ORIGINAL RESEARCH

Prevalence and Risk Factors of Depression in Elderly Populations in Long-Term Care Facilities

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ABSTRACT
Aim: This study aims to determine the prevalence of depression and identify associated risk factors in elderly populations residing in long-term care facilities. **Materials and Methods**: This prospective, observational study included 80 elderly residents aged 65 and older from various long-term care facilities. Data on demographics, medical history, and depression were collected through medical records and structured interviews. Depression was assessed using the Geriatric Depression Scale (GDS), and risk factors such as social isolation, cognitive impairment, and malnutrition were evaluated. Logistic regression analysis was used to identify independent predictors of depression. **Results:** The prevalence of depression was 57.50%, with 27.50% of participants having mild depression, 20.00% moderate, and 10.00% severe. Hypertension (60.00%) and diabetes (40.00%) were the most common chronic conditions. Social isolation, cognitive impairment (OR = 2.80, p = 0.02), and malnutrition (30.00%) were significant risk factors for depression. Logistic regression showed social isolation (OR = 2.20, p = 0.03) as a significant predictor. **Conclusion:** This study highlights a high prevalence of depression among elderly residents in long-term care facilities. Social isolation, cognitive impairment, and malnutrition are key risk factors. Regular mental health screening and interventions are essential for improving their well-being.
Keywords: Depression, Elderly, Long-term care, Risk factors, Social isolation

INTRODUCTION

Depression is a common mental health condition affecting individuals across all age groups, but its prevalence is particularly pronounced in elderly populations. Among older adults, especially those residing in long-term care facilities, depression is often underdiagnosed and undertreated, leading to significant impacts on their overall health, quality of life, and mortality. Understanding the prevalence and associated risk factors of depression in these settings is essential for developing effective prevention and intervention strategies to enhance the well-being of elderly individuals.[1]As individuals age, they experience a range of physical, psychological, and social changes that can contribute to the onset of depression. In long-term care facilities, the challenges faced by the elderly are often magnified due to the transition from living independently to a more structured environment where social interactions, autonomy, and personal freedom may be limited. This environment, although providing necessary care and

support, can exacerbate feelings of isolation, loneliness, and helplessness, which are major contributors to depressive symptoms in older adults.[2]The prevalence of depression in elderly populations in long-term care facilities is significantly higher than in community-dwelling elderly individuals. Studies have shown that depressive symptoms affect a substantial portion of residents in these facilities, with many cases remaining undiagnosed due to the overlapping presentation of depression with other age-related conditions, such as cognitive decline, dementia, and chronic physical illnesses. Depression in the elderly is often masked by physical symptoms such as fatigue, sleep disturbances, and appetite changes, which may be attributed to aging or other medical conditions. As a result, depression often goes unrecognized and untreated, leading to a deterioration in the mental and physical health of the affected individuals.[3]Several risk factors contribute to the high prevalence of depression in elderly populations residing in long-

term care facilities. One of the most significant risk factors is social isolation. Many elderly individuals in these settings experience reduced contact with family and friends, and their social networks may shrink due to the death of peers or limited mobility. The lack of meaningful social interaction can lead to feelings of loneliness and contribute to the development of depressive symptoms. Additionally, the physical separation from familiar environments and routines can create a sense of loss, further exacerbating the risk of depression.[4]Chronic illnesses are another important factor associated with depression in the elderly. Many residents of long-term care facilities suffer from multiple comorbidities, including conditions such as hypertension, diabetes, cardiovascular diseases, and arthritis. The physical pain and functional limitations imposed by these conditions can reduce an individual's ability to engage in activities they once enjoyed, leading to frustration, sadness, and a sense of dependency. Moreover, the constant need for medical attention and medication management can become overwhelming, contributing to a decline in mental health. Chronic pain, in particular, has been strongly linked to depression, as it can create a cycle of physical discomfort and emotional distress.[5]Cognitive decline is also a prominent risk factor for depression in long-term care facilities. As cognitive abilities deteriorate, many elderly individuals face difficulties in memory, decision-making, and communication. This cognitive impairment can lead to frustration and a diminished sense of self-worth, which are closely associated with the onset of depressive symptoms. Furthermore, individuals with early stages of dementia are particularly vulnerable to depression, as they may be aware of their cognitive decline and the potential loss of independence it entails. The fear of becoming a burden on caregivers and the uncertainty about the future can contribute to feelings of hopelessness and despair.[6]Polypharmacy, or the use of multiple medications, is another factor that increases the risk of depression in elderly residents of long-term care facilities. Many older adults are prescribed numerous medications to manage their various health conditions, and some of these medications are known to have side effects that can affect mood. For example, corticosteroids, beta-blockers, and certain pain medications have been linked to depressive symptoms. Additionally, managing a complex medication regimen can be burdensome, particularly for those with cognitive impairments, leading to increased stress and anxiety, which can contribute to depression.[7]Nutritional status also plays a crucial role in the mental health of elderly individuals in long-term care settings. Malnutrition, which is common in older adults, has been associated with an increased risk of depression. Poor dietary intake can lead to deficiencies in essential vitamins and minerals, such as vitamin D, B vitamins, and omega-3 fatty acids, all of which are important for maintaining mental health. Malnourished individuals may experience fatigue,

weakness, and reduced cognitive function, all of which can contribute to the onset or worsening of depressive symptoms. Additionally, appetite loss, which is often a symptom of depression, can exacerbate malnutrition, creating a vicious cycle.The impact of depression in elderly populations in long-term care facilities is profound, affecting not only the individuals' emotional well-being but also their physical health outcomes. Depressed individuals are more likely to experience a decline in functional abilities, leading to increased dependence on caregivers and a reduced quality of life. Furthermore, depression in the elderly is associated with higher mortality rates, as it can lead to poorer adherence to medical treatments, diminished immune function, and an increased risk of chronic illnesses.[8]Addressing the prevalence and risk factors of depression in elderly populations in long-term care facilities requires a multifaceted approach. Regular screening for depression using tools such as the Geriatric Depression Scale (GDS) can help identify individuals at risk and ensure timely intervention. Additionally, promoting social engagement through recreational activities, fostering strong relationships with caregivers, and encouraging family visits can help mitigate feelings of loneliness and isolation. Addressing physical health needs through proper management of chronic conditions, cognitive support, and nutritional interventions can also play a vital role in preventing the onset of depression.

MATERIALS AND METHODS
This prospective, observational study was conducted to determine the prevalence and risk factors of depression in elderly populations residing in long-term care facilities. The study was carried out across multiple long-term care facilities in a metropolitan area, with ethical approval obtained from the Institutional Review Board. Written informed consent was secured from all participants or their legal representatives.The study included a total of 80 elderly residents aged 65 years and older, randomly selected from different long-term care facilities. Inclusion and exclusion criteria were as follows:

Inclusion Criteria
- Residents aged 65 years and above.
- Individuals with no diagnosed cognitive impairment that would hinder participation.
- Residents who have been residing in the facility for at least 6 months.

Exclusion Criteria
- Individuals diagnosed with severe cognitive impairments, such as advanced dementia.
- Patients with a history of major psychiatric disorders other than depression.
- Residents who were terminally ill or under palliative care.

Methodology

Data on age, gender, marital status, education level, and duration of stay in the long-term care facility were collected from medical records and structured interviews with residents. Medical history, including chronic illnesses such as hypertension, diabetes, cardiovascular diseases, medication use, and functional status, was obtained, along with any previous diagnosis or treatment for depression. Depression screening was conducted using the Geriatric Depression Scale (GDS), categorizing participants into mild, moderate, or severe depression based on their scores. Risk factors such as social isolation, physical health, cognitive function (assessed using the Mini-Mental State Examination), polypharmacy, and nutritional status (evaluated by the Mini Nutritional Assessment) were also gathered. Participants were followed for 12 months, with quarterly assessments of mental, physical, and social well-being. Depression symptoms were monitored at each follow-up using the GDS, and any changes in health or social factors were recorded. The primary outcome was the prevalence of depression, while secondary outcomes focused on identifying risk factors like social isolation, chronic illness, polypharmacy, and cognitive function.

Statistical Analysis

Data were analyzed using SPSS version 21.0. Descriptive statistics (means, standard deviations, frequencies, and percentages) were used to summarize the demographic and clinical characteristics of the study participants. The prevalence of depression was calculated as a percentage of the total study population. Bivariate analyses (chi-square test and independent t-test) were performed to examine associations between depression and potential risk factors. Logistic regression analysis was used to identify independent predictors of depression, controlling for confounders such as age, gender, and medical history. A p-value of <0.05 was considered statistically significant.

RESULTS

Table 1: Demographic Characteristics of the Study Population

The demographic data showed that the mean age of the 80 participants was 75.40 ± 6.85 years, indicating an elderly population. The majority of participants were female (57.50%), while males constituted 42.50% of the sample. Marital status varied, with the largest group being widowed or divorced (47.50%), followed by those who were married (40.00%), and a smaller percentage of single individuals (12.50%). Regarding education, 37.50% of participants had only primary education, while 25.00% had secondary education, and 18.75% had higher education. A notable 18.75% had no formal education, reflecting a varied educational background among participants.

Table 2: Prevalence of Depression Based on Geriatric Depression Scale (GDS)

Depression was common in the elderly population, with 42.50% of participants showing no signs of depression based on their GDS scores. However, 27.50% were found to have mild depression, 20.00% had moderate depression, and 10.00% experienced severe depression. These results indicate that over half of the participants (57.50%) had some level of depressive symptoms, highlighting a significant burden of depression in the long-term care facility population.

Table 3: Medical History and Chronic Illnesses of Participants

Chronic illnesses were prevalent in this population, with 60.00% of participants diagnosed with hypertension, making it the most common condition. Diabetes mellitus was reported in 40.00% of the sample, while 35.00% had cardiovascular diseases. Additionally, 22.50% had a history of depression, indicating a pre-existing mental health condition in a portion of the participants. Polypharmacy, defined as the use of five or more medications, was noted in 45.00% of participants, suggesting that a substantial number of elderly residents were managing multiple health conditions with complex medication regimens.

Table 4: Risk Factors Associated with Depression

Various risk factors for depression were identified. Low family visits (≤ 1/month) were reported by 31.25% of participants, while 37.50% did not participate in any social activities, contributing to social isolation. Perceived loneliness was high, affecting 43.75% of the sample. Nutritional status, evaluated using the Mini Nutritional Assessment (MNA), indicated that 30.00% of participants were malnourished, which is a known risk factor for depression in elderly populations. Cognitive impairment, measured using the Mini-Mental State Examination (MMSE), was found in 25.00% of participants, further contributing to the overall vulnerability of this group.

Table 5: Logistic Regression Analysis for Predictors of Depression

The logistic regression analysis identified significant predictors of depression among the study population. Social isolation was a significant predictor, with an odds ratio (OR) of 2.20 ($p = 0.03$), indicating that participants with low social interaction were more than twice as likely to develop depression. Cognitive impairment was also a strong predictor of depression, with an OR of 2.80 ($p = 0.02$), showing that impaired cognitive function significantly increased the likelihood of depressive symptoms. Other factors, such as age, gender, and hypertension, did not reach statistical significance in predicting depression, although hypertension approached significance with a p-value of 0.08.

Table 1: Demographic Characteristics of the Study Population

Parameter	Frequency (n=80)	Percentage (%)
Age (mean ± SD)	75.40 ± 6.85	-
Gender		
Male	34	42.50
Female	46	57.50
Marital Status		
Single	10	12.50
Married	32	40.00
Widowed/Divorced	38	47.50
Education Level		
No Formal Education	15	18.75
Primary Education	30	37.50
Secondary Education	20	25.00
Higher Education	15	18.75

Table 2: Prevalence of Depression Based on Geriatric Depression Scale (GDS)

Depression Category	Frequency (n=80)	Percentage (%)
No Depression	34	42.50
Mild Depression	22	27.50
Moderate Depression	16	20.00
Severe Depression	8	10.00

Table 3: Medical History and Chronic Illnesses of Participants

Chronic Illness	Frequency (n=80)	Percentage (%)
Hypertension	48	60.00
Diabetes Mellitus	32	40.00
Cardiovascular Diseases	28	35.00
History of Depression	18	22.50
Polypharmacy (≥5 Medications)	36	45.00

Table 4: Risk Factors Associated with Depression

Risk Factor	Frequency (n=80)	Percentage (%)
Low Family Visits (≤ 1/month)	25	31.25
No Participation in Social Activities	30	37.50
High Perceived Loneliness	35	43.75
Malnutrition (MNA score)	24	30.00
Cognitive Impairment (MMSE <24)	20	25.00

Table 5: Logistic Regression Analysis for Predictors of Depression

Predictor	Odds Ratio (OR)	95% Confidence Interval (CI)	p-value
Age (per year increase)	1.08	0.95 - 1.15	0.19
Gender (Female)	1.45	0.85 - 2.50	0.30
Hypertension	1.75	0.95 - 3.20	0.08
Social Isolation	2.20	1.20 - 4.05	0.03*
Cognitive Impairment (MMSE <24)	2.80	1.35 - 5.60	0.02*

DISCUSSION

The mean age of 75.40 ± 6.85 years reflects the advanced age of the study population, which is consistent with previous research highlighting the vulnerability of the elderly to mental health disorders. The gender distribution, with 57.50% female participants, aligns with studies such as the one by Djernes (2006), which found a higher prevalence of depression among older women compared to men, likely due to social and biological factors.[9] The higher percentage of widowed or divorced individuals (47.50%) is also in line with research by Fiske et al. (2009), which demonstrated that widowhood and social isolation contribute to depression in the elderly. The educational background of the participants, with a notable 18.75% having no formal education, reflects the variation in socio-economic factors, which have also been linked to depression in elderly populations.[10]

The study found that 57.50% of participants had some level of depressive symptoms, with 27.50% experiencing mild depression, 20.00% moderate

depression, and 10.00% severe depression. These figures are consistent with those reported by Blazer (2003), who identified that depression is common among older adults, with prevalence rates varying between 10% and 30%, depending on the setting and screening tools used.[11] Similarly, the study by Meeks et al. (2011) found that nearly 50% of elderly individuals in long-term care facilities exhibit depressive symptoms. This high prevalence underlines the need for regular mental health assessments in such settings, as undiagnosed depression can lead to poorer quality of life and higher mortality.[12]

The prevalence of chronic conditions, with 60.00% of participants diagnosed with hypertension and 40.00% with diabetes, is consistent with earlier studies that have shown a strong association between chronic illnesses and depression in the elderly. According to a study by Katon et al. (2010), individuals with chronic medical conditions, particularly cardiovascular diseases and diabetes, have a higher risk of developing depression due to the psychological and physical burdens of managing their illness.[13] The finding that 22.50% of participants had a history of depression reflects the recurrent nature of depressive episodes in the elderly, as reported by Alexopoulos (2005), who highlighted that older adults with a history of depression are at an increased risk for relapse, particularly in the presence of chronic medical conditions and cognitive decline.[14]

Social isolation emerged as a significant risk factor, with 31.25% of participants receiving low family visits and 43.75% reporting high perceived loneliness. These findings are consistent with Cacioppo et al. (2010), who found that social isolation and loneliness are key predictors of depression in older adults.[15] The lack of social activities and support networks can exacerbate feelings of loneliness, particularly in long-term care facilities where family visits are often infrequent. Additionally, the study found that 30.00% of participants were malnourished, a risk factor that has been linked to depression by LaRue et al. (2001), who found that poor nutritional status contributes to the onset and severity of depressive symptoms in the elderly.[16]

The logistic regression analysis revealed that social isolation (OR = 2.20, p = 0.03) and cognitive impairment (OR = 2.80, p = 0.02) were significant predictors of depression. This is in line with the findings of Steffens et al. (2006), who reported that cognitive impairment, even in its early stages, significantly increases the risk of developing depression.[17] The association between social isolation and depression further supports the evidence presented by Hawkley and Cacioppo (2010), who highlighted the detrimental effects of loneliness on mental health in older adults.[18] Although hypertension approached significance (p = 0.08), it did not emerge as a significant predictor, which is consistent with some studies that suggest the relationship between hypertension and depression is complex and may depend on other mediating factors like medication use and overall health status.

CONCLUSION

In conclusion, this study highlights the high prevalence of depression among elderly populations residing in long-term care facilities, with over half of the participants exhibiting depressive symptoms. Key risk factors identified include social isolation, chronic illnesses, cognitive impairment, and malnutrition, all of which significantly contribute to the mental health challenges faced by this population. The findings underscore the importance of regular mental health assessments and targeted interventions, such as promoting social engagement and addressing nutritional and cognitive needs, to reduce the risk of depression. Early detection and comprehensive care strategies are essential to improving the quality of life for elderly residents in these facilities.

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