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Original Research Article

Prevalence and factors associated with depression among the elderly in rural areas of central India: a mixed method study

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ABSTRACT

Background: The global demographic shift towards an aging population has raised concerns about the mental health of the elderly, particularly in rural areas. This study sought to tackle this issue by quantitatively evaluating the prevalence of geriatric depression in rural areas of central India and qualitatively investigating the factors that contribute to late-life depression.
Methods: This mixed-method study conducted in the rural areas of central India aimed to assess the prevalence of depression among the elderly and explore gender-specific factors contributing to late-life depression.
Results: Quantitative data were collected from 308 elderly individuals aged 60 years and above, revealing a high prevalence of depressive symptoms (75.6%). Factors significantly associated with depression included female gender, age over 70 years, lower educational attainment, financial dependency, and comorbidities. Qualitative analysis through focus group discussions highlighted gender-specific perceptions of depression risk factors, emphasizing the need for tailored interventions.
Conclusions: The findings underscore the urgent need for targeted mental health interventions addressing socio-economic disparities and gender-specific challenges in rural elderly populations. A nuanced, gender-sensitive approach is crucial for promoting well-being and reducing the burden of depression among the elderly in rural central India.

Keywords: Elderly, Depression, Geriatrics

INTRODUCTION

The world is experiencing a remarkable demographic shift towards an older population. In 2020, over a billion individuals worldwide were aged 60 or older, a number projected to increase to 1.4 billion by 2030, encompassing one-sixth of the global population. Looking ahead to 2050, this trend will intensify, with the number of individuals aged 60 and above doubling to a staggering 2.1 billion. Particularly noteworthy is the expected tripling in the number of those aged 80 or older, reaching 426 million by 2050.[1]

In India, the population of elderly individuals is growing significantly, currently accounting for around 8% of the total population. Projections suggest that by 2026, this proportion is expected to rise to 13.1%.[2,3]

Diagnosing depression in the elderly can be challenging due to the absence of classical symptoms typically associated with the condition. Moreover, research indicates that several factors contribute to this complexity, including comorbidities, bereavement or solitary living, financial reliance, insufficient family support, and substance misuse.[4-10]

This study aimed to address this concern by quantitatively assessing the prevalence of geriatric depression in rural areas of central India and qualitatively exploring factors contributing to late-life depression. Through these methods, the study seeks to prioritise preventive and curative strategies tailored to the unique circumstances of the elderly.

METHODS

A mixed method study was conducted in the rural field practice area of a tertiary care hospital of central India among elderly persons aged 60 years and above for a period of 3 months between January 2024 to March 2024.

Inclusion criteria

Quantitative

Participants included individuals aged 60 years and above who expressed willingness to take part in the study.

Qualitative

Elderlies that were found to be depressed on screening.

Exclusion criteria

Quantitative and qualitative: elderly individuals with known neuropsychiatric disorders, thyroid issues, or a history of depression within the past 6 months were excluded from participation.

Sample size

The prevalence of geriatric depression in north Kerala community as per study conducted by Thilak et al was 72.4% and this was taken for calculating sample size with the absolute precision at 5%, alpha 5% with design effect of 1, the sample size derived was 308 which was calculated using the Open Epi (version 3.01).[10]

Data collection

Quantitative

The study obtained ethical clearance from the institutional ethics committee at Government Medical College, Nagpur, Maharashtra, India, before commencement.

Prior to data collection, informed written consent was obtained from all study participants who voluntarily agreed to participate. Data collection utilized a convenient sampling approach. Health workers assisted in visiting households, where data was gathered, and information was also obtained from elderly individuals attending outpatient services at the rural health centre or accompanying a relative. Data collection was carried out using interviews with consenting individuals.

The data collection tool comprised of two sections:

i) basic socio-demographic information, covering age, gender, education, marital status, financial dependency, history of comorbidities, etc.

ii) the geriatric depression scale (short form) developed by Sheikh and Yesavage, featuring 15 questions regarding respondents' feelings over the past week. Participants select the answer that best reflects their feelings for each question. Each answer is assigned a score, and these scores are totaled to calculate a final score. A score of ≥5 indicates the presence of depression.[11,12]

Qualitative

Subsequently, focus group discussions (FGDs) were organized with depressed elderly individuals, aiming to explore aspects of depression. Depressed elderly participants were selected using purposive sampling. Each FGD session, lasting for 40 minutes, was recorded digitally. Data saturation was attained after conducting four FGDs: two with female participants and two with male participants. Through dynamic group interactions facilitated by FGDs, intricate behaviours related to the living conditions of the elderly and their perceptions of factors affecting their mental well-being were investigated.

Data analysis

Quantitative

The collected data were entered into Epi Data Entry V3.1, and descriptive statistics along with chi-square analysis were conducted using EpiData Analysis V2.2.2.182. To assess the association between geriatric depression and significant factors, multiple logistic regression analysis was performed using IBM SPSS Statistics V20 trial version. A p value of less than 0.05 was considered statistically significant.

Qualitative

The focus group discussions (FGDs) were recorded digitally, and transcripts were translated back into English. The encoded transcripts were analysed using the ATLAS.ti 8.0 trial package computer program by ATLAS.ti Scientific Software Development GmbH, Berlin, Germany. Employing an inductive content analysis approach, we initially identified recurring codes and generated open codes through content analysis. Next, we conducted axial coding to categorize similar open codes under subthemes.

Finally, through constant comparison analysis across different subthemes, we derived major themes, which served as a framework for identifying gender-specific circumstances contributing to geriatric depression.

RESULTS

Sociodemographic

A total of 308 elderly persons were interviewed and the mean age of the study population was 67.6±6.6 years. There were about 53.57% (165) males and 46.42% (143) females participating in the study. Among the study population, about 75% (231) were married, 23.05% (71) were widows or widowers and 2% were single. About 40.25% (124) had primary level education and 17.53% (54) had studied up to high school. 46.10% were living with their children, 44.15% were living with their spouses, and 9.7% were living alone. 92.2% were financially dependent on children or others for their basic needs. About 80.51% had one or more comorbidities such as diabetes, hypertension, cardiovascular diseases, visual and hearing problems (Table 1).

The prevalence of geriatric depression in rural communities of central India is alarmingly high (75.6%).

In The univariate analysis, females were found to be 1.78 times more likely to be depressed compared to males. Elderly persons with more than 70 years had 4.85 times more chance of being depressed than persons aged less than 70 years and persons with less than primary school education were found to be 3.21 times more depressed than persons having more than primary school education (p=0.004) (Table 1).

Depression was 11.94 times more among persons who were financially dependent on others compared with persons who were financially independent (p<0.0001). Having one or more comorbidities increases the chance of depression by 3.46 times compared to having no comorbidities (p=0.0039). The factors which were found to be significant for geriatric depression by univariate analysis (people aged more than 70 years, female gender, education less than primary level, financial dependency on others and having one or more comorbidities) were subjected to multiple regression analysis to find the independent predictors of geriatric depression in subjects (Table 2).

Table 1: Socio-demographic profile of the elderly persons of rural areas based on the gender distribution.

Sociodemographic factors	Gender		Total N (%)
	Male N (%)	Female N (%)	
Age group (years)			
≤70	101 (70.63)	147 (89.09)	248 (80.52)
>70	42 (29.37)	18 (10.91)	60 (19.48)
Marital status			
Single	6 (4.20)	0	6 (1.95)
Married	125 (87.41)	105 (63.64)	230 (74.68)
Widow/widower	12 (8.39)	59 (35.76)	71 (23.05)
Educational status			
Illiterate	57 (39.86)	83 (50.30)	140 (45.45)
Primary School	60 (41.96)	64 (38.79)	124 (40.26)
High school	36 (25.17)	18 (10.91)	54 (17.53)
Presently living with			
Spouse	125 (87.41)	106 (64.24)	231 (75)
Single	6 (4.20)	2 (1.21)	8 (2.50)
Children	12 (8.39)	57 (34.55)	69 (22.40)
Financial status			
Dependent	71 (49.65)	105 (63.64)	176 (57.14)
Partially dependent	60 (41.96)	48 (29.09)	108 (35.06)
Independent	12 (8.39)	12 (7.27)	24 (7.79)
Comorbidities			
One or more	113 (79.02)	135 (81.82)	248 (80.52)
No comorbid	30 (20.98)	30 (18.18)	60 (19.48)
Total	143	165	308

Table 2: Univariate comparison of socio-demographic factors and co-morbidities with geriatric depression.

Sociodemographic factors	Depression		Odds ratio (95% CI)	P value
	Yes, (n=233) N(%)	No, (n=75) N (%)		
Gender				
Male	100 (70)	43 (30)	1	
Female	133 (80.6)	32 (19.4)	1.78 (1.02-3.13)	0.0295

Continued.

Sociodemographic factors	Depression		Odds ratio (95% CI)	P value
	Yes, (n=233) N(%)	No, (n=75) N (%)		
Age group (in years)				
≤70	173 (71.2)	70 (28.8)	1	
>70	60 (92.3)	5 (7.7)	4.85 (1.84-16.08)	0.0004
Educational status				
Less than primary school	113 (87)	17 (13)	3.21 (1.71-6.22)	0.0001
Above primary school	120 (67.4)	58 (32.6)	1	
Marital status				
Married	173 (71.2)	58 (25.1)	1	
Separated/divorced/single/widow/widower	60 (78)	17 (22)	1.18 (0.62-2.33)	0.5916
Financial Status				
Dependent	227 (80)	57 (20)	11.94 (4.25-38.06)	<0.0001
Independent	6 (25)	18 (75)	1	
Comorbidities				
One or more	179 (72.2)	69 (27.8)	3.46 (1.40-10.28)	0.0039
No comorbidities	54 (90)	6 (10)	1	
Presently living with				
Children/single	71 (54.2)	60 (45.8)	1	
Spouse	101 (57.07)	76 (42.93)	1.123 (0.7-1.77)	0.6168

Table 3: Multiple logistic regression analysis showing socio-demographic factors and comorbidities associated with geriatric depression.

Socio demographic factors	Adjusted odds ratio	95% CI	P value
Age in years	1.97	0.73-5.30	0.179, NS
Gender	3.11	1.57-6.17	0.001, HS
Education Status	0.32	0.16-0.64	0.001, HS
Marital status	1.17	0.53-2.57	0.693, NS
Dependency	0.11	0.037-0.33	<0.0001, HS
Comorbidity	3.84	1.41-10.43	0.008, HS
Presently living with	2.12	1.05-4.27	0.037, S

As per multiple logistic regression analysis prevalence of depression was 3.11 times more in females compared to males, person with education less than primary school had 0.32 times more risk compared to education more than primary school, persons with financial dependency on children or others were having 0.11 times more risk in developing depression than financially independent, having one or more comorbidities were found to be 3.84 more times chance of having depression compared to persons without any comorbidities (Table 3).

Figure summarizes the themes and subthemes developed from the focus group discussions (FGDs). Below are some key verbatim quotes, subthemes, and themes that emerged from the FGDs (Figure 1).

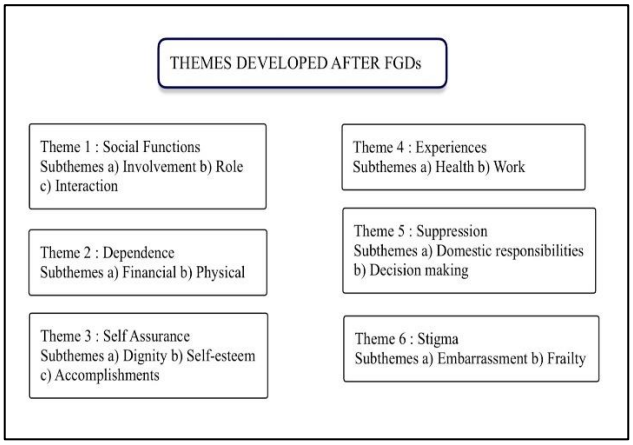

Figure 1: Conceptual summarization of the themes and subthemes developed after focus group discussions.

Perception: "*I often find myself dwelling on past achievements that seem forgotten, leaving me feeling disheartened. I long for the vibrancy of youth once more*".

Involvement: "*I've noticed a shift in my ability to participate in activities with friends and loved ones, leaving me spending more time at home, feeling disconnected*".

Dependency: "*Relying on my grandchildren or daughter for financial support, especially for medications, weighs heavily on me, contributing to feelings of inadequacy*".

Health: "*Throughout the past year, my sleep has been troubled, resulting in persistent fatigue*".

Stigma: "*Having endured numerous hardships in my life, admitting to struggling with mental health concerns feels like inviting ridicule and scorn from within our community*".

Long-term situation: "*Since becoming a widow, I've faced ongoing mistreatment from society, resulting in sadness*".

Emotional struggles: "*My mind often becomes overwhelmed with worry about managing daily tasks at home, leading me to react impulsively and then later regretting my actions, leaving me feeling deeply saddened*".

Lack of autonomy: "*Despite facing numerous challenges within my family, I'm unable to make decisions, leaving me feeling trapped and overwhelmed with sadness*".

Stigma: "*I'm reluctant to seek support for my feelings of sadness, worried about facing judgement*".

The qualitative findings illuminated a concerning perspective among elderly women, who often regarded feelings of low mood as an inherent part of their existence. This poses a significant public health challenge, as these women tend to normalize their sadness and refrain from seeking medical intervention. Their marginalized role within family dynamics, coupled with societal devaluation of their opinions, perpetuated feelings of worthlessness and unhappiness. Conversely, elderly men expressed profound sadness stemming from their dependence on others for basic necessities, often due to adverse economic and health circumstances. While negative life events such as the loss of a spouse or children contributed to loneliness and mental distress in women, elderly men primarily cited economic hardships as a major source of their dependency, thus impacting their mental well-being.

DISCUSSION

The findings of our study provide valuable insights into the prevalence and factors associated with geriatric depression in rural communities of central India. Our study, which interviewed 308 elderly individuals with a mean age of 67.6 years, revealed a concerning prevalence of depression, with 75.6% of the elderly population experiencing depressive symptoms. This highlights the urgent need for targeted interventions to address mental health issues among the elderly in these rural areas.

Our study identified several factors associated with geriatric depression through both univariate and multiple logistic regression analyses. In univariate analysis, females were found to be 1.78 times more likely to experience depression compared to males. Elderly persons aged over 70 years had a significantly higher likelihood of depression (4.85 times) than those aged less than 70 years. Similarly, individuals with less than primary school education were 3.21 times more likely to be depressed compared to those with higher educational attainment. Financial dependency on others was strongly associated with depression, with those dependents being 11.94 times more likely to experience depression than those financially independent. Furthermore, individuals with one or more comorbidities had a 3.46 times higher chance of experiencing depression compared to those without any comorbidities.

Multiple logistic regression analysis further elucidated the independent predictors of geriatric depression. Females had a 3.11 times higher prevalence of depression compared to males. Additionally, individuals with less than primary school education had a significantly increased risk (0.32 times) of depression compared to those with higher educational attainment. Financial dependency on children or others was associated with a 0.11 times higher risk of depression, while having one or more comorbidities increased the likelihood of depression by 3.84 times compared to those without any comorbidities.

Our findings resonate with previous research conducted in India, which has consistently identified similar factors associated with geriatric depression. Studies conducted in various regions of India have reported a high prevalence of depression among the elderly, with factors such as age, gender, education, socio-economic status, and health status playing crucial roles.[4-10]

The qualitative analysis provided valuable insights into the gender-specific perceptions of depression risk factors, highlighting the need for tailored interventions. A one-size-fits-all approach to depression management may not be effective, as the determinants and experiences of depression differ between males and females. Thus, a nuanced and diverse approach to addressing depression in elderly populations is essential, acknowledging and addressing the unique challenges faced by individuals of different genders. Previous qualitative and mixed-method investigations have revealed comparable results.[13-15]

These findings underscore the multifaceted nature of geriatric depression, influenced by demographic,

socioeconomic, and health-related factors. Addressing these factors through targeted interventions, including mental health education, social support programs, and improved access to healthcare services, is imperative to alleviate the burden of depression among the elderly in rural areas of central India.

The study used convenience sampling, which may introduce selection bias. Being cross-sectional, the study can identify associations but cannot establish causality. Longitudinal studies are needed to understand the temporal relationship between the factors and depression. The study is specific to rural areas of central India and may not be generalizable to urban settings or other regions with different socio-economic and cultural contexts. The study was conducted over three months, which may not capture seasonal variations in depressive symptoms or other temporal factors affecting mental health.

CONCLUSION

The findings of our study underscore the alarming prevalence of geriatric depression within rural communities of Central India, with a staggering 75.6% of the elderly population experiencing depressive symptoms. Through rigorous statistical analyses, we identified several significant risk factors associated with geriatric depression, shedding light on the complex interplay of demographic, socio-economic, and health-related factors. The disproportionately higher prevalence of depression among females, elderly individuals over the age of 70, and those with lower educational attainment emphasises the need for targeted interventions tailored to address the unique needs of these vulnerable populations. Additionally, the strong association between financial dependency and depression highlights the socio-economic determinants of mental health outcomes among the elderly, underscoring the importance of addressing poverty and social inequality in mental health interventions.

The qualitative examination underscored concerning trends in the perception and experience of depression among elderly women and men. These findings emphasise the urgency of tailored interventions that account for the distinct socio-cultural contexts and risk factors influencing mental health in each gender. Addressing the normalisation of low mood among elderly women and the economic stressors faced by elderly men is crucial for effective depression management. Moving forward, a nuanced and gender-sensitive approach to mental health care is imperative to promote well-being and alleviate the burden of depression in elderly populations.

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