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Depression and related factors in elderly outpatients at a provincial general hospital in Vietnam

Vu Thi Dao [1], Nguyen Thi Ngoan [1], Nguyen Kha Hue Man [1], Tran Thi Bao Vy [1]*

1. Faculty of Nursing, School of Medicine and Pharmacy, Tra Vinh University, Tra Vinh, Vietnam
* Correspondence: Tran Thi Bao Vy. Faculty of Nursing, School of Medicine and Pharmacy, Tra Vinh University, Tra Vinh, Vietnam.
Tel: +84345648354; Email: ttbvy@tvu.edu.vn

Abstract

Background: Depression is a common mental health problem and a leading cause of disability worldwide, with a high prevalence among older adults. This study aimed to determine the prevalence of depressive symptoms among elderly outpatients and to identify factors associated with these symptoms in this population.

Methods: A cross-sectional study included 285 elderly patients (Aged ≥60 years) receiving outpatient treatment at Tra Vinh General Hospital, Vietnam, in 2024, recruited through consecutive sampling. Depressive symptoms were assessed using the two-tier Geriatric Depression Scale (GDS-5/15). Univariate logistic regression was conducted using SPSS version 27.0 to identify unadjusted associations with depressive symptoms.

Results: The prevalence of depressive symptoms among elderly outpatients at Tra Vinh General Hospital, Vietnam, in 2024 was 38.2% (CI 95%: 32.6-43.9%; n=109/285). In univariate analysis, depressive symptoms were significantly associated with older age (OR=7.15, CI 95%: 3.37-15.19), educational level (OR=0.06, CI 95%: 0.01-0.34), marital status (OR=7.63, CI 95%: 4.37-13.32), living arrangement (OR=0.25, CI 95%: 0.08-0.75), family conflict (OR=6.32, CI 95%: 2.26-17.68), bereavement (OR=7.22, CI 95%: 2.61-19.98), major life adversity (OR=21.23, CI 95%: 9.12-49.39), and social participation (OR=0.18, CI 95%: 0.09-0.31).

Conclusion: Depressive symptoms were common among elderly outpatients at a provincial hospital in Vietnam, and several sociodemographic and psychosocial characteristics were associated with these symptoms in univariate analyses. These preliminary findings may help clinicians identify older patients who could benefit from further assessment of depressive symptoms, although confirmation in larger, methodologically robust studies is needed.

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Highlights

What is current knowledge?

Depressive symptoms are common among older adults, with prevalence varying considerably across settings. Previous studies have identified sociodemographic and psychosocial factors associated with depressive symptoms, but evidence from elderly outpatients in provincial hospitals in Vietnam remains limited.

What is new here?

Among 285 elderly outpatients at a provincial general hospital in Vietnam, 38.2% had depressive symptoms. In univariate analyses, depressive symptoms were associated with older age, lower education, marital status, living arrangement, family conflict, bereavement, major life adversity, and social participation. These findings provide locally relevant evidence for identifying older outpatients who may benefit from further assessment of depressive symptoms.

Introduction

According to the World Health Organization (WHO), depression is a common mental disorder characterized by persistent sadness and loss of interest in previously rewarding activities. It affects an estimated 5.7% of adults over 60 years of age worldwide (1) and ranks among the top 25 causes of disability globally (2). The reported prevalence among older adults varies considerably across settings, from 28.4% in a global meta-analysis (3) to 0.5-62.7% across low- and middle-income countries (4); in Vietnam, national survey data from 2022 indicated a prevalence of 20.2% among older adults using the Geriatric Depression Scale (GDS-15) (5).

As Vietnam transitions from an ageing to an aged society by 2036 (6), depression, together with dementia, remains among the most common mental health problems affecting the quality of life of older adults (7), placing increasing demands on healthcare systems. Multiple studies have associated depression in older adults with sex, education, income, employment, social activity, physical activity, and chronic disease (8), as well as with family conflict, which has been associated with a more than twofold increase in depression risk (9). Despite this growing body of national and international evidence, local data remain scarce: no study has yet examined depression and its associated factors among elderly outpatients in Tra Vinh province, where 140,175 patients aged ≥60 years received outpatient care at the provincial general hospital in 2023 alone. The present study therefore aimed to determine the prevalence of depressive symptoms and identify factors associated with depressive symptoms among older outpatients attending a provincial general hospital in Vietnam in 2024.

Methods

This cross-sectional study was conducted at the outpatient department of Tra Vinh General Hospital, a 700-bed, grade-I public hospital in the Mekong Delta region of Vietnam that provides care to residents both within and outside the province and has 30 clinical departments. Data were collected from 13 May to 19 July 2024 in the hospital's Geriatrics, Cardiology, Physical Therapy and Rehabilitation, Neurology, and Psychiatry outpatient clinics, which were identified as the clinics most frequently attended by older patients. Eligible participants were outpatients aged ≥60 years who gave informed consent. Individuals with severe cognitive impairment, severe psychiatric disorders, acute illness requiring emergency care, or communication impairments were excluded.

Because a complete sampling frame of outpatients was unavailable, consecutive sampling was used: the researcher approached consecutively all eligible outpatients presenting at the selected clinics until the target sample size was reached. This sampling approach may introduce selection bias and limit the generalizability of the findings beyond older outpatients attending similar provincial hospital settings.

The sample size was calculated using the single-proportion formula with an estimated prevalence of 46.1% from a previous Vietnamese study (10), a 95% confidence level, and a margin of error of 6% (d = 0.06). The minimum required sample size was 265 participants, and 285 participants were enrolled.

Data were collected through structured face-to-face interviews conducted by the principal investigator with a pretested, interviewer-administered questionnaire. The questionnaire covered the following sociodemographic and psychosocial variables, each analyzed as a categorical variable: age, sex, ethnicity, religion, economic status, residence, educational level, marital status, occupation, living arrangement, number of chronic diseases, family conflict, conflict with peers or neighbors, bereavement within the previous two years, major life adversity, and social participation.

Depressive symptoms were assessed using a two-stage version of the Geriatric Depression Scale (GDS-5/15) (11). Participants first completed five items (GDS-5). Those with a score ≥2 then completed the remaining 10 items (GDS-10). A total score ≥5 was considered indicative of depressive symptoms. The GDS-5/15 items were derived from the GDS-15 validated in Vietnamese (12). The internal consistency of the items in the present study was acceptable (Cronbach's alpha = 0.822). However, the shortened two-stage GDS-5/15 format was not independently evaluated for construct validity, criterion validity, or test-retest reliability.

Because all interviews were conducted by a single researcher, interviewer bias cannot be entirely ruled out, particularly when assessing sensitive psychosocial variables such as family conflict.

Data were entered into Microsoft Excel and analyzed using SPSS version 27.0. Descriptive statistics (Frequencies and percentages) were used to summarize participant characteristics. The prevalence of depressive symptoms was calculated as a proportion with a CI 95% derived using the normal (Wald) approximation for a single proportion (13). Univariate logistic regression was used to test the association between each of the candidate variables listed above and depression; for categorical predictors, this approach is statistically analogous to a chi-square test of association, and no additional chi-square tests, t-tests, or ANOVA were performed separately.

Because the number of observed depression cases (n=109) limited the number of variables that could be included reliably in a multivariable model, multivariable logistic regression was not performed. Accordingly, associations were estimated using crude, unadjusted odds ratios. No adjustment was made for multiple comparisons. Statistical significance was set at $p < 0.05$.

Results

Among the 285 older outpatients enrolled, the mean age was 71.89 ± 7.59 years; 67.0% were women, 69.5% resided in rural areas, and 49.5% had completed primary education (Table 1). Most participants (80.7%) lived with ≥2 generations, and 79.3% had ≥2 chronic diseases, most commonly hypertension (78.9%), cardiovascular disease (43.2%), and diabetes mellitus (35.1%); participants were able to report more than one chronic disease.

Regarding psychosocial characteristics, 7.7% reported family conflict, 8.4% had experienced bereavement within 2 years, 20.4% had experienced major life adversity, and 40.4% participated in social activities.

The prevalence of depressive symptoms (GDS-5/15 total score ≥5) among elderly outpatients at Tra Vinh General Hospital, Vietnam, in 2024 was 38.2% (109/285; CI 95%: 32.6-43.9%). In univariate analyses (Table 2), depressive symptoms were significantly associated with older age (70-79 years: OR=1.93, CI 95%: 1.11-3.36; ≥80 years: OR=7.15, CI 95%: 3.37-15.19), lower educational attainment (Progressively lower odds with increasing education relative to illiteracy, all $p<0.05$), being widowed or divorced (OR=7.63, CI 95%: 4.37-13.32) or single (OR=3.86, CI 95%: 1.37-10.87) relative to married participants, living with ≥2 generations rather than living alone (OR=0.25, CI 95%: 0.08-0.75), family conflict (OR=6.32, CI 95%: 2.26-17.68), bereavement (OR=7.22, CI 95%: 2.61-19.98), and major life adversity (OR=21.23, CI 95%: 9.12-49.39). Social participation was associated with lower odds of depressive symptoms relative to nonparticipation (OR=0.18, CI 95%: 0.09-0.31). Sex, ethnicity, residence, economic status, occupation, and number of chronic diseases were not significantly associated with depressive symptoms; the chronic-disease reference group ("none") comprised only 7 participants, limiting the precision of this estimate. Conflict with peers/neighbors (n=3 positive cases) was also examined but yielded an unstable estimate and is not reported numerically. All reported odds ratios are crude (Unadjusted) estimates from univariate logistic regression; adjusted odds ratios could not be calculated because multivariable analysis was not statistically justified by the available number of events.

Table 1. Sociodemographic characteristics of older outpatients (n = 285)

Characteristic	Category	n	%
Age Group (Years)	60-69	117	41.1
	70-79	121	42.5
	≥ 80	47	16.5
Age, Mean ± SD	71.89 ± 7.59	-	-
Sex	Male	94	33.0
	Female	191	67.0
Residence	Urban	87	30.5
	Rural	198	69.5
Education	Illiterate	25	8.8
	Primary	141	49.5
	Secondary	55	19.3
	High school	49	17.2
	Tertiary or Above	15	5.3
Marital Status	Married	155	54.4
	Widowed/Divorced	112	39.3
	Single/Never married	18	6.3
Living Arrangement	Alone	16	5.6
	One generation	39	13.7
	≥ 2 generations	230	80.7

Table 2. Univariate logistic regression of factors associated with depressive symptoms (n=285)

Variable	Category	Depressed n (%)	Not Depressed n (%)	OR (CI 95%)	P-Value
Age Group	60-69 (Ref)	29 (24.8)	88 (75.2)	1 (Reference)	–
	70-79	47 (38.8)	74 (61.2)	1.93 (1.11-3.36)	0.021
	≥ 80	33 (70.2)	14 (29.8)	7.15 (3.37-15.19)	< 0.001
Education	Illiterate (Ref)	18 (72.0)	7 (28.0)	1 (Reference)	–
	Primary	56 (39.7)	85 (60.3)	0.26 (0.10-0.65)	0.004
	Secondary	20 (36.4)	35 (63.6)	0.22 (0.08-0.62)	0.004
	High school	13 (26.5)	36 (73.5)	0.14 (0.05-0.41)	< 0.001
	Tertiary or Above	2 (13.3)	13 (86.7)	0.06 (0.01-0.34)	0.001
Marital Status	Married (Ref)	29 (18.7)	126 (81.3)	1 (Reference)	–
	Widowed/Divorced	72 (63.7)	41 (36.3)	7.63 (4.37-13.32)	< 0.001
	Single	8 (47.1)	9 (52.9)	3.86 (1.37-10.87)	0.010
Living Arrangement	Alone (Ref)	11 (68.8)	5 (31.3)	1 (Reference)	–
	One generation	16 (42.1)	22 (57.9)	0.33 (0.10-1.14)	0.080
	≥ 2 generations	82 (35.5)	149 (64.5)	0.25 (0.08-0.75)	0.013
Family Conflict	No (Ref)	92 (35.0)	171 (65.0)	1 (Reference)	–
	Yes	17 (77.3)	5 (22.7)	6.32 (2.26-17.68)	< 0.001
Bereavement	No (Ref)	90 (34.5)	171 (65.5)	1 (Reference)	–
	Yes	19 (79.2)	5 (20.8)	7.22 (2.61-19.98)	< 0.001
Life Adversity	No (Ref)	58 (25.6)	169 (74.4)	1 (Reference)	–
	Yes	51 (87.9)	7 (12.1)	21.23 (9.12-49.39)	< 0.001
Social Participation	No (Ref)	90 (52.9)	80 (47.1)	1 (Reference)	–
	Yes	19 (16.5)	96 (83.5)	0.18 (0.09-0.31)	< 0.001

Reference categories (Ref) were selected as the groups with the lowest expected risk, where clinically meaningful.

Discussion

The observed prevalence of depressive symptoms (38.2%) was broadly comparable to findings from hospital-based studies in Vietnam (14,15) and a global pooled estimate of 35.1% (16), suggesting that depressive symptoms may be relatively common among older outpatients. This interpretation is also supported by recent Vietnamese hospital data reporting substantial unmet psychological support needs among older inpatients (17). Older age was associated with higher odds of depressive symptoms in the univariate analysis, consistent with previous outpatient findings in China (18). This finding is consistent with previous explanations involving cumulative age-related changes (19). Lower educational attainment was associated with higher odds of depressive symptoms, in line with national Vietnamese data (5), possibly reflecting differences in health literacy and coping resources. However, because these associations were derived from unadjusted univariate models, they cannot be interpreted as independent effects.

Being widowed, divorced, or never married, as well as experiencing family conflict, bereavement, or major life adversity, was associated with higher odds of depressive symptoms, whereas living with ≥2 generations and participating in social activities were associated with lower odds, consistent with previous research on social connectedness and depressive symptoms (9,20-22). These associations should be interpreted cautiously because, given the cross-sectional design, causal direction cannot be established; for example, depressive symptoms may also reduce social participation rather than solely result from it.

This study has several important limitations beyond the cross-sectional design. Convenience (Consecutive) sampling at a single site may have introduced selection bias and limited generalizability beyond similar provincial hospital settings; response rates and the characteristics of nonparticipants were not recorded. Key psychosocial variables (Family conflict, bereavement, life adversity, social participation) were measured as binary indicators of presence or absence without capturing severity, duration, or type, and potential confounders such as sleep quality, physical activity, perceived social support, antidepressant use, and prior depression history were not assessed. Importantly, only univariate associations were reported; the relatively small number of outcome events restricted the number of variables that could reasonably be included in a multivariable model, so the reported odds ratios are unadjusted and may be subject to confounding; for example, the lack of a significant association between chronic disease burden and depressive symptoms may reflect confounding by age rather than a genuine absence of association. Model assumptions (Linearity for continuous variables, multicollinearity, goodness-of-fit) were not formally assessed, and p-values were not corrected for multiple comparisons. Future studies with larger, multisite samples and, where feasible, longitudinal or community-based designs could help assess these associations more comprehensively, enable multivariable analysis, support formal validation of the GDS-5/15 in this population, and allow sensitivity analyses using alternative GDS cut-offs or stratification by sex and residence.

Conclusion

Depressive symptoms were common (38.2%) among elderly outpatients at a provincial hospital in Vietnam and were associated with older age, lower education, widowhood/divorce, living alone, family conflict, bereavement, major life adversity, and low social participation in unadjusted analyses. These findings should be interpreted cautiously because of the univariate analyses and sampling limitations. The results support consideration of routine screening for depressive symptoms in outpatient geriatric settings and highlight the need for larger, methodologically robust studies using multivariable analyses to identify factors independently associated with depressive symptoms and inform targeted psychosocial interventions in similar settings across Vietnam.

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Ethical Statement

This study was approved by the Council for Ethics in Biomedical Research, Tra Vinh University (Approval No. 4022/QĐ-ĐHTV, dated 6 May 2024). Written informed consent was obtained from all participants before taking part in the study. Participant confidentiality and privacy were maintained throughout the study, and participants were informed of their right to withdraw from the study at any time without penalty. All procedures were conducted in accordance with the principles of the Declaration of Helsinki.

Conflicts of Interest

The authors declare that they have no conflict of interest.

Author Contributions

VTD conceptualized the study and supervised the research. NTN contributed to the study design and data interpretation. NKHM collected and analyzed the data and drafted the manuscript. TTBV supervised the research, contributed to the interpretation of the data, and critically revised the manuscript. All authors read and approved the final manuscript.

Data Availability Statement

The datasets used and/or analyzed in the current study are available from the corresponding author upon reasonable request.

Use of Artificial Intelligence

No generative artificial intelligence (AI) or AI-assisted technologies were used to generate the scientific content, data, or analyses presented in this manuscript.

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