	8.5073 4.4726 to 16.1817	0.001**
	Yes	114	27		
GIT	No	576	116	0.6695 0.3548 to 1.2632	0.2155
	Yes	89	12		
Renal	No	645	126	0.5119 0.1182 to 2.2176	0.3707
	Yes	20	2		

[Table/Fig-3]: Bivariate analysis for association between mental disability and associated factors among study participants.
p-value <0.05* statistically significant, <0.001** statistically highly significant

education level (p<0.001), and 0.25 times in those people, where conflicts was absent (p<0.001) [16].

Mental disability was found 2.0 times higher among 70 years and above aged people which was statistically significant (p<0.001). A study from Odisha reported that mental disability or depression was 1.76 (p=0.039) times more among geriatric people aged above 70 years, which was comparable to our study findings [17]. A multicentric study was done by Indian Association for Geriatric Mental Health found that age group 60-69 years when compared to the ones who are aged ≥70 years had significantly higher proportion of mental disability symptoms like depression, felt worthless etc., [18].

Mental disability was found 1.4 times more in those whose spouse were separated or dead, (p=0.0512). Living without spouse were found to be significantly associated with depression reported from studies in Puducherry (AOR=3.9, 95% CI 2.0-7.5), Tamil Nadu (OR 1.85, p<0.05), Ludhiana (OR 1.94, p<0.001) [19-21]. In a study conducted by Nandi PS et al., in West Bengal showed that psychological distress was found more among those who were living without their partner or child [22]. This can be explained by the fact that with ageing, as functional capability decreases and several co-morbidities occur, elderly people need more emotional support long with physical assistance. A study from China found that prevalence of depression was more common in functionally dependent elderly [23].

Risk of chronic illness increases with age and plays a significant role in physical as well as psychological well-being [23]. In this study, hypertension (29.9%) was most commonly found among the participants followed by respiratory diseases like asthma/COPD (17.8%) and diabetes (14.4%). Presence of mental disability was found 3.1 times more among those who had diabetes and 2.6 times more among those who had respiratory diseases and these findings were statistically significant. In a study done by Mullick TH et al., in Odisha showed that presence of chronic diseases among elderly had 2.52 times risk of depression, which was comparable to the present study [17].

Others factors such as gender, literacy status, financial dependency, presence of other diseases were not found statistically significant in the present study. But in a study done by Kumar M et al., in West Bengal showed that financial dependance had 1.49 times more chance to develop depression (p<0.05) [5]. In previous studies by Akila GV et al., and Pilania M, it was observed that female gender and marital status and presence of morbid condition or disease were significantly associated with depression [24,25]. Due to cross-sectional study design, rural study population and use of different tools i.e., IDEAS scale for assessing mental disability, may lead to variation in the result. However, the large sample size of population-based study indicates that the findings may reflect the burden of mental disability in rural population, which ranged from moderate to profound disability.

Limitation(s)

This study was conducted in a rural block of Cuttack, Odisha. So, the findings might not reflect the status of the whole state. Being cross-sectional in nature there was a possibility of recall bias and the causal relationship could not be established. Diagnosis of mental disability was not confirmed by specialist. There was a possibility of undiagnosed co-morbidities as the data were self-reported. Despite these limitations this study highlights about the fact that proportion of elderly people having mental disability and factors found significantly associated with it.

CONCLUSION(S)

In this study, the prevalence of mental disability was higher among elderly woman and the chances of mental disability among elderly significantly increased with increasing age and presence of chronic illness like diabetes and respiratory diseases. Currently, with the ageing population, the mental health of geriatric people is of utmost importance. Further in-depth longitudinal studies could be done to find out the factors associated with mental disability for early diagnosis and proper treatment. There is a need to raise awareness in public about unmet needs of geriatric mental health and also strengthening of health care facilities with building social

support networks for elderly. The finding of this study may be helpful in designing sustainable health policies along with specific interventions.

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