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Original Research

PREVALENCE AND FACTORS ASSOCIATED WITH MENTAL HEALTH DISORDERS AMONG NURSES IN ACUTE CARE SETTINGS IN RIYADH: A CROSS-SECTIONAL STUDY

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ABSTRACT

Introduction: Nurses working in acute healthcare settings often experience mental health disorders while caring for palliative care and critically ill patients. As the backbone of the healthcare system, their mental well-being warrants greater attention. This study aims to assess the prevalence of mental health disorders and associated factors among nurses working in selected acute care settings in Riyadh, Saudi Arabia.

Method: This cross-sectional study examined the mental health of nurses employed in acute healthcare settings in Riyadh, Saudi Arabia. A total of 485 participants were recruited using simple random sampling and proportionate allocation methods. Data were collected using an online questionnaire based on the Depression, Anxiety, and Stress Scale - 21 Items. Data were analyzed using descriptive statistics and inferential tests, including t-tests and a one-way analysis of variance, to determine associations between mental health outcomes and participant characteristics.

Results: The findings indicate that 59.8% of nurses reported normal depression levels, 28.2% experienced mild to moderate depression, and 12% suffered from severe or very severe depression. Regarding anxiety, 51.5% reported normal levels, 24.1% experienced mild to moderate anxiety, and 24.3% reported severe or extreme anxiety. Concerning stress, 73.4% of respondents indicated normal stress levels, 18.1% experienced mild to moderate stress, and 8.5% reported severe or extremely severe stress. Younger nurses and those with lower work experience exhibited significantly higher levels of stress, anxiety, and depression compared to their more experienced counterparts.

Conclusions: The study findings suggest that while most respondents experienced average levels of stress, anxiety, and depression, more than one-fourth of nurses reported severe to very severe levels of anxiety and depression, with 12% experiencing severe or very severe depression. These results highlight the urgent need for targeted mental health interventions, improved workplace policies, and supportive environments for nurses working in acute healthcare settings, which may enhance their mental well-being, job satisfaction, and quality of patient care.

Keyword: acute care settings; factors; mental health disorders; nurses; prevalence

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1. INTRODUCTION

Mental health is a critical global concern. According to estimates from the Centers for Disease Control and Prevention, one in five individuals' experiences at least one mental health disorder annually, making mental health treatment and awareness a public health priority. Mental health challenges are common among healthcare workers due to excessive work-related stress and burnout (Halms et al.,2023). However, the mental health of healthcare workers receives significant attention primarily during public health emergencies, given their heightened vulnerability to challenges in such crises (Cabarkapa King & Ng,2020; Søvold et al.,2021; Hao et al.,2021; Saragih et al.,2021). Studies following the COVID-19 pandemic have highlighted the prevalence of mental health conditions among healthcare workers (Lagunes Cordoba ,2021; Hill et al.,2022). Nurses are the mainstay of the health service, and their mental health deserves more attention (Zhang ,2023).

Nursing is an emotionally demanding profession and their mental health deserves attention. However, nurses in acute teaching hospital settings reported Symptoms that could potentially indicate a mental health issue (Perry et al.,2015). Nurses are the foundation of the healthcare system, and promoting their mental well-being requires greater attention and is cost-effective from the employers' perspective (Noben et al.,2015). A systematic review of 36 studies revealed that the rate of depression among registered nurses is nearly twice as high as that of individuals in other professions. Depression has been linked to short-term disability, increased job absenteeism, reduced productivity, and presenteeism (Alharbi, Jackson & Usher,2019). Job-related stress negatively impacts nurses' health and overall quality of life, which in turn affects their professional performance (Chana, Kennedy, & Chessell,2015). The prevalence of futile care can result in moral distress, guilt, suffering, and job dissatisfaction, ultimately leading to higher turnover rates among nurses (Brandford & Reed,2016). The literature underscores that nurses are at a heightened risk of burnout, anxiety, and depressive disorders, which can impair their productivity, further reinforcing the importance of prioritizing their mental health (Babapour et al.,2022; Borhani, Mohammadi & Roshanzadeh ,2015).

Nurses in acute care settings frequently encounter critical situations and end-of-life care challenges. The most prevalent issues that nurses face include a high influx of patients into intensive care units, increased workload, disruptions in family life due to demanding work schedules, and psychosocial stress resulting from prolonged shifts and extended working hours (Mahran, Taher, & Saleh,2017). Nurses working in acute healthcare settings often experience mental health challenges while caring for palliative care (Chuah et al.,2017) and critically ill patients (Karagozoglu et al.,2017). Nurses working in general hospitals, particularly those providing direct patient care in emergency departments, frequently interact with individuals experiencing mental health disorders (Derblom et al.,2022; Holmberg, Hammarbäck, & Andersson,2020; Perry, Lawrence, & Henderson,2020).

Nurses constitute the largest workforce in the healthcare sector and have attracted increasing attention from researchers and practitioners. A systematic review (Xiao, Cooke, & Chen,2022) of 91 studies identified multiple factors influencing the well-being of nurses, who represent the largest professional group providing patient care in the healthcare industry. A study reported that nurses' subjective well-being is relatively poor (Oates,2018), and a meta-analysis of 46 studies confirmed that nurses frequently experience burnout and reduced well-being (Hall et al.,2016).

There is a notable connection between the psychological impact of relational job features and work-related outcomes, particularly in relation to nurses' occupational well-being (Santos, Chambel, & Castanheira,2020). Factors such as leadership, organizational commitment, and workplace culture can significantly influence nurses' psychological well-being (Almeida, Figueiredo, & Lucas,2024). Implementing comprehensive workplace health initiatives can enhance healthcare workers' health and well-being while also promoting positive behavioral changes (Brand et al.,2017). The existing literature indicates that work-related characteristics, alongside socio-demographic factors, play a critical role in shaping the mental well-being of nurses.

The literature indicates that acute healthcare settings present various challenges that can impact nurses' well-being, and multiple studies have emphasized the critical importance

of nurses' mental health. Several factors inherent in this profession, such as exposure to human suffering, excessive workload, and lack of professional recognition, can significantly impact nurses' mental well-being. Nurses often neglect or deprioritize their own mental health concerns. Although numerous studies have explored this topic, the majority of the literature focuses on the mental health of healthcare workers in general rather than specifically addressing nurses. Thus, there is a pressing need to examine the mental health of nurses working in acute care settings.

Direct observations and focus groups conducted within the workplace setting revealed workforce-related issues and concerns among nurses. Additionally, a staff experience survey highlighted significant levels of burnout and emotional distress among nurses. However, no prior research has systematically assessed mental health problems among nurses in this particular setting. Therefore, understanding the mental health challenges faced by nurses in this environment is essential to developing targeted interventions tailored to their specific needs. Given the urgent need to address mental health concerns among nurses in acute care settings, this study was designed to assess the mental health status of nurses working in acute healthcare environments. This study aims to assess the prevalence of mental disorders and associated factors among nurses working in selected acute care settings in Riyadh. This study objectives to assess the prevalence of mental disorders among nurses working in selected acute care settings and identify the sociodemographic predictors of mental disorders among nurses.

2. MATERIALS AND METHODS

2.1 Design

This cross-sectional study examines the mental health of nurses employed in acute healthcare settings in Riyadh. The target population comprised nurses working in these settings.

2.2 Population and sampling

Participants were recruited from acute healthcare settings in Riyadh, Saudi Arabia. Acute care settings provide medical treatment for individuals with short-term, severe conditions requiring immediate intervention. These settings include emergency departments, intensive care units, coronary care units, cardiology departments, neonatal intensive care units, and other general medical areas where patients may experience acute deterioration and require stabilization.

The study sample comprised 485 nurses working in selected acute healthcare settings in Riyadh. According to (7 Hill et al.,2022), in A Systematic Review and Meta-Analysis published in the Journal of Advanced Nursing (Volume 78, Issue 6, pp. 1551-1573), the prevalence of mental health conditions among healthcare workers is distributed as follows: post-traumatic stress disorder (PTSD) (21.7%), anxiety disorder (16.1%), major depressive disorder (13.4%), and acute stress disorder (7.4%). Based on these four mental health conditions, the Two-Sided Confidence Interval for One Proportion method was employed. The sample size was determined by calculating the independent prevalence of PTSD using PASS 11.0 software, ensuring that the estimated sample size also captured the other three conditions. Thus, an optimal sample size of 485 nurses was determined to achieve an 80% confidence interval with a margin of error of 0.05, assuming a PTSD prevalence of 21.7%.

Study participants were selected using a simple random sampling technique, and a proportionate allocation method was applied to ensure representation across all selected settings. Data were collected using an online questionnaire. All nurses working in acute healthcare settings with more than one year of professional experience and who were willing to participate in the study were included. Nurses not directly involved in patient care and those working in administrative positions were excluded from the study.

2.3 Instrument

The study tool consists of two sections. Section A collects sociodemographic and work-related characteristics of the participants. Independent variables include sociodemographic factors such as age, gender, marital status, socioeconomic status, monthly income, number of family dependents, feelings of insecurity, support available from family, involvement in social activities, engagement in spiritual or religious activities, history of chronic medical illness, previous history of mental illness, family history of mental illness, and current smoking status.

Work-related characteristics include position or job title, years of professional experience, working hours, shift schedule (day,

night, or rotating), shift duration, perceived job significance, level of autonomy at work, support from colleagues, supervisor support, availability of constructive feedback at the workplace, presence of mental health support strategies, and awareness of available mental health initiatives. Section B includes a 21-item self-report instrument, the Depression, Anxiety, and Stress Scale - 21 Items (DASS-21). The DASS-21 is a shortened version of the original 42-item DASS and is designed to measure three related negative emotional states: depression, anxiety, and stress. Preliminary research has demonstrated that the DASS-21 possesses adequate convergent and discriminant validity (Lovibond & Lovibond, 1996). The instrument consists of seven items per subscale, assessing depression, anxiety, and stress (Antony et al.,1998).

Studies have confirmed that DASS-21 is a reliable and valid instrument for measuring depression, anxiety, and stress in both clinical and non-clinical populations. Furthermore, the DASS-21 has advantages over the full 42-item version, including fewer items, a clearer factor structure, and lower inter-factor correlations.

2.4 Procedure

The participants were selected from acute healthcare facilities in Riyadh. Researchers employed a random sampling technique to ensure an unbiased selection process and to collect representative data for the study. The questionnaire was sent to 600 participants from the ten selected centers. Data were collected over 3 months through an online questionnaire administered between February 2024 and April 2024 from 585 participants.

2.5 Statistical Analyses

Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize participant characteristics. The levels of stress, depression, and anxiety were classified based on DASS-21 cut-off scores: normal (0–9 for depression, 0–7 for anxiety, 0–14 for stress), mild (10–13 for depression, 8–9 for anxiety, 15–18 for stress), moderate (14–20 for depression, 10–14 for anxiety, 19–25 for stress), severe (21–27 for depression, 15–19 for anxiety, 26–33 for stress), and highly severe (≥28 for depression, ≥20 for anxiety, ≥34 for stress). Inferential statistical methods were applied to analyze the relationships between participant characteristics and their mental health outcomes.

Independent samples t-tests were conducted to compare mean stress, depression, and anxiety scores between two groups. A one-way analysis of variance (ANOVA) was used to compare mean scores across multiple groups. Post hoc tests were conducted for significant ANOVA results to determine specific group differences. A significance level of $p < 0.05$ was set for hypothesis testing. All statistical analyses were performed using IBM SPSS software, version 28.0 (Armonk, NY: IBM Corp).

2.6 Ethical Clearance

Ethical approval was obtained from the [King Fahad Medical City] Institutional Review Board (Approval No.: [23-658] before initiating the study. Participants who provided verbal consent were enrolled and asked to complete the required surveys. Participation was entirely voluntary, and participants retained the right to decline to answer any or all survey questions. The researcher implemented all necessary measures to ensure participant confidentiality and data protection.

3 RESULTS

Table 1 presents the demographic characteristics of the study participants. Most participants (68.9%) were aged between 18 and 40, while 17.7% were between 41 and 50 years old. Most participants were female (86.4%). Regarding marital status, more than half of the participants were married (56.5%), while 41.0% were single. In terms of socioeconomic status, the majority (89.5%) identified as belonging to the middle socioeconomic category. With respect to income, most participants (65.4%) earned a monthly income ranging from 5,000 to 10,000 SAR, while 24.3% earned more than 10,000 SAR, and 10.3% reported earning less than 5,000 SAR. In terms of financial dependents, 39.6% of the participants supported between three and five dependents, 38.6% had fewer than three dependents, and 21.9% supported more than five dependents. Additionally, 61.6% of the participants reported not feeling insecure. Social engagement was notable, with 65.4% of participants being involved in social activities, while 59.6% participated in spiritual or religious activities. Regarding health-related factors, 19.6% of participants had a history of chronic medical illness, while only 3.5% reported a previous history of mental illness. Additionally,

Table 1. Demographic Characteristics of Participants (n = 485)

Variables	n (%)
Age (years)	
18–40 years	334 (68.9%)
41–50 years	86 (17.7%)
51-60 years	65 (13.4%)
Gender	
Male	66 (13.6%)
Female	419 (86.4%)
Marital Status	
Single	199 (41.0%)
Married	274 (56.5%)
Divorced	12 (2.5%)
Socioeconomic status	
Low	46 (9.5%)
Middle	434 (89.5%)
High	5 (1.0%)
Monthly Income	
< 5000 SAR	50 (10.3%)
5000- 10000 SAR	317 (65.4%)
> 10,000 SAR	118 (24.3%)
Financially dependent persons	
< 3	187 (38.6%)
3 - 5	192 (39.6%)
> 5	106 (21.9%)
Feeling insecurity	
Yes	186 (38.4%)
No	299 (61.6%)
Involvement in social activities	
Yes	280 (65.4%)
No	148 (34.6%)
Involvement in spiritual/religious activities	
Yes	255 (59.6%)
No	173 (40.4%)
History of chronic medical illness	
Yes	84 (19.6%)
No	344 (80.4%)
Previous history of mental illness	
Yes	15 (3.5%)
No	413 (96.5%)
Family history of mental illness	
Yes	37 (8.6%)
No	391 (91.4%)
smoker	
Yes	29 (6.8%)
No	399 (93.2%)

8.6% indicated a family history of mental illness. Smoking was uncommon, with only 6.8% of participants identifying as smokers.

Table 2 presents the professional characteristics of the study participants. Regarding work experience, nearly half of the participants (48.0%) had more than ten years of experience, followed by 26.4% with six to ten years, 14.0% with two to five years, and 11.5% with less than two years. Most participants (54.6%) worked more than 45 hours per week. Additionally, the majority (72.2%) worked in shifts. Among the 350 participants who worked in shifts, 74.2% had shifts longer than eight hours, while 25.8% worked eight-hour shifts. Most shift workers (62.7%) had rotating shifts, while 31.5% worked day shifts, and only 5.8% worked night shifts. A large majority of participants (90.7%) recognized the importance of their job, and 71.8% reported having

Table 2. Professional Characteristics of Participants (n = 485)

Variables	n (%)
Experience	
2-5 years	68 (14.0%)
6-10 years	128 (26.4%)
Less than two years	56 (11.5%)
More than ten years	233 (48.0%)
Number of hours worked per week	
45 Hours	220 (45.4%)
> 45 hours	265 (54.6%)
Working in shifts	
Yes	350 (72.2%)
No	135 (27.8%)
Duration of shifts (n=350)	
8 hours	90 (25.8%)
> 8 hours	260 (74.2%)
Timing of shifts (n=350)	
Day shift	110 (31.5%)
Night shift	20 (5.8%)
Rotating shift	219 (62.7%)
Realizing the importance of the job	
Yes	440 (90.7%)
No	45 (9.3%)
Having Autonomy in the workplace	
Yes	348 (71.8%)
No	137 (28.2%)
Having Support from colleagues at work	
Yes	438 (90.3%)
No	47 (9.7%)
Having Support from the supervisor	
Yes	404 (83.3%)
No	81 (16.7%)
Receiving constructive feedback in the workplace	
Yes	392 (80.8%)
No	93 (19.2%)
Awareness of workplace strategies to address mental health problems.	
Yes	369 (76.1%)
No	116 (23.9%)
Adequate strategies to address mental health at the workplace	
Yes	279 (57.5%)
No	104 (21.4%)
Available but not adequate	102 (21.0%)

autonomy in the workplace. Support systems appeared strong, with 90.3% receiving support from colleagues and 83.3% receiving support from their supervisors. Similarly, 80.8% reported receiving constructive feedback in their workplace. Awareness of workplace strategies to address mental health problems was noted among 76.1% of participants, while 23.9% were unaware of such strategies. Despite this, only 57.5% considered the available strategies adequate, whereas 21.4% found them inadequate, and 21.0% indicated that strategies were available but not sufficient.

Table 3 presents the levels of stress, depression, and anxiety among study participants based on the DASS-21 scale used in the study. The results indicate that the majority of participants (73.4%) reported normal stress levels, while 11.5% experienced mild stress. Regarding depression levels, more than half of the participants (59.8%) reported normal levels, while 11.3% experienced mild depression and 16.9% reported moderate depression. With respect to anxiety levels, 51.5% of participants had normal levels. However, a significant proportion reported varying degrees of anxiety, with 7.8% experiencing mild anxiety, 16.3% reporting moderate anxiety, 9.7% experiencing severe anxiety, and 14.6% reporting extremely severe anxiety.

Table 3. Assessment of the extent of mental disorders among study participants (n = 485)

Items	N(%)
Stress	
Normal (0 - 14)	356(73.4%)
Mild (15 - 18)	56(11.5%)
Moderate (19 - 25)	32(6.6%)
Severe (26 - 33)	31(6.4%)
Extremely Severe (34+)	10(2.1%)
Depression	
Normal (0 - 9)	290(59.8%)
Mild (10 - 13)	55(11.3%)
Moderate (14 - 20)	82(16.9%)
Severe (21 - 27)	25(5.2%)
Extremely Severe (28+)	33(6.8%)
Anxiety	
Normal (0 - 7)	250(51.5%)
Mild (8 - 9)	38(7.8%)
Moderate (10 - 14)	79(16.3%)
Severe (15 - 19)	47(9.7%)
Extremely Severe (20+)	71(14.6%)

Table 4 presents the relationship between the demographic characteristics of nurses working in acute care and the extent of their mental disorders. The findings indicate that certain demographic factors, including gender, number of financial dependents, involvement in social or religious activities, presence of chronic medical illness, previous or family history of mental illness, and smoking status, did not show statistically significant relationships with stress, depression, or anxiety ($p > 0.05$). However, several other characteristics demonstrated statistically significant differences in relation to the extent of mental disorders. The results show that younger nurses, particularly those aged 18–40 years, reported significantly higher levels of stress (10.81 ± 9.14, $p = 0.019$), depression (9.76 ± 9.9, $p = 0.008$), and anxiety (10.17 ± 9.14, $p = 0.001$) compared to older age groups. Their mean scores for these mental health conditions approached the mild range, suggesting a greater vulnerability among younger nurses. Regarding socioeconomic status, nurses in the high socioeconomic group exhibited significantly higher levels of stress (22.4 ± 11.7, $p = 0.003$), depression (20 ± 13.56, $p = 0.008$), and anxiety (24 ± 12.08, $p < 0.001$), with scores falling into the severe to extremely severe range. Feelings of insecurity were also significantly associated with mental health outcomes, as nurses who reported feeling insecure experienced markedly higher levels of stress (13.95 ± 9.54, $p < 0.001$), depression (13.23 ± 10.49, $p < 0.001$), and anxiety (12.74 ± 9.59, $p < 0.001$) compared to those who did not report insecurity. Additionally, marital status showed a significant association with depression, as single nurses reported higher levels of depression (10.21 ± 10.57, $p = 0.011$) compared to married or divorced participants. Income also exhibited a significant relationship with stress levels, with nurses earning more than 10,000 SAR reporting higher stress (11.9 ± 10.12, $p = 0.039$) compared to those earning less.

Table 5 presents the relationship between the professional characteristics of nurses working in acute care and the extent of their mental disorders. The results indicate that several professional characteristics of the study participants did not show statistically significant associations with stress, depression, or anxiety ($p > 0.05$). However, other professional characteristics demonstrated statistically significant differences. Nurses with less professional experience, particularly those with two to five years of experience, reported significantly higher levels of stress (13.12 ± 9.45, $p = 0.001$), depression (12.21 ± 10.8, $p = 0.001$), and anxiety (12.85 ± 10.08, $p < 0.001$) compared to their more experienced counterparts. Nurses working night shifts exhibited significantly higher levels of anxiety (13.36 ± 7.42, $p = 0.033$), stress (13.07 ± 6.66, $p = 0.021$), and depression (11.93 ± 8.53, $p = 0.018$) compared to those working day or rotating shifts.

Table 4. Assessment of the relationship between demographic characteristics of nurses working in acute care and the extent of their mental disorders (n = 485)

Items	Stress		Depression		Anxiety	
	(Mean±SD)	P-value	(Mean±SD)	P-value	(Mean±SD)	P-value
Age						
18–40 years(n=334)	10.81±9.14	**0.019***	9.76±9.9	**0.008****	10.17±9.14	**0.001****
41–50 years(n=86)	8.84±9.49		7.65±9.32		7.47±8.45	
51-60 years(n=65)	7.82±7.41		6.15±7.08		6.52±6.85	
Gender						
Male(n=66)	9.85±9.38	0.840	8.42±10.24	0.662	8.58±9.79	0.538
Female(n=419)	10.09±9.01		8.98±9.45		9.3±8.71	
Marital Status						
Single(n=199)	10.98±9.34	0.076	10.21±10.57	**0.011***	10.17±9.2	0.104
Married(n=274)	9.55±8.87		8.18±8.74		8.6±8.62	
Divorced(n=12)	6.17±6.58		3.67±5.38		6.83±7	
Socioeconomic status						
Low(n=46)	11.78±9.66	**0.003****	11±9.96	**0.008****	11.52±9.9	**<0.001*****
Middle(n=434)	9.73±8.86		8.55±9.38		8.78±8.53	
High(n=5)	22.4±11.7		20±13.56		24±12.08	
Monthly Income						
< 5000 SAR(n=50)	9.52±9.43	**0.039***	9.16±9.43	0.091	9.64±8.46	0.551
5000- 10000 SAR(n=317)	9.46±8.49		8.26±8.97		8.88±8.4	
> 10,000 SAR(n=118)	11.9±10.12		10.51±10.9		9.86±10.14	
Financially dependent persons						
< 3(n=187)	9.52±9.22	0.405	8.48±10.02	0.191	8.57±8.64	0.140
3 - 5(n=192)	10.06±9		8.49±9.03		9.01±8.77	
> 5(n=106)	11±8.86		10.4±9.56		10.66±9.29	
Feeling insecurity						
Yes(n=186)	13.95±9.54	**<0.001*****	13.23±10.49	**<0.001*****	12.74±9.59	**<0.001*****
No(n=299)	7.64±7.83		6.21±7.8		7±7.58	
Involvement in social activities						
Yes(n=280)	10.17±8.91	0.981	8.71±9.06	0.439	9.3±8.67	0.896
No(n=148)	10.15±9.78		9.47±10.88		9.42±9.46	
Involvement in spiritual/religious activities						
Yes(n=255)	9.98±9.19	0.611	8.78±9.62	0.628	9.11±8.95	0.509
No(n=173)	10.44±9.26		9.25±9.89		9.69±8.94	
History of chronic medical illness						
Yes(n=84)	10.81±9.91	0.474	9.93±10.44	0.315	9.83±8.98	0.574
No(n=344)	10.01±9.04		8.74±9.54		9.22±8.94	
Previous history of mental illness						
Yes(n=15)	10.53±8.26	0.874	11.33±6.83	0.339	12.27±7.4	0.197
No(n=413)	10.15±9.25		8.89±9.81		9.23±8.98	
Family history of mental illness						
Yes(n=37)	8.27±7.03	0.191	7.19±6.74	0.244	8.43±6.67	0.518
No(n=391)	10.34±9.38		9.14±9.95		9.43±9.13	
Smoker						
Yes(n=29)	10.62±9.34	0.782	9.52±8.81	0.755	10.34±9.91	0.532
No(n=399)	10.13±9.21		8.93±9.79		9.27±8.87	

**** P value < 0.05, ** P value < 0.01 , *** P value <0.001***

Additionally, nurses who did not perceive their job as important had significantly higher levels of stress (16.76 ± 11.09, p < 0.001), depression (16.09 ± 12.17, p < 0.001), and anxiety (13.29 ± 9.68, p = 0.001) compared to those who considered their work meaningful. Nurses who lacked awareness of strategies to address mental health disorders exhibited higher stress levels (11.93 ± 9.14, p = 0.010) and anxiety (10.79 ± 8.89, p = 0.026).

Furthermore, nurses who reported a lack of autonomy at work experienced significantly higher levels of stress (13.08 ± 9.88, p < 0.001), depression (12.32 ± 10.62, p < 0.001), and anxiety (11.39 ± 9.22, p = 0.001). Nurses who did not receive support from colleagues reported substantially higher levels of stress (16.3 ± 10.79, p < 0.001), depression (17.06 ± 11.31, p < 0.001), and anxiety (13.28 ± 9.27, p = 0.001) compared to those who did receive support. Similarly, the absence of supervisor support was associated with significantly higher levels of stress (14.52 ± 10.99, p < 0.001), depression (13.53 ± 11.62, p < 0.001), and anxiety (12.37 ± 9.78, p < 0.001). Finally, nurses who received constructive feedback at work reported lower levels of stress (9.16 ± 8.43, p < 0.001), depression (7.89 ± 8.75, p < 0.001), and anxiety

Table 5. Assessment of the relationship between the professional characteristics of nurses working in acute care and the extent of their mental disorders (n = 485)

Items	Stress (Mean±SD)	Depression P-value	Anxiety (Mean±SD)	Items	Stress (Mean±SD)	Depression P-value
Experience						
Less than two years(n=56)	10.54±8.73	**0.001****	9.43±9.58	**0.001****	10.39±8.66	**<0.001*****
2-5 years(n=68)	13.12±9.45		12.21±10.8		12.85±10.08	
6-10 years(n=128)	10.98±9.44		9.89±10.26		9.86±8.79	
More than ten years(n=233)	8.54±8.53		7.27±8.41		7.48±8.17	
Number of hours worked per week						
45 Hours(n=220)	10.46±9.59	0.369	9.27±9.93	0.438	9.65±9.52	0.303
> 45 hours(n=265)	9.72±8.59		8.6±9.23		8.82±8.26	
Working in shifts						
Yes(n=350)	10.03±8.79	0.927	9.06±9.4	0.554	9.5±8.73	0.234
No(n=135)	10.12±9.74		8.49±9.94		8.43±9.16	
Duration of shifts (n=350)						
8 hours(n=90)	9.63±10	0.542	8.4±10.34	0.495	8.62±9.72	0.399
> 8 hours(n=260)	10.21±8.71		9.08±9.27		9.4±8.54	
Timing of shifts (n=350)						
Day shift(n=110)	10.31±9.76	0.147	8.76±10.1	0.225	8.65±9.14	**0.033***
Night shift(n=20)	13.07±6.66		11.93±8.53		13.36±7.42	
Rotating shift(n=219)	9.65±8.84		8.7±9.33		9.09±8.75	
Realizing the importance of the job						
Yes(n=440)	9.37±8.54	**<0.001*****	8.17±8.94	**<0.001*****	8.78±8.67	**0.001****
No(n=45)	16.76±11.09		16.09±12.17		13.29±9.68	
Having Autonomy in the workplace						
Yes(n=348)	8.87±8.43	**<0.001*****	7.56±8.75	**<0.001*****	8.34±8.56	**0.001****
No(n=137)	13.08±9.88		12.32±10.62		11.39±9.22	
Having Support from colleagues at work						
Yes(n=438)	9.39±8.59	**<0.001*****	8.03±8.92	**<0.001*****	8.76±8.71	**0.001****
No(n=47)	16.3±10.79		17.06±11.31		13.28±9.27	
Having Support from the supervisor						
Yes(n=404)	9.16±8.35	**<0.001*****	7.98±8.8	**<0.001*****	8.56±8.53	**<0.001*****
No(n=81)	14.52±10.99		13.53±11.62		12.37±9.78	
Receiving constructive feedback in the workplace						
Yes(n=392)	9.16±8.43	**<0.001*****	7.89±8.75	**<0.001*****	8.66±8.65	**0.006****
No(n=93)	13.85±10.53		13.18±11.46		11.46±9.39	
Awareness of workplace strategies to address mental health problems.						
Yes(n=369)	9.47±8.95	**0.010***	8.47±9.64	0.076	8.7±8.79	**0.026***
No(n=116)	11.93±9.14		10.28±9.14		10.79±8.89	

**** P value < 0.05, ** P value < 0.01 , *** P value <0.001***

(8.66 ± 8.65, p = 0.006) compared to those who did not receive feedback.

4 DISCUSSION

In our study, most nurses reported normal levels of depression, anxiety, and stress. However, 24.4% of nurses exhibited severe or extremely severe anxiety, 12% struggled with severe or extremely severe depression, and 8.1% experienced severe or extremely severe stress levels. The findings also confirmed that study objectives were met by identifying the prevalence of mental health disorders and their association with certain sociodemographic and professional factors among nurses in acute care settings. Previous literature has highlighted the prevalence of mental health disorders, including anxiety, depression, post-traumatic stress disorder, psychological distress, sleep disturbances, and burnout among acute healthcare personnel (Uphoff et al.,2021), particularly among nurses and physicians (Brulin et al.,2023).

Our study found that a substantial proportion of nurses experienced mild to severe levels of depression, anxiety, and stress. Consistent with our findings, a previous study (Shajan & Nisha,2019) indicated that 35.8% of nurses suffered from depression. Similarly, (Ghods et al.,2017) reported that 17.8% of nurses had low anxiety, 71.18% exhibited moderate or higher-than-moderate anxiety, and

11.02% experienced relatively severe or severe anxiety. Regarding stress, a previous study (Vernekar, & Shah,2018) reported that 59.3% of nurses experienced moderate stress, 36.8% experienced severe stress, and 2.4% experienced very severe stress. Additionally, (Faraji et al.,2019) found that nurses frequently reported "moderate-to-high" levels of occupational stress. These comparisons reinforce that mental health disorders among nurses in acute care settings are a significant and widespread issue, emphasizing the need for targeted interventions.

Regarding the association between depression, anxiety, and stress with participants' demographic and professional characteristics, factors such as gender, number of financial dependents, involvement in social or religious activities, presence of chronic medical illness, previous or family history of mental illness, and smoking did not show statistically significant relationships with stress, depression, or anxiety ($p > 0.05$). However, other characteristics, including age, marital status, socioeconomic status, feelings of insecurity, and income, demonstrated statistically significant differences in relation to the extent of mental disorders. In our study, nurses who were married exhibited lower levels of anxiety than single individuals, suggesting that marital relationships may serve as a protective factor against anxiety. In alignment with our findings, a previous study reported a stronger correlation between burnout and depression in older nurses and those with critical care experience, although the association did not reach statistical significance (Chen & Meier,2021). Another study (Shajan, & Nisha,2019) found that depression levels were higher among younger and less experienced nurses. However, contradicting our findings, a study by (Ghods et al.,2017). reported no significant relationship between nurses' anxiety levels and marital status, work shifts, or assigned ward. This discrepancy may be due to differences in healthcare system structures, cultural contexts, or variations in measurement tools used across studies. Additionally, another study (Huang et al.,2018) indicated that factors such as age, gender, hospital level, and job tenure influenced the likelihood of psychiatric conditions, including treated anxiety, depression, and insomnia, among healthcare-seeking nurses. In contrast, another study (Ghods et al.,2017) found that situational anxiety was not significantly associated with overtime work, work experience, or age.

In our study, professional experience was significantly associated with depression, anxiety, and stress. Nurses with less professional experience, particularly those with two to five years of experience, reported significantly higher levels of stress, depression, and anxiety compared to their more experienced counterparts. However, (Faraji et al.,2019). found no statistically significant difference in mean occupational stress levels based on age, work experience, or academic degree.

Our study also found that work shifts influenced the severity of depression, anxiety, and stress, with nurses working night shifts experiencing higher levels of these conditions compared to those on other shifts. Supporting our findings, a meta-analysis of eight studies reported a statistically significant correlation between nurses' depression and night shift work (Okechukwu et al.,2023). Another study also found a strong association between work schedules and depression, with increased odds ratios for rapidly rotating and undefined rotating shift workers and decreased odds ratios for slow-rotating shift workers (Hall, Franche, & Koehoorn ,2018). Additionally, our study revealed that job-related factors, including autonomy, colleague support, and constructive feedback, were significantly associated with depression, anxiety, and stress. Nurses who received feedback reported lower levels of stress, depression, and anxiety. Feelings of insecurity and lack of support were strongly correlated with higher stress levels, highlighting the importance of emotional security and workplace support in mitigating stress.

Previous literature has identified several primary factors associated with stress, anxiety, and depression, including being female, having a compromised family and social network, lacking autonomy at work, experiencing hostile relationships with coworkers, feeling professionally unrecognized and dissatisfied, and experiencing feelings of overwhelm and insecurity (Assis et al.,2022). Another study by (Misganaw et al.,2024) also reported that being female, working in the emergency department, experiencing conflicts with coworkers, having limited social support, and working night shifts were key characteristics associated with anxiety.

Additionally, nurses who were unaware of strategies to address mental health problems reported higher stress and anxiety levels compared to those who were aware of such strategies. Supporting our study findings, previous research has shown that a strong sense

of coherence is associated with improved mental health, better workplace functioning, and adaptive coping mechanisms, thereby serving as a protective factor in a stressful work environment (Betke, Basińska, & Andruszkiewicz,2021).

Overall, our study findings suggest that a combination of psychological, socioeconomic, and demographic factors contribute to depression, anxiety, and stress levels. While sociodemographic factors such as gender, involvement in social or religious activities, history of chronic medical illness, previous or family history of mental illness, and smoking did not show statistically significant relationships with stress, depression, or anxiety, other factors—including age, marital status, socioeconomic status, and feelings of insecurity—demonstrated statistically significant associations with the extent of mental disorders. Additionally, professional characteristics such as work experience, shift schedules, job valuation, workplace autonomy, colleague support, supervisor support, and constructive feedback in the workplace showed significant relationships with stress, depression, or anxiety. Nurses who were unaware of strategies to address mental health disorders also exhibited higher stress and anxiety levels.These findings highlight the importance of fostering a positive workplace environment and implementing well-being strategies to support nurses' mental health. A study by (La Torre et al.,2018). confirmed that certain sociodemographic characteristics are associated with work-related stress risk factors and emphasized the need to consider sociodemographic factors when managing work-related stress.

Although this study identifies correlations between variables, it does not establish causation. Further research is required to determine causal relationships. Additionally, potential biases may exist as the data is based on self-reported information. Despite these limitations, the study provides a comprehensive overview that may contribute to the development of management and prevention strategies for mental health disorders among nurses. Further research is necessary to fully understand the complex interactions between workplace, psychological, and demographic factors affecting nurses' mental health. A longitudinal follow-up of nurses could assess the extent to which sociodemographic, physiological, and occupational factors influence their mental well-being. These findings may contribute to the development of targeted mental health strategies aimed at improving the overall psychological well-being of nursing professionals.

5 CONCLUSSION

Understanding the factors contributing to depression, anxiety, and stress among nurses is crucial for developing interventions that enhance mental health and promote a positive work environment. Although the majority of respondents (73.4%) reported average levels of these conditions, a significant proportion experienced moderate to severe mental health disorders. The overall findings of this study emphasize the importance of addressing occupational and psychological factors to reduce the prevalence of depression, anxiety, and stress. These results highlight the urgent need for mental health services tailored to nurses working in acute healthcare settings. Establishing a supportive work environment, fostering teamwork, and implementing comprehensive mental well-being strategies are essential measures to mitigate stress, anxiety, and depression among nursing professionals working in acute healthcare settings.

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Conflict of Interest

The authors declare no conflict of interest, financial or otherwise.

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