



Prevalence of Depression in Medical Residents: A Cross-sectional Study from Iran in 2023 - 2024

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Received: 8 March, 2025; Revised: 31 May, 2025; Accepted: 1 June, 2025

Abstract

Background: Depression is a global health issue, particularly affecting medical residents due to academic and emotional stress.

Objectives: Understanding its prevalence is essential for targeted interventions.

Methods: In this descriptive cross-sectional study, all 260 residents at Mazandaran University of Medical Sciences were invited, and 252 participated (census method). Depression was measured using the validated Persian version of the Beck Depression Inventory-II (BDI-II). Demographic data were collected anonymously via online forms. SPSS version 26 was used for analysis, applying parametric or Non-parametric tests based on data distribution.

Results: The prevalence of depression was 30.6%, with moderate depression being most common (17.1%). Female gender, personal history of depression, family history of depression, and antidepressant use were significantly associated with higher severity ($P < 0.001$). Regression analysis identified gender as the strongest predictor of BDI-II scores ($R^2 = 0.32$, $P < 0.001$).

Conclusions: Depression is common among medical residents, especially females and those with known risk factors. Mental health screening and support services are urgently needed in medical education.

Keywords: Depression, Depression Prevalence, Medical Residents, Suicide

1. Background

Depression is a significant risk factor for suicidal ideation, suicide attempts, and suicide death. Research has consistently shown that individuals with major depressive disorder are at a markedly higher risk for suicide due to the severity of depression (1). Medical residents are particularly vulnerable to depression due to the intense pressures of their academic and clinical responsibilities. Recent studies have shown that the prevalence of depression among medical trainees is significantly higher than in the general population. This mental health burden can impair their academic performance, diminish professional well-being, and

increase the risk of medical errors and even suicide. Evidence has shown an alarming rise in suicidal ideation and suicide deaths among medical residents in Iran. Pirnia's study in 2024 showed about 34% of Iranian medical residents have experienced suicidal thoughts, and the estimated annual suicide mortality rate in this group is nearly 100 per 100,000 – over fifteen times higher than the general population (6.5 per 100,000) (2). Mata et al. found that depression among resident physicians is closely linked to decreased quality of care and the likelihood of making critical errors in patient care, underscoring the need for targeted mental health interventions for medical trainees (3). Despite growing awareness, depression among residents in Iran remains

underexplored beside the rising rate of suicide attempts in medical residents in Iran.

2. Objectives

This study aimed to assess the prevalence of depression and associated risk factors among medical residents at Mazandaran University of Medical Sciences during 2023 - 2024.

3. Methods

This descriptive cross-sectional study was conducted among medical residents at Mazandaran University of Medical Sciences, which is located in the north of Iran during 2023 - 2024. All 260 eligible medical residents at Mazandaran University of Medical Sciences were invited to participate in this study using a census sampling method, and 252 of them completed the questionnaires. Depression severity was assessed using the Beck Depression Inventory-II (BDI-II), a 21-item self-report inventory that categorizes depression as minimal (0 - 13), mild (14 - 19), moderate (20 - 28), or severe (29 - 63) (4). The validated Persian version of the BDI-II was used in this study, which has demonstrated strong reliability and validity. The internal consistency of the BDI-II-Persian was high, indicating that the items on the test are well correlated and measure the same construct. Furthermore, the test-retest reliability was acceptable, showing that the instrument provides stable results over time (5). To minimize response bias, questionnaires were distributed electronically and completed anonymously via social media groups for each academic level. Data were analyzed using SPSS version 26. Descriptive statistics were applied, and based on data distribution, either parametric tests (independent *t*-test, ANOVA) or non-parametric tests (chi-square, Mann-Whitney U) were used to analyze group differences. Ethical approval for this study was obtained from the ethics committee of Mazandaran University of Medical Sciences (IR.MAZUMS.REC.1402.14534).

4. Results

A total of 252 medical residents participated in the study, representing 96.8% of the eligible population. Of these, 30.6% (77 residents) were found to have some level of depression, with moderate depression being the most common (17.1%), followed by mild depression (10.3%) and severe depression (3.2%). The mean BDI-II score was 8.72 ± 10.61 . The prevalence of depression was

significantly higher among female residents compared to male residents ($P < 0.001$). In addition, residents with a personal history of depression, family history of depression, and those currently using antidepressant medications had higher levels of depression severity ($P < 0.001$). There were no significant differences in depression prevalence related to marital status, academic year, or field of study. However, regression analysis revealed that gender was the most significant predictor of depression severity, explaining 32% of the variance in BDI-II scores ($R^2 = 0.32$, $P < 0.001$). A summary of the key findings, including prevalence rates and associated variables, is presented in Table 1.

5. Discussion

This study found that nearly one-third of medical residents experienced some level of depression, with moderate depression being the most common. Female residents and those with a personal or family history of depression or current use of antidepressants were more likely to report severe symptoms. These findings align with previous research indicating that medical trainees, particularly women, are at elevated risk for depression due to academic stress and clinical pressures (6, 7). The observed prevalence is consistent with studies conducted in other countries, although cultural and systemic differences may influence exact rates (8, 9). Despite no significant associations with marital status, academic year, or specialty, the strong link between gender and depression highlights the importance of targeted mental health support. Recent studies in Iran have reported alarmingly high rates of depression, anxiety, and sleep disturbances among medical students and residents. A systematic review and meta-analysis estimated the prevalence of depression to be 43%, anxiety 44%, and sleep disturbances 48% in these populations (10). These high rates may stem from multiple factors, including academic overload, financial stress during residency, and the cultural stigma surrounding mental health in Iranian society. The observed prevalence of depression in our study is in line with both Iranian and international studies, but certain differences remain. A similar study by Farhangi and Khajenasiri in Tehran found that 23% of medical residents were severely depressed, aligning with the results of our study (11). However, global studies, such as those conducted by Mata et al. in North America, report even higher depression rates among residents, pointing to the intense academic and clinical pressures as a key

Table 1. Summary of Demographic and Clinical Characteristics Associated with Depression in Medical Residents, Including Prevalence by Severity Level and Significant Predictive Factors Identified in Regression Analysis ^a

Variables	Values
Total residents; No.	252
Residents with depression	77 (30.6)
Mild depression	26 (10.3)
Moderate depression	43 (17.1)
Severe depression	8 (3.2)
Mean BDI-II score	8.72 ± 10.61
Female residents with depression	Higher than males ($P < 0.001$)
Antidepressant use	52 (20.6)
History of depression	68 (27.0)
Family history of depression	75 (29.8)
Significant predictors (regression)	Gender ($R^2 = 0.32$, $P < 0.001$)

^a Values are presented as No. (%) unless otherwise indicated.

factor contributing to mental health issues (3). These findings underscore the urgent need for structured institutional interventions to address mental health challenges among medical trainees both in Iran and globally.

5.1. Limitations

This study has several limitations. First, the use of self-reported questionnaires may introduce response and recall bias, as participants may underreport or overreport symptoms. Second, the absence of clinical psychiatric interviews limits the accuracy of depression diagnosis. Additionally, the cross-sectional design prevents inference of causal relationships between depression and associated factors.

5.2. Conclusions

The high prevalence of depression among medical residents highlights the urgent need for targeted mental health strategies within medical education. Routine screening, early intervention, and access to counseling services are essential, especially for those with known risk factors such as gender, personal history, or family history of depression. Medical institutions should prioritize mental health promotion to improve both student well-being and patient care outcomes.

Footnotes

Authors' Contribution: F. Sh. contributed in the design and conception of the work, reviewed and edited

the final version. B. A. contributed in the literature search, drafting the manuscript and editing the manuscript. A. N. G. participated in data analysis. A. M. Kh. participated in collecting and arranging data and did the literature search.

Conflict of Interests Statement: F. Sh. is a member of the editorial board in this journal but was not involved in the review or decision-making process for this manuscript, other authors have no conflict interests.

Data Availability: The dataset presented in the study is available on request from the corresponding author during submission or after publication.

Ethical Approval: This study was approved by the Ethics Committee of Mazandaran University of Medical Sciences under the license number IR.MAZUMS.REC.1402.14534.

Funding/Support: This study was funded by Mazandaran University of Medical Sciences.

Informed Consent: Informed consent was obtained from the participant.

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