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Mental Health and Resilience as Predictors of Mood Among Nursing and Midwifery Students

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Abstract

Introduction:
Mental health is a critical determinant of students' academic performance and professional competence. Nursing and midwifery students are particularly vulnerable to psychological distress due to the dual burden of academic workload and clinical exposure. Emerging evidence indicates increasing rates of anxiety, depression, and mood disturbances among healthcare students worldwide, highlighting the need to identify protective psychological factors [24]. Resilience is conceptualized as a dynamic capacity that may directly enhance mental health and indirectly influence emotional states by reducing mood disturbances. This study aimed to examine the interrelationships among mental health, resilience, and mood disturbance and to evaluate the predictive role of resilience and mental health on mood outcomes among nursing and midwifery students. **Methods:** In this cross-sectional study, 220 students from ..... University of Medical Sciences completed the Connor–Davidson Resilience Scale (CD-RISC), General Health Questionnaire (GHQ-12), and Profile of Mood States (POMS). Data were analyzed using descriptive statistics, Pearson's correlation coefficient, and multiple linear regression analyses. **Results:** The mean GHQ score was 8.70 ± 2.15, indicating suboptimal mental health status. The mean resilience score was 85.95 ± 14.45, and the mean total mood disturbance score was 57.37 ± 29.37. Resilience showed a strong inverse association with mood disturbance ($r = -0.70$, $p < 0.001$) and a moderate inverse relationship with GHQ scores ($r = -0.34$, $p < 0.001$). GHQ scores were

positively associated with mood disturbance ($r = 0.30$, $p < 0.001$). Regression analyses demonstrated that resilience significantly predicts mood disturbance both directly and indirectly through its association with mental health. **Conclusion:** Resilience plays a significant protective role in psychological well-being among students. These findings suggest a conceptual pathway in which resilience enhances mental health and reduces negative mood states, supporting the integration of resilience-based interventions in nursing education programs.

Key words: Mental Health**,** Resilience, Psychological**,** Mood**,** Students, Nursing**,** Students, Health Occupations

Introduction:

Health has been conceptualized in various ways across cultures, organizations, and schools of psychology. The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being, rather than merely the absence of disease or disability. Within this framework, mental health is recognized as a central indicator of community health and a key determinant of societal vitality and productivity(Haghighi et al., 2019).

Mental health is an essential component of individual adaptation, development, and effective functioning. Traditionally, health has been defined using a disease-oriented model emphasizing the absence of pain or illness(Seo, 2008; Yoo & Kahng, 2019). However, contemporary perspectives emphasize positive functioning rather than pathology alone. The WHO defines mental health as more than the absence of mental disorders; it encompasses well-being, self-efficacy, independence, competence, and the realization of cognitive and emotional abilities (Mousavi & Alvani, 2020). Despite this broadened conceptualization, mental health problems remain highly prevalent among young adults. Reports indicate that 7.8% of men and 12.3% of women aged 18–24 experience mental health problems, particularly depression (Sedighi et al., 2018). In Iran, the prevalence of mental disorders is reported at 24.5% in urban and 20.9% in rural areas (Mizbani et al., 2022).

Recent global evidence suggests that nearly one-third of university students experience clinically significant psychological distress, underscoring the urgency of identifying protective factors in this population (Auerbach et al., 2018).

Given ..... predominantly young population, university students represent a critical group for mental health assessment. The transition to higher education is often accompanied by academic pressure, social adaptation, and emotional challenges, which may negatively affect mental well-being. Psychological disorders among students can impair academic performance, professional development, and long-term career outcomes; therefore, identifying factors associated with mental health is essential for prevention and academic enhancement(Musarezaie et al., 2016). Resilience is one such factor that significantly influences mental health and acts as a mediating variable in the development of psychological disorders(Alipour et al., 2016) Resilience refers to the capacity to adapt positively to stress and adversity, enabling individuals to maintain psychological stability under challenging conditions (Mousavi & Alvani, 2020). Resilient individuals recover more effectively from difficult experiences and demonstrate greater emotional stability. Studies have shown that higher resilience contributes to improved mental health outcome Resilient individuals tend to recover more effectively from difficult experiences and demonstrate greater emotional regulation and adaptability. A growing body of evidence indicates that higher resilience is associated with better mental health outcomes (Konaszewski et al., 2021; Fullerton et al., 2021; Magnano et al., 2016; Wu et al., 2020)

Recent systematic and meta-analytic evidence confirms that resilience is a strong predictor of psychological well-being among nursing students and significantly reduces stress-related outcomes (Li & Hasson, 2020).

Mood also plays an important role in emotional regulation and overall mental functioning. Mood is defined as a relatively sustained emotional state that influences perception, cognition, and behavior (Konaszewski et al., 2021; Lee et al., 2013). Moods can be classified as positive or negative: anxiety, depression, anger, fatigue, and confusion are considered negative moods, whereas vitality, enthusiasm, and joy are considered positive moods (Lane et al., 2005; Thelwell et al., 2007).

Positive mood states enhance resilience and adaptive coping, whereas negative moods are often linked to psychological dis Positive mood states are associated with enhanced resilience and adaptive coping, while negative moods are frequently linked to psychological distress and impaired mental health (Li & Hasson, 2020; Lane et al., 2005; Stirling & Kerr, 2006). Research has demonstrated that higher levels of positive mood are correlated with better mental health and lower levels of stress, depression, and fatigue (Brandt et al., 2016).

Theoretical evidence suggests a dynamic interaction among resilience, mental health, and mood, where resilience enhances emotional regulation, reduces negative mood states, and improves mental health outcomes. Conversely, poor mental health may intensify negative mood and weaken coping capacity (Nahum et al., 2023; Schäfer et al., 2023).

Nursing and midwifery students are particularly exposed to psychological stress due to intensive academic and clinical demands. Clinical exposure, emotional burden, and workload are major contributors to psychological distress in this population (Petley et al., 2022).Despite growing literature, most studies have examined resilience, mental health, and mood separately. There is still limited evidence on their integrated relationships and predictive pathways, especially in developing countries such as .....

Therefore, this study aims to investigate the relationships between mental health, resilience, and mood among nursing and midwifery students. It is hypothesized that resilience positively influences mental health and mood states.

1. Data and Methods

1.1 General data

This descriptive cross-sectional correlational **study** was conducted in 2023 to examine the relationships between mental health, resilience, and mood among nursing and midwifery students at the Faculty of Nursing and Midwifery, ... University of Medical Sciences, ... The study population included all nursing and midwifery students enrolled at the Razi Faculty during the study

period. The study was designed in accordance with standard guidelines for observational research to explore associations between psychological constructs**.**

Participants and sampling

The target population comprised 220 nursing and midwifery students. Participants were recruited using non-probability convenience sampling. Students were informed about the study objectives, procedures, and voluntary nature of participation. Written or verbal informed consent was obtained prior to enrollment, and confidentiality of responses was strictly maintained throughout the study. Questionnaires were distributed to eligible students who agreed to participate, and completed anonymously.

Data collection instruments

Data were collected using a self-administered questionnaire consisting of two sections: demographic characteristics and standardized psychological instruments assessing resilience, mental health, and mood.

The demographic section included variables such as age, gender, marital status, and academic program. Standardized instruments included: Connor–Davidson Resilience Scale (CD-RISC) for resilience ,General Health Questionnaire (GHQ-12) for mental health screening, Profile of Mood States (POMS) for mood disturbance

Demographic characteristics

Demographic data included age, gender, marital status, employment status, educational level, interest in the field of study, and housing status.

Connor–Davidson Resilience Scale (CD-RISC)

Resilience was assessed using the Connor–Davidson Resilience Scale (CD-RISC-25)**,** a widely used instrument designed to measure individuals' capacity to cope with stress and adversity. The scale

consists of 25 items across five dimensions: (1) personal competence, (2) trust in one's instincts and tolerance of negative affect, (3) positive acceptance of change and secure relationships, (4) control, and (5) spirituality. Items are rated on a 5-point Likert scale ranging from 0 (not true at all) to 4 (true nearly all the time)**,** with total scores ranging from 0 to 100. Higher scores indicate greater levels of resilience. The original study reported a good internal consistency, with a Cronbach's alpha coefficient of 0.89 and satisfactory test–retest reliability over a four-week interval (r = 0.87 Connor) (Davidson, 2003 &. The scale has also demonstrated acceptable validity and reliability in student populations, including ..... populaitons.

General Health Questionnaire (GHQ-12)

Participant mental health status was evaluated using the 12-item General Health Questionnaire (GHQ-12), a well-established screening instrument originally developed by Goldberg (1972). The GHQ-12 assesses recent changes in psychological well-being across dimensions such as concentration, sleep disruption, stress, coping capacity, hedonic capacity, and depressive symptomatology. The scale consists of an equal balance of six positively and six negatively worded items. Responses were evaluated using the binary scoring method (0–1), yielding a cumulative score range of 0 to 12, where higher values signify greater psychological distress. Aggregate scoring was contingent upon the completion of all 12 items. For this instrument, the Content Validity Index (CVI) has been documented at 0.98 for relevance, 0.94 for simplicity, and 0.91 for clarity(Tagharrobi et al., 2015).

Profile of Mood States (POMS)

Participant mood profiles were assessed using the 37-item short form of the Profile of Mood States (POMS), originally developed by McNair et al. This instrument operationalizes affective states across six distinct subscales: depression, anxiety, fatigue, confusion, vigor, and anger. Items are evaluated on a 5-point Likert scale ranging from 0 ("not at all") to 4 ("very much"). The Total Mood

Disturbance (TMD) score was computed by aggregating the scores of the five negative affect subscales and subtracting the vigor subscale score; higher composite scores denote greater psychological distress or more pronounced negative affective states. The Persian version of the instrument has demonstrated documented internal consistency, with reliability coefficients ranging from 0.69 to 0.87(Alimirzaei et al., 2015) .

Sample size

The target population comprised 508 nursing and midwifery students enrolled at ..... University of Medical Sciences. Based on the statistical parameters reported by Keykhosravi et al. (2012) and using an appropriate sample size calculation formula, the minimum required sample size was determined to be 182 participants. To cushion against potential attrition and incomplete questionnaire responses, the sampling target was increased, resulting in a final sample of 220 students (Hamid et al., 2012).

$N = ([Z_\alpha + Z_\beta]/C)_2 + 3$

$Z\alpha = 2.5$

$Z\beta = 0.84$

$r=0.25$

$C = 0.5 * \ln[(1+r)/(1-r)] = 0.255$

$N = [(Z\alpha+Z\beta)/C]2 + 3 = 182$

Data Analysis

Statistical analyses were performed using IBM SPSS Statistics (version 25.0). Descriptive statistics—including frequencies, percentages, means, and standard deviations—were computed to summarize participant characteristics and study variables. Inferential analyses were executed to evaluate the research hypotheses: Pearson's correlation coefficients were used to examine associations between continuous variables, independent-samples *t*-tests were utilized to compare

mean differences between two independent groups, and one-way analysis of variance (ANOVA) was applied for multi-group comparisons. For all statistical tests, the significance threshold was a priori set at $p < 0.05$.

Ethical Considerations

The study was approved by the Ethics Committee in Research of Kerman University of Medical Sciences, Kerman, Iran (approval code: IR.KMU.REC.1402.167). The study was conducted in accordance with the ethical standards and guidelines of the approving committee and the principles of the Declaration of Helsinki and its subsequent amendments or comparable ethical standards.

All participants were fully informed **a**bout the study's objectives, procedures, potential risks, and anticipated benefits. Written informed consent was obtained from all participants before data collection. Participation was voluntary, and participants were informed of their right to withdraw from the study at any time without penalty. Participant confidentiality was protected through data anonymization. All sources were appropriately cited to uphold academic integrity and respect intellectual property rights.

Results

Participant characteristics

A total of 220 nursing and midwifery students were enrolled in the study. The mean age of participants was 23.11 ± 4.67 years (range: 18–45 years). Most participants were female (83.6%), single (78.2%), undergraduate nursing students (77.3%), and unemployed (60.5%). Over half of the students reported being interested or highly interested in their field of study (55.4%), and 63.2% were native to the ..... region (Table 1). Independent-samples t-tests and one-way analysis of variance

(ANOVA) were executed to examine variations in Mental health, resilience, and mood intensity across categorical sociodemographic subsets (Table 1).

Table 1. Participants' Characteristics and Their Associations with General Health, Resilience, and Mood Intensity

Demographic Variables	Frequency (%)	general health		resilience		mood intensity	
		Mean (SD)	Statistical test (p value)	Mean (SD)	Statistical test (p value)	Mean (SD)	Statistical test (p value)
Place of residence							
Private house	112 (50.9)	8.95± 2.47	F=1.17 (0.31)	84.30± 15.92	F=1.05 (0.35)	62.78± 28.17	F=2.66 (0.07)
Dormitory	91 (41.4)	8.49± 1.82		87.26± 13.13		53.64± 31.79	
Rental house	17 (7.7)	8.76± 2.35		86.05± 14.48		53.05± 19.00	
Gender							
Female	184 (83.6)	8.67± 2.13	t= 0.47 (0.63)	85.60± 14.12	t= -0.80 (0.42)	57.40± 29.78	t=.0 02 (0.97)
Male	36 (16.4)	8.86± 2.31		87.72± 16.14		57.25± 27.57	
Marital status							
Single	172 (78.2)	8.64± 2.49	t =0.19 (.084)	87.84± 14.18	t=3.80 (0.001>) *	71.95± 37.11	t=-3.27 (0.002) *
Married	48 (21.8)	8.72± 2.06		79.14± 13.44		53.30± 25.49	
Occupation							
Employee	87 (39.5)	9.62± 1.90	t =5.41 (0.001>) *	79.67± 14.09	t =-5.54 (0.001>) *	63.10± 31.54	t=2.36 (0.01)*
Unemployed	133 (60.5)	8.10± 2.11		90.05± 13.20		44.06± 12.09	
Field of Study							
Nursing	165 (75)	8.60± 2.28	t =-1.43 (0.15)	85.66± 14.75	t=-0.50 (0.61)	55.00± 28.58	t=-2.09 (0.03) *
midwifery	55 (25)	9.01± 1.71		86.80± 13.61		64.50± 30.80	
Grade							
Bachelor	170 (77.3)	8.44± 2.15	t =3.41 (0.001) *	87.89± 13.51	t =3.49 (0.001) *	55.04± 26.74	t =-1.86 (0.06)
Masters	50 (22.7)	9.60± 1.93		79.34± 15.67		65.32± 36.13	
interest in the field of study							

not interested	20 (9.1)	9.45± 1.35	F=6.75 (0.001>) *	70.75± 15.96	F=23.51 (0.001>) *	100.80± 27.07	F= 17.46 (0.001>) *
a little	31 (14.1)	9.00± 2.22		88.19± 7.62		59.09± 18.83	
moderate	47 (21.4)	9.63± 2.08		77.87± 13.64		60.27± 24.69	
interested	83 (37.7)	8.43± 1.91		87.59± 11.74		52.21± 30.38	
very interested	39 (17.7)	7.53± 2.41		98.20± 11.89		41.21± 16.26	
Place of birth							
Native	139 (63.2)	8.78± 2.22	t =0.71 (0.47)	86.71± 14.67	t =1.02	58.85± 26.74	t =0.97
Non-native	81 (36.8)	8.56± 2.04		84.64± 14.06	(0.30)	54.83± 33.42	(0.32)

Note: This table presents frequencies, means (SD), and results from t-tests or ANOVA assessing associations between demographic variables and outcome measures.

General Health, Resilience, and Mood Intensity

The mean general health score was 8.70 ± 2.15 (range: 4–12), exceeding the scale midpoint and indicating below-average mental well-being among participants. The average resilience score was 85.95 ± 14.45 (range: 45–116), suggesting high levels of resilience. Among the resilience subdomains, personal competence had the highest mean score (27.55 ± 5.52), while spiritual influences scored the lowest (7.37 ± 2.01). The mean mood intensity score was 57.37 ± 29.37 (range: 8–128), reflecting an overall positive mood state. Within mood subscales, depression yielded the highest mean score (18.20 ± 8.94), whereas confusion presented the lowest (12.87 ± 5.15) (Table 2).

Table 2. Mean (± SD) student's general health, resilience and mood intensity

Variable	Minimum	Maximum	Mean	SD
General Health	4.00	12.00	8.70	2.15
Resilience				
– Personal Competence	14.00	39.00	27.55	5.52
– Trust in Instincts & Tolerance of Negative Affect	9.00	30.00	23.03	4.00
– Positive Acceptance of Change & Secure Relationships	11.00	25.00	17.67	2.87
– Control	4.00	15.00	10.30	2.41
– Spiritual Influences	2.00	10.00	7.37	2.01
Mood Intensity				
– Tension	6.00	29.00	14.74	5.60
– Anger	7.00	31.00	15.95	6.23
– Fatigue	5.00	25.00	13.35	4.94
– Depression	8.00	40.00	18.20	8.94
– Vigor	6.00	30.00	17.75	5.61

– Confusion	5.00	25.00	12.87	5.15

Correlations Between Age, General Health, Resilience, and Mood Intensity

Pearson correlation analysis revealed several significant associations (Table 3). A weak positive correlation was observed between age and mood intensity ($r = 0.20$, $p = 0.004$), suggesting that older students experienced slightly higher mood disturbances. No significant relationship was found between age and general health ($r = 0.06$, $p = 0.39$). Conversely, a moderate negative correlation emerged between age and resilience ($r = –0.32$, $p < 0.001$), indicating that older students tended to report somewhat lower levels of resilience.

General health was moderately negatively associated with resilience ($r = −0.34$, $p < 0.001$) and positively associated with mood intensity ($r = 0.30$, $p < 0.001$), indicating that poorer general health corresponded to lower resilience and greater mood disturbance. The strongest association was observed between resilience and mood intensity, which demonstrated a strong inverse relationship ($r = −0.70$, $p < 0.001$), with higher resilience linked to substantially lower mood disturbance.

Table 3. Relationship between age, general health, resilience and mood intensity

Variable	Pearson correlation coefficient (p value)			
	age	**general health**	**resilience**	**mood intensity**
age	1			
general health	.06 (0.39)	1		
resilience	-0.32 (<0.001) *	-0.34 (<0.001) *	1	
mood intensity	0.2 (0.004) *	0.30(<0.001) *	-0.7 (<0.001) *	1

Relationshops Between Demogarphic Variables and general health, resilience and mood intensity

Further analyses examined associations between demographic characteristics and the primary outcome measures (Table 1). Single students reported significantly higher resilience scores ($p = 0.001$) as well as higher mood intensity scores ($p = 0.002$) compared with married students, indicating

greater resilience but more pronounced mood disturbances. Employed students exhibited significantly higher general health scores ($p = 0.001$) and mood intensity scores ($p = 0.01$), alongside lower resilience levels ($p = 0.001$), relative to unemployed students, suggesting poorer mental well-being and resilience in this group. Undergraduate students demonstrated significantly better general health ($p = 0.001$) and higher resilience ($p = 0.001$) compared with graduate students. In addition, nursing students reported lower mood intensity scores than midwifery students ($p = 0.03$), reflecting more favorable mood states. Greater interest in the field of study was associated with better general health, higher resilience, and lower mood intensity (all $p = 0.001$).

Predictors of Mood Intensity

A multiple linear regression analysis was conducted to examine whether age, general health, and resilience could predict mood state among nursing and midwifery students. The overall regression model was statistically significant, $F(3, 216) = 93.90$, $p < 0.001$, explaining 56.6% of the variance in mood state ($R^2 = 0.566$, Adjusted $R^2 = 0.560$). General health emerged as a significant positive predictor of mood disturbance ($B = 1.69$, $p < 0.001$), indicating that higher levels of distress were associated with poorer mood states. In contrast, resilience was a significant negative predictor ($B = -0.57$, $p < 0.001$), suggesting that higher resilience was associated with better mood outcomes. Age was not a significant predictor of mood state ($p = 0.21$) after controlling for the other variables in the model. (Table 4).

Table 4. Multiple Linear Regression Predicting Mood State Among Students

Predictor	B	SE	t	p-value	95% CI
Constant	44.82	5.55	8.07	< 0.001	33.88, 55.77
Age	-0.17	0.13	-1.25	0.21	-0.43, 0.10
general health	1.69	0.24	7.10	< 0.001	1.22, 2.16
Resilience	-0.57	0.04	-13.58	< 0.001	-0.65, -0.48

Model: $R^2 = 0.566$, Adjusted $R^2 = 0.560$, $F(3,216) = 93.90$, $p < .001$

Discussion:

The findings of this study elucidate the relationships between general health, resilience, and mood intensity among nursing and midwifery students at ..... University of Medical Sciences.

Students with better general health reported higher levels of resilience (Connor & Davidson, 2003; Tagharrobi et al., 2015; Alimirzaei et al., 2015; Tiol et al., 2024). Comparison with prior research corroborates that nursing and midwifery students face distinctive academic and clinical demands, highlighting resilience as a critical protective factor against psychological distress (Tiol et al., 2024; Devi et al., 2021; Spurr et al., 2021; Vogt et al., 2013; Habib, 2021). These findings suggest that maintaining good general health may play a pivotal role in strengthening psychological resilience and enhancing students' capacity to adapt to academic challenges.

Poor general health was associated with more intense mood disturbances, consistent with prior research linking physical health problems to emotional distress (Kiecolt-Glaser et al., 2002; Hammen, 2005; Folkman & Moskowitz, 2000). Chronic conditions, fatigue, and physiological imbalances may exacerbate negative emotional states, including anxiety and depression. In academic settings, where students are frequently exposed to substantial stress, poor general health may further reduce concentration, energy, and optimism, worsening mood disturbances and adversely affecting academic performance(Habib, 2021; Hammen, 2005). This interpretation offers a plausible mechanism by which poor general health contributes to emotional disturbances. This provides a plausible mechanism by which poor general health contributes to emotional disturbances and underscores the importance of integrating physical well-being promotion into comprehensive mental health strategies. Encouraging healthy behaviors—including regular exercise, balanced nutrition, and adequate rest—may mitigate mood disturbances and enhance overall mental health among nursing and midwifery students.

Resilience emerged as a key factor in emotional regulation and stress adaptation, with higher resilience associated with lower levels of mood disturbance(Masten, 2014; Tugade & Fredrickson, 2004; Southwick et al., 2014). Resilient individuals are better equipped to recover from adversity, maintain emotional equilibrium, and employ adaptive coping strategies when confronted with challenges(Imran et al., 2024; Reivich & Shatte, 2003; One Education, 2024). Minor discrepancies

with previous studies, such as variations in the strength of associations, may reflect differences in sample characteristics, cultural context, measurement instruments, or timing of data collection (Tiol et al., 2024; Vogt et al., 2013). Overall, these comparisons highlight the significance of contextual factors in shaping the observed relationships.

Beyond the observed correlations, the regression analysis demonstrated that resilience remained a significant predictor of mood disturbances even after controlling for age and general health. This finding suggests that resilience contributes uniquely to students' emotional well-being and is not merely a reflection of better health status or demographic characteristics. Given that the regression model explained more than half of the variance in mood intensity (56.6%), the findings highlight resilience as a particularly important psychological resource among nursing and midwifery students. These results are consistent with previous studies showing that resilient individuals are more capable of adapting to stressful situations, regulating emotions effectively, and maintaining psychological stability under pressure (Tiol et al., 2024; Masten, 2014; Imran et al., 2024). Considering the demanding academic and clinical environments experienced by nursing and midwifery students, resilience may serve as a critical protective factor that reduces vulnerability to mood disturbances and supports psychological well-being.

The mechanisms underlying the negative relationship between resilience and mood disturbances can be conceptualized across physiological, psychological, and behavioral domains. Physiologically, good general health may reduce fatigue, inflammation, and hormonal imbalances that negatively affect mood. Psychologically, resilience promotes adaptive coping strategies and positive cognitive appraisal, supporting effective emotion regulation and mood stability. Behaviorally, resilient students are more likely to engage in health-promoting practices, reinforcing the positive feedback loop between physical and mental well-being. In nursing and midwifery students, who are routinely exposed to high levels of clinical stress, resilience functions as a psychological buffer, mitigating the impact of stress on mood and overall mental well-being.

Collectively, these findings underscore the importance of fostering both physical health and resilience to support mental health and adaptive functioning among nursing and midwifery students. Interventions that promote healthy lifestyle behaviors alongside resilience-building strategies may help alleviate mood disturbances and enhance academic and psychological outcomes in this population.

Limitations:

This study has several limitations. The cross-sectional design precludes causal inferences, as the directionality of the observed associations cannot be established. in addition, reliance on self-reported measures may introduce social desirability bias and inaccuracies in self-assessment. The sample was drawn from to nursing and midwifery students at a single institution, which may limit the generalizability of the findings. Future research should employ longitudinal or experimental designs to elucidate causal mechanisms and include larger, more diverse samples across multiple institutions.

Implications for Practice and Future Research

The study provides evidence-based implications for both practice and future research. Universities should prioritize resilience-enhancing programs and accessible mental health services tailored to healthcare students. Integrating stress management training, peer support initiatives, and physical wellness initiatives into the academic environment can foster both psychological and physical resilience. Faculty members and administrators should also be trained to identify early signs of mental distress and refer students to counseling resources when necessary. Furthermore, future research should focus on testing intervention models aimed at enhancing resilience and physical health to reduce mood disturbances and promote mental well-being among students.

Declarations

Ethics approval and consent to participate

This study was approved by the Ethics Committee in Research of Kerman University of Medical Sciences, Kerman, Iran (approval code: IR.KMU.REC.1402.167). All methods were conducted in accordance with the relevant ethical guidelines and regulations of the approving committee. Written informed consent was obtained from all participants before data collection. Participation was voluntary, and participants were informed of their right to withdraw at any time without penalty. Participant confidentiality was maintained through data anonymization.

Consent for publication

Not applicable

Availability of Data and Materials

Data supporting this study will be made available on request by the corresponding author.

Competing of interest disclosure

There was no conflict of interest

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Author contribution:

S B, M A F contributed to the study design, T E conducted the data collection and analysis.

A H, performed the statistical analysis. M AF helped interpret the results and contributed to the writing of the manuscript. M A F, T E, conceived the study, guided the interpretation of the findings. S B, T E, MAF, contributed to drafting the manuscript. All authors read and approved the final version of the manuscript.

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