

Comparison of Stress, Anxiety, and Depression Levels in Nurses in Specialized and General Ward

Abstract

Background: Nurses are exposed to higher stress, anxiety, and depression due to the nature of their work. Considering the differences between specialized and general hospital units, this article focuses on comparing the levels of stress, anxiety, and depression among nurses in these two types of units. **Materials and Methods:** This descriptive-analytical study was conducted in 2023 on 135 nurses in specialized units and 219 nurses in general units selected through stratified random sampling out of 1681 nurses. For this study, 6 public hospitals in the West Azerbaijan province of Iran were selected. Data were collected through a demographic questionnaire and the Depression, Anxiety, Stress Scales-21 (DASS-21) and analyzed using SPSS software. A significance level of 0.05 was considered for this study. **Results:** This study reported that stress, anxiety, and depression affected 72.04%, 46.33%, and 53.68% of nurses, respectively, with mild to extremely-severe intensity levels. No significant differences were observed in stress, anxiety, and depression between specialized and general units ($p > 0.05$). Among specialized units (ICU, CCU, and dialysis ward), dialysis unit nurses had significantly lower depression scores ($p < 0.05$). Additionally, a significant correlation existed between demographic variables and DASS-21 constructs ($p > 0.05$). **Conclusions:** The similarities among nurses in specialized and general units outweigh the observed differences. Given the high prevalence of stress, anxiety, and depression among nurses and the negative correlation with job satisfaction, managers should improve job satisfaction to support nurses' mental health.

Keywords: Anxiety, depression, hospital units, nurses, occupational stress

Introduction

Nurses are on the frontline of patient care. The demanding nature of this profession exposes nurses to a higher risk of adverse mental conditions such as depression, anxiety, and stress.^[1] Stress is a condition where the body's natural balance is threatened by internal and external forces (stressors), and the body responds with complex physiological and behavioral reactions to maintain or restore this optimal balance.^[2] Nurses are subjected to workplace stressors due to their responsibility for ensuring patients' health and care.^[3] The stress level among nurses varies from moderate to high, and the prevalence rates can range from approximately 40% to 90%.^[4] The American Psychiatric Association (APA) defines anxiety as the anticipation of a future threat or adverse event that is accompanied by feelings of mental or physical discomfort. Symptoms of tension may pertain to both the internal and external world.^[5] Among the factors contributing

to nurses' anxiety are sudden changes in patients' conditions, frequent exposure to patients' suffering, night shifts, uncertainty about treatments, heavy workloads, mandatory overtime, job insecurity, diverse work environments, and transition to a new work setting. These pressures can increase nurses' anxiety and cause significant harm to their health and Quality Of Life (QOL).^[6] Depression is a mood disorder characterized by feelings of sadness and a loss of interest. Common features of all depressive disorders include sadness, emptiness, or easily irritable mood. Depression is accompanied by significant physical and cognitive changes that substantially affect an individual's functioning.^[7] Depressive symptoms have been reported with a prevalence ranging from 1.70% to 40.90% among Iranian nurses,^[8] 43.83% among Chinese nurses,^[9] and 32.4% among Australian nurses.^[4] Poor mental health in nurses can harm their well-being and compromise patient care quality.^[10] Nurses' mental health issues can affect their

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families.^[11] Therefore, given the importance of this issue, identifying the departments with higher levels of stress, anxiety, and depression can be an effective step in improving the mental health of nurses and their families.

Unlike the specialized units, the general wards tend to have more stable patients, and the physiological parameters of patients, such as heart rate, respiratory rate, and temperature, are measured periodically.^[12] Nurses in specialized units have the responsibility of caring for patients with severe illnesses. They use monitoring and supportive technologies in a defined space to provide continuous monitoring and care to patients. Specialized units are distinguished from general wards by having a physical environment equipped with supportive and monitoring technologies, as well as providing more specific care services for severe illnesses.^[13] Although numerous studies have investigated stress, anxiety, and depression among nurses, there is a lack of research focusing on the impact of the different environments of specialized units and general wards on nurses' mental health. Given the clear differences in nursing roles, patient illness severity, and physical structures, this gap needs to be addressed with targeted research on how these factors influence nurses' psychological well-being. The question raised is whether these differences have led to an increase in the level of stress, anxiety, and depression among nurses in specialized units. Thus, in the present study, the levels of stress, anxiety, and depression among nurses in specialized and general departments have been compared.

Materials and Methods

This article is based on a master's thesis conducted at Tarbiat Modares University, Tehran, Iran. The present descriptive-analytical study was conducted in spring 2023. For this research, 6 hospitals from West Azerbaijan Province, Iran, were selected. These hospitals' Intensive Care Unit (ICU), Coronary Care Unit (CCU), and dialysis wards were categorized as specialized units. In contrast, the pediatric ward, internal medicine ward, male surgical ward, female surgical ward, and infectious diseases ward were considered general units. Clinical departments of hospitals were visited for sampling, and the nurses' names were listed based on their shift schedules in the departments. In total, nine lists were prepared based on the department where the nurses worked (pediatric ward, internal medicine ward, male surgical ward, female surgical ward, infectious diseases ward, dialysis ward, ICU, and CCU), and each nurse was assigned a number. A total of 1681 nurses worked in six hospitals, and the nurses in emergency departments and the units that fell into common categories (such as NICU that belonged to both the pediatric and ICU subgroups) were excluded. A total of 308 nurses were listed for sampling in the specialized units, and 480 nurses were listed in the general units.

In this study, the minimum sample size was calculated based on α (type I error), β (type II error), and effect size (ef). For

this study, based on $\alpha = 0.05$ and $\beta = 0.20$, and selecting an effect size of 0.50, The minimum sample size was determined to be 32 participants, but considering a 30% attrition rate, it was adjusted to 46. Based on the numbers entered into SPSS software, 46 numbers were selected randomly for each section, and the corresponding names were included in the study. Considering the three selected specialized units (ICU, CCU, and Dialysis), 138 samples were chosen. From the five selected general wards (pediatric ward, internal medicine ward, male surgical ward, female surgical ward, and infectious diseases ward), 230 samples were selected. The inclusion criteria for the study were as follows: being employed as a nurse in the selected specialized and general wards of hospitals affiliated with Urmia University of Medical Sciences, Iran, having at least a bachelor's degree, having no psychiatric record or history, and having a minimum of 6 months of clinical work experience. Finally, due to unwillingness to participate in the research, lack of inclusion criteria, and incomplete questionnaire responses, 3 participants from specialized wards and 11 participants from general wards were excluded. The data of 135 nurses from the specialized wards and 219 nurses from the general wards were subjected to the analysis process. Random sampling and data analysis were performed using SPSS software (version 27; IBM Corp., Armonk, NY, USA) [Figure 1].

In this research, two questionnaires were employed. The first questionnaire pertained to demographic variables, while the second questionnaire, the Depression, Anxiety, Stress Scales-21 (DASS-21), was used to assess the stress, anxiety, and depression levels of nurses. The demographic questionnaire included questions about age, sex, education level, underlying disease, and job factors such as job satisfaction, shift status, overtime hours, and questions about good interaction with colleagues. The DASS-21 was initially introduced by Lovibond in the year 1995. The DASS-21 includes the 3 subscales of stress, anxiety, and depression, with each subscale comprising 7 questions. The questionnaire consists of 21 items in total.^[14] In 2022, Kakemam *et al.*^[15] conducted an examination and validation of the DASS-21 in Iran, specifically targeting nurses employed in government hospitals.^[15] In this investigation, DASS-21 demonstrated satisfactory internal consistency with acceptable alpha Cronbach coefficients for anxiety ($\alpha = 0.79$), stress ($\alpha = 0.91$), and depression ($\alpha = 0.93$) subscales. In the present study, Cronbach's alpha coefficients were calculated and found to be acceptable for anxiety ($\alpha = 0.79$), stress ($\alpha = 0.82$), and depression ($\alpha = 0.85$). The questionnaires were completed in the nurses' rest area and nursing station during their shifts at the hospital. In this study, the normality of stress, anxiety, and depression data was assessed using the Kolmogorov-Smirnov test. As the data did not meet the assumption of normality ($p < 0.05$), nonparametric tests, namely the Mann-Whitney and Kruskal-Wallis tests, were employed for analysis. To enhance the translation of this article from Persian to English, artificial intelligence (AI) has been employed.

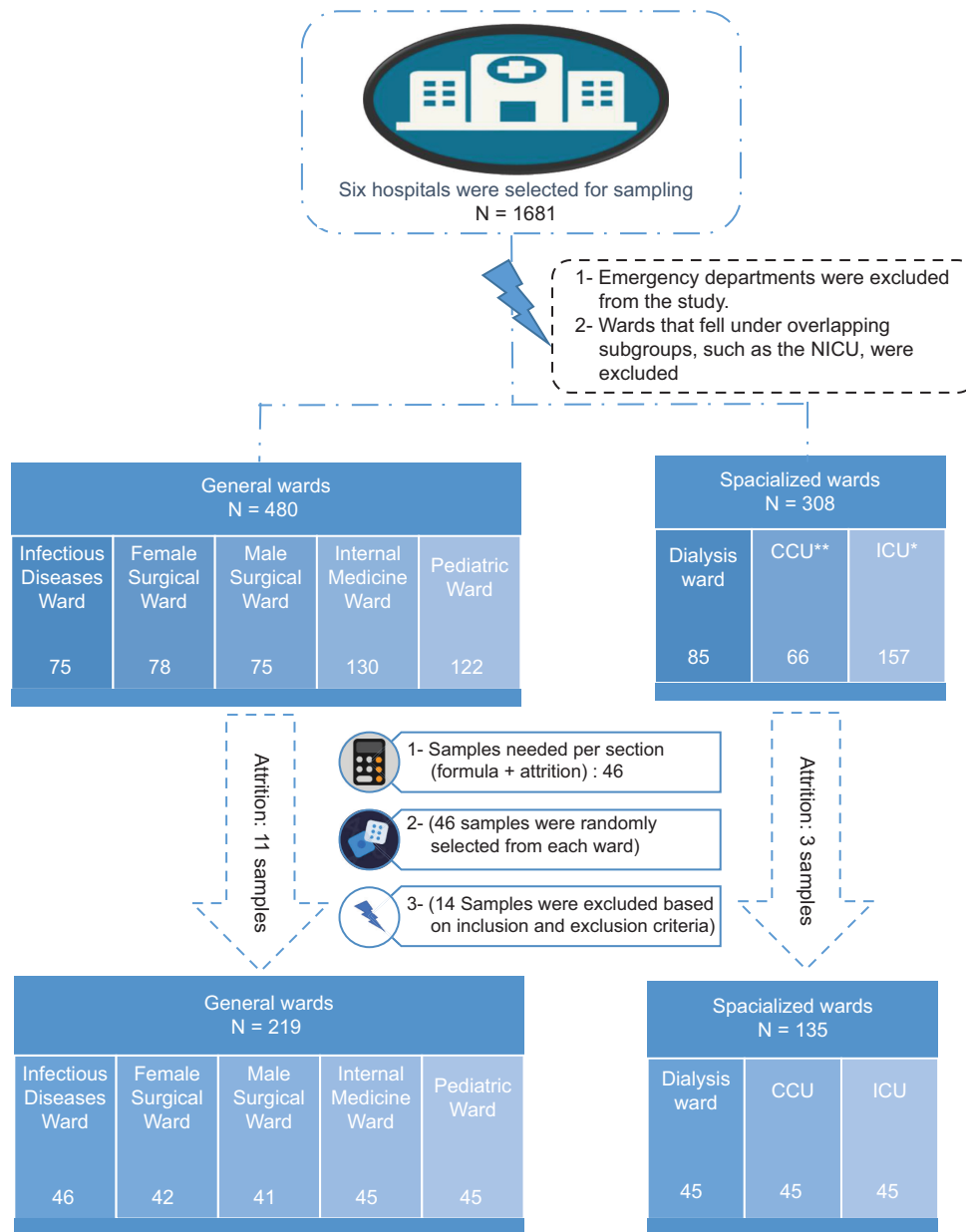


Figure 1: Sampling diagram. *ICU: Intensive care unit; **CCU: Coronary care unit

Ethical considerations

This research is registered under the ethical code IR.MODARES.REC1401.191 at Tarbiat Modares University, with the code issued on December 25, 2022. Nurses selected for the study completed the questionnaires after being informed about the research objectives. The participants filled out a written informed consent form, ensuring their participation was voluntary and that the obtained information would be kept confidential and used solely for research purposes.

Results

1. Demographic Information

The average age of the studied group was 33.35 ± 7.58 years.

The majority of participants (74.57%) were women, and 25.42% were men. Moreover, 38.13% worked in specialized units, while 61.86% were in general departments [Table 1].

2. The Frequency of Stress, Anxiety, and Depression among Nurses in Specialized and General Units

Among the research units, 78% reported at least 1 or more cases of mental disorders. The prevalence of stress, anxiety, and depression ranging from mild to extremely-severe among the research units was 72.04%, 46.33%, and 53.68%, respectively [Table 2].

3. Comparison of Stress, Anxiety, and Depression among Nurses in Specialized and General Units

The mean scores of stress, anxiety, and depression in

Table 1: Demographic and occupational variables

Variable	Subcategory	n (%)
Gender	Female	264 (74.57)
	Male	90 (25.42)
Education level	Bachelor's degree	325 (91.80)
	Master's degree and higher	29 (8.19)
Smoker	Yes	21 (5.93)
	No	333 (94.06)
Illness	Yes	83 (23.45)
	No	271 (76.55)
Work experience (year)	0-3	83 (23.44)
	4-6	90 (25.42)
	7-10	38 (10.73)
	≥ 11	143 (40.39)
Overtime hours per month	No overtime	11 (3.11)
	1-34	147 (41.53)
	35-84	138 (38.93)
	More than 84	58 (16.38)
Shift status	Morning	62 (17.51)
	Afternoon	8 (2.26)
	Night	5 (1.14)
	Rotating shift	279 (78.81)
Type of ward	Specialized units	135 (38.13)
	General units	219 (61.86)
Specialized units	ICU*	45 (33.33)
	CCU**	45 (33.33)
	Dialysis	45 (33.33)
General units	Pediatric unit	45 (20.54)
	Internal medicine unit	45 (20.54)
	Male surgical ward	41 (18.72)
	Female surgical ward	42 (19.17)
	Infectious diseases ward	46 (21.00)
Good interaction with coworkers	Has	330 (93.22)
	Does not have	24 (6.77)
Job satisfaction	Yes	184 (51.97)
	No	170 (48.02)
Job satisfaction (by ward)	ICU	20 (44.44)
	CCU	22 (48.88)
	Dialysis	28 (62.22)
	Pediatric	25 (55.55)
	Internal Medicine	23 (51.11)
	Male surgery	25 (60.97)
	Female surgery	23 (54.76)
	Infectious	18 (39.13)

*ICU: Intensive care unit;** CCU: Coronary care unit

specialized and general units were compared using the Mann-Whitney and Kruskal-Wallis tests. The average stress score in general units was 15.05, which was higher than in specialized units. The average anxiety score in general units was 9.72, which was higher than in specialized units. The average depression score in general units was 12.25 and was higher than in specialized units. The difference in the mean scores of stress, anxiety, and depression between specialized and general units is negligible. Statistically,

there was no significant difference in stress, anxiety, and depression between specialized and general units ($p > 0.05$). There was no significant difference in stress, anxiety, and depression among nurses in general departments ($p > 0.05$). Among the specialized departments, dialysis nurses had lower depression scores compared to nurses in other specialized departments ($p < 0.05$) [Table 3].

The *post hoc* tests showed a significant difference in depression scores between the dialysis ward and ICU ($p = 0.007$). However, there was no significant difference between the dialysis ward and CCU or between the ICU and CCU ($p > 0.05$).

4. Relation of Occupational and Personality Factors with Stress, Anxiety, and Depression

There was a statistically significant relationship between demographic, personality, and occupational variables such as gender, the presence of illness, smoking, job satisfaction, and good interaction between colleagues and the constructs of DASS-21 ($p < 0.05$). Moreover, work experience and shift status did not have a significant relationship with stress, anxiety, and depression ($p > 0.05$) [Table 4]. The results of this part of the study were obtained among all nurses without differentiation into specialized and non-specialized sections.

5. Relation between the Variables of Stress, Anxiety, and Depression

The Pearson correlation test revealed significant relationships among the variables of stress, anxiety, and depression. Specifically, the correlation between stress and anxiety was $r = 0.74$ ($p < 0.001$), between stress and depression was $r = 0.76$ ($p < 0.001$), and between anxiety and depression was $r = 0.70$ ($p < 0.001$). In other words, these three variables have a strong positive relation. Outcomes of this study section were obtained from all nurses, without dividing them into specialized or general groups.

Discussion

This study aimed to compare the stress, anxiety, and depression levels among nurses working in specialized and general wards. There was no significant difference in the average scores of stress, anxiety, and depression between specialized and general units. The results of the studies conducted by Kirkcaldy and Martin^[16] and Hebrani^[17] are similar to those of the present study. Available evidence suggests that the similarities among nurses working in different departments outweigh their differences. The differences between specialized and general units, such as caring for critically ill patients and working with advanced equipment and devices in specialized units, are not enough to cause significant differences between different wards in terms of the stress, anxiety, and depression levels of nurses. Therefore, the features distinguishing general units from specialized units cannot be the sole determinants of stress, anxiety, and depression among nurses. Many job-related

and personality factors are determinants of stress, anxiety, and depression among nurses when considered together. Moreover, these factors can vary in different regions.

In the present study, 78% of participating nurses exhibited at least one form of stress, anxiety, or depression. The prevalence of these conditions among nurses is significantly higher than in the general population. A meta-analysis study during the COVID-19 pandemic reported stress at 29.6%, anxiety at 31.9%, and depression at 33.7% among the general population. These figures are lower compared to those among nurses, indicating more challenging working conditions for nursing professionals.^[18] A valid justification for this claim is significant evidence of higher mortality rates among nurses, including suicide and stress-related diseases. Nursing is characterized by unique attributes not experienced in most other professions, including dealing with situations related to patient death and physical stressors such as long working hours and weekend shifts.^[16]

In this study, a significant relationship existed among the variables of stress, anxiety, and depression in nurses. The findings of this study indicated a strong correlation exceeding 70% among these variables. Stress can contribute

to the emergence of anxiety and depression.^[19] Serotonin is a hormone with various functions. It regulates mental balance, mood, and emotions, as well as enhancing self-confidence, boosting inner strength, and promoting a sense of satisfaction. Serotonin leads to individual relaxation and socially adaptive behaviors.^[20] Conversely, serotonin levels decrease when an individual experiences anxiety or depression. Chronic stress and prolonged cortisol secretion could contribute to reduced serotonin levels and lead to depressive symptoms.^[21]

In this study, a significant correlation was observed between demographic and occupational factors and the experience of stress, anxiety, and depression. Specifically, there was a significant association between gender and stress and anxiety. The higher prevalence of stress and anxiety in women can be attributed to biological factors such as hormonal variations and differences in brain structure.^[22] However, in the present study, no significant relationship was observed between gender and depression.

In the present study, nurses who interacted well with their colleagues faced lower levels of stress, anxiety, and depression in the workplace. Good interaction with colleagues is one of the factors used to measure job satisfaction.^[23] Among the specialized wards, the dialysis ward had the highest job satisfaction rate (62%), and the level of depression in this ward was lower than in other specialized wards. In this study, nurses who were satisfied with their jobs experienced lower levels of stress, anxiety, and depression. Ampofo, quoting Goswami (2015), asserted that the frustration and despair caused by an unpleasant job permeates an individual's life and makes workers feel depressed both on the job and at home. Job satisfaction serves as a source of motivation that sustains efforts in performing the required tasks for effective work.^[23] In the present study, nurses who smoked had higher depression scores. The results of the study by Ho *et al.*^[24] confirm this finding. Individuals who suffer from depression often have lower success rates in quitting smoking.

There was a significant relationship between the presence of disease in nurses and their scores of stress, anxiety, and

Table 2: Prevalence of Stress, Anxiety, and Depression among Nurses Based on Depression, Anxiety, Stress Scales-21 (DASS-21) Guidelines

Scale of Grading	Stress n (%)	Anxiety n (%)	Depression n (%)
Normal	99 (27.96) Grades: 0-14	190 (53.67) Grades: 0-7	164 (46.32) Grades: 0-9
Mild	76 (21.46) Grades: 15-18	61 (17.23) Grades: 8-9	43 (12.14) Grades: 10-13
Moderate	89 (25.14) Grades: 19-25	62 (17.51) Grades: 10-14	83 (23.44) Grades: 14-20
Severe	43 (12.14) Grades: 26-33	27 (7.62) Grades: 15-19	31 (8.75) Grades: 21-27
Extremely severe	47 (13.27) Grades: 34-42	14 (3.95) Grades: 20-42	33 (9.32) Grades: 28-42

Table 3: Comparative Analysis of Stress, Anxiety, and Depression Among Nurses of Specialized vs. General wards

Department		Stress		Anxiety		Depression	
		Mean (SD)	p*	Mean (SD)	p*	Mean (SD)	p*
Wards	Specialized	14.65 (9.37)	0.53	9.70 (8.32)	0.95	11.72 (9.55)	0.53
	General	15.05 (9.54)		9.72 (8.20)		12.25 (9.50)	
Specialized	ICU**	16.18 (9.78)	0.12	11.11 (8.58)	0.18	13.64 (9.03)	0.03
	CCU***	15.24 (9.90)		10.31 (9.49)		12.53(10.92)	
	Dialysis ward	12.53 (8.15)		7.69 (6.38)		8.98 (8.04)	
General	Pediatrics ward	15.78 (10.01)	0.51	10.18 (9.06)	0.64	12.13 (8.72)	0.68
	Internal medicine ward	14.84 (7.89)		8.62 (6.08)		11.07 (8.12)	
	Male surgery Ward	13.07 (9.83)		8.54 (8.03)		11.71 (11.52)	
	Female surgery ward	14.86 (10.91)		10.14 (9.10)		12.62 (8.80)	
	Infectious diseases ward	16.48 (9.02)		11 (8.50)		13.65 (10.30)	

*The significance level is 0.05. **ICU: Intensive care unit; ***CCU: Coronary care unit

Table 4: Effect of demographic and occupational factors on stress, anxiety, and depression levels

Factor		Stress		Anxiety		Depression	
		Mean (SD)	<i>p</i> *	Mean (SD)	<i>p</i> *	Mean (SD)	<i>p</i> *
Gender	Male	13.43 (9.24)	0.02	7.54 (7.17)	0.01	13.46 (11.69)	0.54
	Female	15.61 (9.60)		10.47 (8.24)		11.83 (8.62)	
Age (year)	20-30	15.53 (9.35)	0.53	9.38 (8.13)	0.90	12.59 (9.71)	0.18
	31-40	14.26 (9.88)		9.85 (8.17)		11.48 (9.39)	
	41-50	14.52 (8.98)		10.35 (8.79)		10.81 (9.18)	
	51-60	14 (9.22)		9.08 (9.08)		16.67 (8.60)	
Good interaction with colleagues	Has	14.48 (9.33)	0.003	9.35 (8.08)	0.003	11.64 (9.31)	0.006
	Does not have	20.58 (9.66)		14.67 (8.93)		17.67 (10.64)	
Smoking	Yes	18.19 (11.08)	0.15	12.38 (8.57)	0.11	17.52 (12.55)	0.03
	No	14.69 (9.33)		9.54 (8.20)		11.70 (9.20)	
Chronic disease	Has	17.61 (9.61)	0.003	11.90 (8.66)	0.003	14.51 (10.09)	0.008
	Does not have	14.07 (9.28)		9.04 (8.005)		11.29 (9.21)	
Job satisfaction	Yes	12.73 (8.86)	0.002	8.51 (7.97)	0.002	9.60 (8.65)	0.001
	No	17.25 (9.55)		11.01 (8.34)		14.69 (9.71)	
Work experience (year)	3-0	14.77 (9.67)	0.98	9.88 (8.96)	0.30	12.60 (9.86)	0.93
	4-6	15.04 (9.06)		8.33 (7.41)		11.80 (9.93)	
	7-10	14.37 (8.97)		10.37 (8.25)		11.47 (8.30)	
	≥ 10	15.02 (9.80)		10.31 (8.27)		12.03 (9.41)	
Shift status	Fixed	14.69 (8.71)	0.96	10.48 (7.59)	0.16	12.24 (9.10)	0.61
	Rotating	14.95 (9.67)		9.51 (8.40)		11.99 (9.63)	

*The significance level is 0.05

depression. Nurses who had one or more illnesses (such as diabetes, hypertension, thyroid-related diseases, respiratory, digestive, or kidney-related diseases) had higher levels of stress, anxiety, and depression compared to those without illnesses; they also had poorer mental health. Physical illnesses can exacerbate anxiety and depression; mood disorders can also exacerbate physical illnesses.^[25] Inflammatory reactions from acute or chronic physical conditions can affect the availability of neurotransmitter precursor amino acids, thus impacting mental health.^[26]

The study's findings emphasize the high prevalence of stress, anxiety, and depression among nurses in both specialized and general units, highlighting the need for targeted interventions and support mechanisms. Job satisfaction, positive workplace interactions, and physical health are crucial factors in promoting nurses' mental well-being and overall health. Addressing these issues is essential to ensure a healthier, more resilient nursing workforce.

The limitation of this study lies in individual and personality trait differences in responding to questionnaires, which were beyond the researcher's control. In future research, it is advisable to explore the relationship between occupational variables and stress, anxiety, and depression among nurses. Additionally, more specialized tools should be designed and expanded for assessing stress, anxiety, and depression in nurses.

Conclusion

There was no significant difference in the levels of stress, anxiety, and depression among nurses across different

wards. It appears that working with critically ill patients and advanced equipment in specialized units is not a significant factor explaining significant differences in stress, anxiety, and depression levels among nurses across different wards. Moreover, the similarities among nurses working in different environments are more significant than their differences. Furthermore, the study results indicate a high prevalence of stress, anxiety, and depression in the nursing community, reflecting an unfavorable work environment that can be harmful to the mental health of nurses. Given the strong correlation between job satisfaction and stress, anxiety, and depression, managers should improve job satisfaction as it can contribute to better mental health among employees.

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Conflicts of interest

Nothing to declare.

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