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Assessment of Risk Factors and Prevalence of Depression among Elderly Subjects in a Rural Community

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ABSTRACT

Background: In the current scenario, worldwide there is increase in geriatric population in the society, among whom mental health is an imperative and neglected public health problem. World health Organization (WHO) state that some of the factors responsible for depression in age > 60 years include chronic degenerative diseases & disability, pain, fear, frustration, restriction of day to day activity, personality traits and genetic susceptibility.

Objective: The objective of current study is to assess the prevalence of depression and identify associated risk factors for depression in the geriatric rural population.

Material and Methods: It was a cross sectional study conducted in a rural community adjoining the Rural Health and Training Centre, comprising of 400 participants. The instrument employed to appraise the participants was World Health Organization Disability Assessment Scale II; following which statistical analysis was done by using chi square test of significance.

Results: Of 400 participants interviewed, average age of the participants was 72.7 years. Prevalence of any episode of depression was 14%. Past history of depression was found in only 6% cases; while mild cognitive impairment was observed in 12% cases. Mean WHODAS score was 27.92 ± 13.7. Significant differences were observed in relation to their marital status, religion, type of family and socioeconomic status.

Conclusion: We conclude that old age is associated with depression which necessitates it to be accurately and timely diagnosed ensuring proper care and support to elderly population with emphasis on geriatrics mental health care.

Keywords: Depression, Elderly, Rural, Aging, Mental health, India

INTRODUCTION

In past few decades India has shown a decline in birth rate, indicating improved life expectancy with decreased mortality. Consequent to improved health care system across the country, there is increase in Geriatrics population.

Worldwide geriatrics population has shown an increasing trend since past two decades i.e. 1990 to 2013; which is predicted to reach more than two billion in 2050 [1]. Aging is a natural process associated with multiple physiological, biological and mental changes where body is more prone to develop multiple co-existing medical and psychological disorders commonly such as cardiovascular problems, respiratory disorders, hearing and visual impairments, depression, and infections. From pre-independence era to current scenario especially in rural part of our country, there has been lots of social and cultural shift from joint families with care giving attitude to their elders to now nuclear family system ignoring the elderly [2].

Majority cases of depression are found in 1% to 3% of general elderly population and an additional 8% to 16% have clinically significant depressive symptoms [3-5]. The prognosis of these depressive states is pitiable. In the elderly people, depression is related to morbidity and disability [46]. This constitutes a major public health problem worldwide.

Along with physiological and psychological changes associated with aging, alteration in associated risk factors also modify the prevalence and prognosis of geriatric depression [7]. Medical comorbidity and cognitive impairment have a complex bidirectional relationship with geriatric depression [8, 9].

Meta-analysis of outcomes at 24 months, estimated that only 33% of subjects were well, 33% were depressed, and 21% had died [10]. Moreover, studies of depressed adults [11, 12] indicate that those with depressive symptoms, with or without depressive disorder, have inferior functioning, akin to or worse than that of people with chronic medical conditions such as heart and lung disease, arthritis, hypertension, and diabetes [13]. In addition to mediocre functioning, depression increases the perception of poor health [13], the utilization of medical services [14], and health care costs [15].

The preceding findings suggest that depression in elderly community subjects is a serious problem. Nonetheless, possibly fewer than 20% of cases are detected or treated [4, 10]. Even among those detected and treated, the effectiveness of interventions appears to be reticent [16].

Escalating health care costs and shrinking health care resources challenge health care professionals to find more effective and less expensive approaches and advancements to treat depression in the elderly.

Thus, the purpose of this investigation was to determine risk factors and prevalence of depression among elderly subjects in the rural community.

METHODOLOGY

A cross-sectional study was conducted to examine the nature and prevalence of geriatric depression in a rural community. Factors associated with geriatric depressions were assessed.

Setting: Study was conducted in the area catered by Rural Health and Training Centre, PCMS & RC Bhopal (MP). The Department of Community medicine of the college has been conducting community health programs in this area. The community health workers, who live within the various village communities, provided the detailed statistics. They were supervised by public health nurses and physicians.

Recruitment of participants: Study participants were identified using a computerized list and a door-to-door survey. All elderly people over 65 years of age were invited to participate in this study. Elderly people who did not give their consent and those with communication difficulties due to reasons of hearing loss or language barrier were excluded from the study. Written informed consent was taken from the study participants before including them in the study.

The sample size for the current study was calculated by using the formula N=4PQ/L*L at 95% confidence interval, with an allowable error of 10%. Former studies suggest that prevalence of depression among geriatrics varies from 6% to 58%. Hence in current study, based on prevalence of 50%, sample size of 400 was calculated.

Assessment: The instrument employed to appraise the participants was the, World Health Organization Disability Assessment Scale II (WHODAS II; World Health Organization, 2001) [(15)]. A structured proforma was designed & pretested to assess socio-demographic characteristics, medical history and anthropometry of participants. In an attempt to minimize recall bias, a detailed and structured interview was conducted by other health workers from the community.

Data analysis: Under the descriptive statistics, we initially analyzed the socio-demographic data, medical history, psychopathology, cognitive profile and the disability status. .

Based on WHODAS score, psychiatric diagnoses was reached. Data was compiled using MS Office Excel 2007 and statistical analysis was done using software package SPSS 20.0. Results were reported as frequencies, means ± standard deviations (SD) and *P* values. The Chi-square test was used for categorical variables. A *P* value of < 0.05 was taken as the criteria of significance.

RESULTS

In current study, 449 participants were identified; of which 49 participants were lost due to various reasons; thus having 400 participants with an overall response rate of 89% and prevalence of any episode of depression in our sample was 14%.

In current study nearly two third of the participants were women, most of them illiterate or had completed education up to primary level i.e. 68% and these were from the low-income category. The average age of the participants was 72.7 (SD 8.2) years. (Table-1, Table-2)

Table 1 Socio-demographic and psychosocial profiles of the participants. (N=400)

Characteristics	Number (Percentage)
Gender	
Male	128 (32)
Female	272 (68)
Education	
Illiterate	172 (43)
Primary	100 (25)
Secondary	64 (16)
High school	36 (9)
Graduate	28 (7)
Occupation	
Agriculture	256 (64)
Others	144 (36)
Marital status	
Married	368 (92)
Unmarried	4 (1)
Widow	28 (7)
Socio economic status	
Lower middle and above	209 (52.25)
Upper lower and below	191 (47.75)
Employment status	
Employed	173 (43.25)
Unemployed	227 (56.75)

Table -1A: Bio characteristic of study participants with other different factors

Variables	Frequency (%)
Religion	
Hindu	72 (18)
Non Hindu	328 (82)
Type of family	
Nuclear	19 (4.75)
Joint	381 (95.25)
Addiction	
Smokers	204 (51)
Alcohol	88 (22)
Others	108 (27)
Past history of depression	
Present	24 (6)
Absent	376 (94)
Cognitive impairment	
Mild	48 (12)
Normal	352 (88)

Table-2: Relation of different variable with statistical co-matrix

Variables	Mean	SD*
Age in years	72.76	8.27
Monthly family income (Rs)	3500	127.3
WHODAS score	27.12	13.7

* Standard deviation

Our study had male: female ratio of 1:2.1. Most of the participants were illiterate (43%) followed by primary educated (25%). 64% were farmer by occupation, and were residence of rural area where agriculture is practiced. Marital status of study participants shows that 92% were married while only 1% was unmarried and 7% were widowed.

On scrutiny of the habit of addiction among the participants, prevalence of smoking was 51% and alcohol consumption was 22%. Past history of depression was found in only 6% cases; while mild cognitive impairment was observed in 12% cases. Mean WHODAS score was 27.92 ± 13.7. (Table-1, Table-2)

As per there socioeconomic status (SES) nearly half of them belongs to lower middle and above socioeconomic status and 56% of rural elderly had quandary of unemployment.

Religion wise distribution of the participants showed that only 18% were Hindu whilst rest of them were from other religion; and by and large 95% followed traditional joint culture of family with only 4.75% had adopted nuclear family norms. (Table-1A)

Gender, income/employment status, education, cognitive impairment, smoking and alcohol dependence were not found to be significantly (P>.05) associated with depression although WHODAS score more than 25 defining moderate and severe disability was significantly associated with presence of geriatric depression (P<0.005) (Table-3).

In relation to marital status, there were statistically significant difference observed of P< 0.005, in accordance to their religion, type of family and socioeconomic status. (Table-3)

DISCUSSION

This study examined the complex factors associated with depression among the elderly in a rural community.

Female participants, advancing age and cognitive impairment were not associated with geriatric depression. Depressive disorders indicated more functional disability in this population. Similar result and association of WHODAS score with depression was also seen in previously conducted study by Rajkumar et al [18]

Its limitation was its cross-sectional design. Contrary to other studies, advancing age, occupation and education were not significantly correlated with geriatric depression (Cole and Dendukuri, 2003; Osborn et al., 2003; Sherina et al., 2004; Tsai et al., 2005; Chiet al., 2005; Khattri and Nepal, 2006; Jain and Aras, 2007; Kaneko et al., 2007) [6,19-25].

The paltry expectations by families of their elderly relatives may also contribute towards high tolerance of depressive symptoms and functional impairment (Jacob et al., 2007b) [26].

Distressed elderly people showed depressive

Table 3- Association of different characteristics with depression

Characteristics	Depression		P value
	Absent (%)	Present (%)	
Gender			
Female	236 (68.6)	36 (64.3)	0.521
Male	108 (31.4)	20 (35.7)	
Marital status			
Married	289 (78.53)	79 (21.46)	0.000
Unmarried & widows	14 (43.75)	18 (56.25)	
Education			
Graduate	24 (7)	4 (7.1)	0.062
High school	36 (10.5)	0 (0)	
Illiterate	148 (43)	24 (42.9)	
Primary	80 (23.3)	20 (35.7)	
Secondary	56 (16.3)	8 (14.3)	
Cognitive impairment			
Mild	44 (12.8)	4 (7.1)	0.228
Normal	300 (87.2)	52 (92.9)	
WHODAS score			
Less than 25	288 (83.7)	32 (57.1)	0.001
More than 25	56 (16.3)	24 (42.9)	
Alcohol use			
Absent	264 (76.7)	48 (85.7)	0.133
Present	80 (23.3)	8 (14.3)	
Smoker			
Absent	160 (46.5)	36 (64.3)	0.014
Present	184 (53.5)	20 (35.7)	
Religion			
Hindu	43 (59.72)	29 (14.5)	0.005
Non Hindu	136 (41.46)	192 (58.53)	
Type of family			
Nuclear	13 (68.42)	6 (31.57)	0.697
Joint	244 (64)	137 (35.95)	
Socio-economic status			
Lower middle &above	108 (51.67)	101 (48.32)	0.000
Upper lower & below	156 (81.67)	35 (18.32)	
Employment status			
Employed	102 (58.95)	71 (41)	0.711
Unemployed	138 (60.79)	89 (39.2)	

symptoms such as illness or worry about implication of symptoms. Traumatic life events, psychosocial problems and inability to protract such problems may also cause elderly to be trapped in depression. Consequently, the difficulty in separating distress from depression becomes a major issue (Heath, 1999). Despite the fact that psychiatrists suggest that brief screening instruments can easily identify people with depression (Kessler et al., 1999) [28], most general practitioners (GPs) would argue that many of those identified are distressed (Heath, 1999) [27].

The relationship between poverty, social isolation, physical health and mental health is complex (Kuruvilla and Jacob, 2007) [29]. However, the cross-sectional and observational nature of this study mandates the need for cohort designs to confirm associations and randomized trials to assess intervention.

CONCLUSION

According to this study we conclude that old age is associated with depression which necessitates it to be accurately timely diagnosed ensuring proper care and support to elderly population. Socioeconomic factors are accountable to some extent however disability is the leading cause of depression amongst elderly as observed by WHODAS scores. This score is additionally useful in studying mental health status among elderly with disability.

The study findings accentuate and lay emphasis on the need for a comprehensive interventional study to bring about ways and means to improve metal health including depression in elderly population such that it makes obligatory for policy makers to include some interventions in formulating effective mental health promotion activities, including awareness among the family members to seek early diagnosis, and timely care, support, counseling and treatment for their elders so that to prevent drastic ramification of geriatric depression.

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