

Risk Factors Associated with Psychological Health and Workload among Clinical Nurses

Abstract

Background: Nurses are exposed to various occupational stressors that can negatively impact their psychological health and well-being. This cross-sectional study aimed to identify individual and occupational risk factors associated with psychological health and workload among Iranian clinical nurses. **Materials and Methods:** A cross-sectional study was conducted on 131 nurses at a teaching and training hospital in Semnan, Iran, from April to October 2020. Data were collected through self-reported questionnaires assessing psychological health, mental health exhaustion, workload levels, and demographic information. Descriptive statistics and Spearman's correlation were used to analyze the data. **Results:** Approximately half of the participants reported moderate symptoms of psychological health problems. Higher rates of psychological health issues were observed in emergency, gynecology, and internal medicine units. Younger nurses and those with less experience were more likely to report negative feelings toward their job. Extended working hours (12 hours) were associated with increased workload. Significant positive correlations were found between sub-dimensions of psychological health and workload. **Conclusions:** The findings suggest that work environment stressors, such as extended working hours and heavy workloads, are associated with job dissatisfaction and exhaustion among clinical nurses. To improve the psychological health and job satisfaction of nurses, it is essential to implement organizational strategies such as reducing overtime work and providing flexible work schedules, particularly for experienced nurses.

Keywords: Job satisfaction, nursing personnel, occupational stress

Introduction

Compared to other healthcare professionals, nurses face a heightened risk of stress due to the emotionally demanding nature of their work and demanding work environments.^[1] This chronic stress can negatively impact personal well-being, leading to emotional exhaustion, decreased job satisfaction, and mental health exhaustion.^[2] Furthermore, it can impair patient care through reduced empathy and compromised decision-making.^[2,3] The psychological health of nurses is important to the well-being of healthcare systems worldwide.^[4] Nurses are particularly at risk of high levels of stress compared to other healthcare providers and specialists, which is due to the nature of their profession.^[5] Accordingly, clinical nurses are constantly exposed to higher levels of stress, predisposing them to decreased job satisfaction, negative emotions, and potentially mental health exhaustion.^[6] To

mitigate these risks, healthcare organizations must implement comprehensive support systems that include regular mental health check-ins, peer support groups, and access to counseling services, ensuring that nurses have the tools they need to thrive both personally and professionally.^[7,8]

The increasing demands of patient care, coupled with long hours and emotional strain, contribute significantly to the psychological challenges faced by nursing professionals.^[9] These factors can lead to mental health exhaustion, anxiety, and depression, ultimately affecting both the well-being of nurses and the quality of care they provide.^[10] Furthermore, inadequate staffing levels and lack of support from management exacerbate these issues, creating a cycle of stress that can be difficult to break.^[11]

Some authors also highlight the role of the organization and its policies. Analyzing

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and evaluating risk factors for determining psychological health problems in the organization, implementing programs to improve the physical and mental preparedness of the staff, assigning the staff to more appropriate positions, risk management, and conducting educational seminars and workshops on the topic, can all be effective strategies for improving work environment psychological health.^[12] Previous studies have shown that job satisfaction and occupational psychological health are linked to stressful working environments and lead to the poor health of nurses; therefore, it is important to know the stressful factors and how to mitigate them to manage stress.^[5,13] While previous research has established a link between stressful work environments and poor psychological health in nurses, understanding the specific individual and occupational factors that contribute to this phenomenon remains incomplete. Studies often lack a comprehensive approach, neglecting diverse hospital sections and failing to systematically examine personal and occupational risk factors alongside the prevalence of psychological health outcomes.^[14,15] Also, identifying key risk factors and their variations in different settings informs the necessity to develop targeted interventions and policies to create a more supportive work environment for nurses, which ultimately leads to improved patient care, reduced healthcare costs, and a healthier healthcare system. Therefore, this study aims to fill this gap by comprehensively assessing the relationship between individual (age, gender, marital status, Body Mass Index (BMI)) and occupational factors (length of experience, educational and employment status, working hours) with psychological health outcomes and workload among clinical nurses in different hospital sections (emergency, intensive care, surgery, and internal medicine).

Materials and Methods

The present descriptive and analytical study was conducted at an academic training hospital in Semnan from April to October 2020. The study population consisted of approximately 200 clinical nurses who were employed in eight medical wards of a hospital. The study population consisted of approximately 200 clinical nurses who were employed in critical care, urgent care, cardiology, general medicine, obstetrics and gynecology, nephrology, surgical services, and pediatric healthcare units. Participants were registered nurses with at least one year of experience in their respective units, as well as those who provided informed consent to participate in the study. These inclusion criteria were established to minimize the potential confounding effects of pre-existing psychological health disorders or chronic illnesses on the study's findings.

After distributing the questionnaires to all clinical nurses in the study population, 131 questionnaires were returned that met the study inclusion criteria. The use of a census-based data collection approach helped to ensure that the sample

was representative of the population being studied, which increased the generalizability of the findings. This approach also allowed for the collection of comprehensive data on the psychological health of clinical nurses in the hospital.

Data were collected in person and directly from respondents and based on self-reported questionnaires. Questionnaires were administered in which participants were provided with a comprehensive briefing regarding the project prior to their involvement. Qualified researchers engaged in the study were responsible for the dissemination of questionnaires and the subsequent collection of data. Given that the data for this study were collected during the COVID-19 pandemic, special precautions were taken to ensure the safety of both the participants and the investigators. The protection protocol included the use of Personal Protective Equipment (PPE), such as masks and gloves, by all investigators during the data collection process.

The apparatus utilized for the acquisition of data comprised a segment dedicated to individual characteristics, inquiring about the nurses' age, gender, marital status, duration of employment as a nurse, work shift arrangement, educational attainment, and employment classification. Psychological health was assessed by a Persian language revision of the Maslach Mental Health Exhaustion Inventory consisting of 22 questions.^[16] We measured three aspects of psychological health outcomes: feelings of energy depletion (nine items), negative feelings toward the job or cynicism (eight items), and reduced professional efficacy (five items). A Likert scale was employed to assess the frequency of these emotions, ranging from 0 (never) to 6 (every day). The diagnosis of occupational mental health exhaustion in terms of various psychological aspects was based on reporting higher scores in mental and physical fatigue and negative feelings toward the job or lower scores in reduced professional efficacy. The psychological health status of respondents was classified as low, moderate, or high. Feelings of energy depletion are categorized as low, moderate, or high based on exhaustion scores of ≤ 18 , 19–26, or ≥ 27 , respectively. Negative feelings toward the job are measured as low, moderate, or high for scores of ≤ 5 , 6–9, and ≥ 10 , respectively. Work-performance efficacy scores of ≥ 40 , 34–39, and ≤ 33 indicate low, moderate, and high levels, respectively.^[17] In our study, we assessed the internal consistency of the three dimensions of mental health exhaustion. The Cronbach's alpha coefficients were 0.84 for feelings of energy depletion, 0.76 for negative attitudes toward the job, 0.79 for diminished professional efficacy, and 0.80 for the overall scale of mental health exhaustion.^[16] The items in the workload level presented to participants included four key aspects: the amount of thinking required to perform tasks, the intensity of physical activity at work, the level of time pressure experienced, and the effort needed to complete work. An overall workload scale, ranging from 0 to 100, was derived by combining these four scales. The workload was categorized into three

levels: 'low,' 'medium,' and 'high.'^[18] The Cronbach's alpha was 0.73 for the nursing workload in this study.

Data analysis was conducted using SPSS (version 21; IBM Corp., Armonk, NY, USA). Descriptive statistics calculated frequency, mean, standard deviation (SD), maximum, and minimum values for individual and occupational factors, including age, sex, marital status, BMI, experience length, education, employment type, and work hours. Relationships between psychological health dimensions and workload with personal factors (sex, marital status, education) were examined using independent *t*-tests and Mann–Whitney U tests. Additionally, Kruskal–Wallis and one-way ANOVA tests assessed the relationships between workload and psychological health dimensions with work-related variables. The Spearman's test compared other demographic variables with dimensions of psychological health. The Pearson correlation test was performed to assess the relationships between different dimensions of psychological health and workload dimensions. The statistical significance level for all analytical tests was set at $P \leq 0.05$.

Ethical considerations

This study was performed in line with the principles of the Declaration of Helsinki. The research protocol was approved by the Research Ethics Committee of Semnan University of Medical Sciences (IR.SEMUMS.REC.1395.152). We obtained ethics approval before recruiting participants. Nurses were invited to participate. The study was advertised through the occupational health and safety unit in the hospital. After necessary coordination with those in charge of the hospital, the eligible nurses were enrolled. Research investigator briefed participants about the study, and asked them to answer all the items in the questionnaires. Participation in the study was

voluntary and nurses signed of an informed consent form. Moreover, before collecting data participants were ensured of the confidentiality of their personal data and the relevant ethical aspects.

Results

Out of all the questionnaires distributed among nurses in different wards, 131 (65.50%) who were returned and included in the analysis. Of the total number of nurses who were approached to participate in the study, 34.50% were excluded due to ineligibility, unwillingness to respond, or failure to complete the questionnaires [Figure 1]. The mean (SD) age of the respondents was 34.42 (7.58), ranging from 23 to 55 years. The majority of respondents were female (72.50%), aged between 31 and 40 years (39.70%), married (77.10%), with normal BMI (42.00%), and were employed permanently (65.60%). Among the participating nurses, 93.10% had academic bachelor's degrees or higher, while only nine (6.90%) had non-academic education [Table 1].

The study found that occupational mental health exhaustion varied across different hospital wards. The highest level of mental health exhaustion was observed in the emergency department (32.20%), while the lowest level was in the surgery ward (1.50%). The obstetrics/gynecology ward had a mental health exhaustion rate of 20.90%, followed by the internal medicine ward with 19.90%. Mental health exhaustion rates were lower in the pediatric ward (7.60%), CCU (7.10%), ICU (6.30%), and the dialysis ward (4.60%) [Figure 2].

The study found that the mean (SD) occupational mental health exhaustion score among clinical nurses was 89.75 (16.30). The subscale means (SD) scores for the feeling of energy depletion, feeling negative toward the

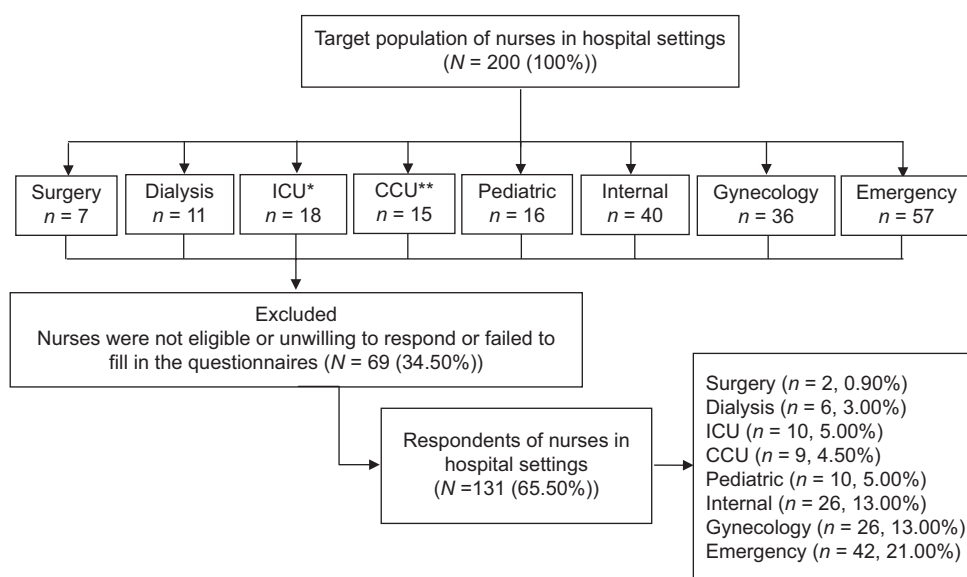


Figure 1: Details on study population, respondents, and response rates in hospital sections (N = 131). *ICU: Intensive Care Unit, **CCU: Coronary Care Unit

job, and reduced professional efficacy were 37.09 (0.84), 24.90 (0.38), and 27.75 (0.61), respectively. The results showed that 39.10% of the nurses experienced moderate exhaustion, while 8.78% reported a high level of feeling negative toward their job. Additionally, 13.83% of the nurses reported a low level of reduced professional efficacy [Table 2].

Table 1: Characteristics of the hospital nurses at Semnan Educational Hospital ($n=131$)

Variables	Number (%)
Age	
≤30	49 (37.40)
31–40	51 (38.93)
≥40	31 (23.66)
Length of work	
2–10	66 (50.38)
11–20	52 (39.69)
21–29	13 (9.92)
Gender	
Female	95 (72.50)
Male	36 (27.50)
Marital status	
Single	30 (22.90)
Married	101 (77.10)
BMI*	
Underweight (BMI <18.5 kg/m ²)	5 (3.81)
Normal (BMI <25 kg/m ²)	55 (42.00)
Overweight (25 ≤ BMI ≤29 kg/m ²)	48 (36.64)
Obesity (BMI ≥30 kg/m ²)	23 (17.55)
Educational Status	
Academic	122 (93.10)
Non-academic	9 (6.90)
Employment status	
Permanent	86 (65.64)
Contractual	25 (19.08)
Non-permanent	20 (15.26)
Working hours	
7 hours	64 (48.85)
8 hours	42 (32.06)
10 hours	11 (8.39)
12 hours	14 (10.68)

*Body mass index

The following Table 3 presents the frequencies and p values for each psychological health dimension within different categories of individual and occupational risk factors. While overall frequencies of psychological health sub-dimensions are similar between age groups, younger individuals (≤30 years) show significantly higher levels of reduced efficacy ($p = 0.014$) and cynicism ($p = 0.026$) compared to their older counterparts (≥41 years). Experienced nurses (21–29 years) exhibit significantly lower frequencies of cynicism ($p = 0.004$) and reduced efficacy ($p = 0.002$) compared to those with less experience (2–10 years). A remarkable difference emerges in psychological health across employment types and working hours. Permanent employees engaged in extended working hours (12 hours) significantly reported the highest frequencies of reduced professional efficacy ($p = 0.037$) and cynicism ($p = 0.046$), respectively. No significant differences were observed for employment and educational status, BMI, gender, or marital status in terms of psychological health sub-dimensions.

Group t -tests were conducted to examine the differences in each of the 22 items based on years of experience in nursing professions [Table 4]. The results showed that clinical nurses with lower experience reported more feeling negative toward the job symptoms. Additionally, younger clinical nurses experienced more negative feelings toward the job symptoms, as shown in Table 4.

The study found no significant differences in the levels of overall workload dimensions among clinical nurses.

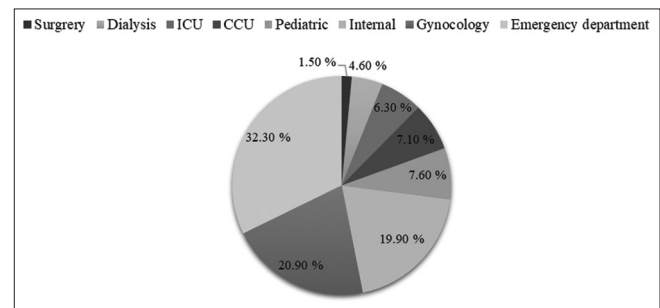


Figure 2: Prevalence of mental health exhaustion among nurses according to hospital wards ($N = 131$)

Table 2: Frequency and proportion of psychological health sub-dimensions and work demand at different levels in nurses during work during COVID-19 pandemic at educational hospitals ($n=131$)

Variables	Low n (%)	Moderate n (%)	High n (%)	Mean (SD)
The feeling of energy depletion	72 (54.90)	51 (39.10)	8 (6.00)	37.09 (9.64)
Feeling negative toward the job	97 (74.02)	23 (17.26)	11 (8.70)	24.90 (4.43)
Reduced professional efficacy	18 (13.90)	49 (37.30)	64 (49.05)	27.75 (6.99)
Mental workload	7 (5.41)	77 (58.84)	47 (35.74)	82.30 (6.72)
Physical workload	15 (11.55)	82 (62.94)	34 (25.51)	51.32 (0.18)
Temporal workload	5 (4.09)	73 (55.59)	53 (40.31)	79.68 (0.29)
Effort to do tasks	11 (8.66)	82 (62.45)	38 (28.88)	84.35 (0.15)

Table 3: Frequency and *p* values of psychological health sub-dimensions across study subgroups (*n*=131)

Variables	Psychological health Items									Total
	FED* <i>n</i> (%)			FNJ** <i>n</i> (%)			RPE*** <i>n</i> (%)			
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High	
Age										
≤30	29 (22.10)	17 (13.00)	3 (2.30)	24 (18.30)	31 (23.70)	21 (16.00)	43 (32.80)	41 (31.10)	20 (15.30)	49 (37.40)
31–40	30 (22.90)	15 (11.50)	6 (4.60)	20 (15.30)	16 (12.20)	9 (6.90)	6 (4.60)	5 (3.80)	9 (6.90)	51 (38.93)
≥41	15 (11.50)	14 (10.70)	2 (1.50)	5 (3.80)	4 (3.10)	1 (0.80)	0 (0.00)	5 (3.80)	2 (1.50)	31 (23.66)
<i>p</i>		0.111			0.026			0.014		0.369
Length of experience										
2–10	43 (32.80)	19 (23.70)	4 (3.10)	33 (25.20)	27 (20.60)	6 (4.60)	58 (44.30)	38 (29.00)	8 (6.10)	66 (50.38)
11–20	25 (19.10)	22 (16.80)	5 (3.80)	31 (23.70)	17 (13.00)	4 (3.10)	6 (4.60)	10 (7.60)	4 (3.10)	52 (39.69)
21–29	6 (4.60)	5 (3.80)	2 (1.50)	12 (9.20)	1 (0.80)	0 (0.00)	2 (1.50)	4 (3.10)	1 (0.80)	13 (9.92)
<i>p</i>		0.146			0.004			0.002		0.176
Gender										
Female	52 (39.70)	36 (27.50)	7 (5.30)	58 (44.30)	33 (25.20)	4 (3.10)	74 (56.50)	16 (12.20)	5 (3.80)	95 (72.50)
Male	22 (16.80)	10 (7.60)	4 (3.10)	18 (13.70)	12 (9.20)	6 (4.60)	30 (22.90)	4 (3.10)	2 (1.50)	36 (27.50)
<i>p</i>		0.409			0.080			0.693		0.745
Marital Status										
Single	17 (13.00)	11 (8.40)	2 (1.50)	15 (11.50)	9 (6.90)	6 (4.60)	24 (18.30)	4 (3.10)	2 (1.50)	30 (22.90)
Married	57 (43.5)	35 (26.7)	9 (6.90)	61 (46.60)	36 (27.50)	4 (3.10)	80 (61.10)	16 (12.20)	5 (3.80)	101 (77.10)
<i>p</i>		0.369			0.103			0.588		0.936
BMI										
Underweight	5 (3.80)	0 (0.00)	0 (0.00)	4 (3.10)	1 (0.80)	0 (0.00)	5 (3.80)	0 (0.00)	0 (0.00)	5 (3.81)
Normal	28 (21.40)	20 (15.30)	7 (5.30)	26 (19.90)	22 (16.80)	7 (5.30)	43 (32.80)	9 (6.90)	3 (2.30)	55 (41.98)
Overweight	29 (22.10)	17 (13.00)	2 (1.50)	31 (23.70)	14 (10.70)	3 (2.30)	38 (29.00)	8 (6.10)	2 (1.50)	48 (36.64)
Obesity	12 (9.20)	9 (6.90)	2 (1.50)	15 (11.50)	8 (6.10)	0 (0.00)	18 (13.70)	3 (2.30)	2 (1.50)	23 (17.69)
<i>p</i>		0.337			0.287			0.488		0.551
Educational Status										
Academic	70 (53.40)	42 (32.10)	10 (7.60)	68 (51.90)	44 (33.60)	10 (7.60)	99 (75.60)	17 (13.00)	6 (4.60)	9 (6.90)
Non-Academic	4 (3.40)	4 (3.10)	1 (0.8)	8 (6.10)	1 (0.80)	0 (0.00)	5 (3.80)	3 (2.30)	1 (0.80)	122 (93.10)
<i>p</i>		0.902			0.259			0.932		0.337
Employment Status										
Permanent	46 (35.10)	31 (23.70)	9 (6.90)	54 (41.20)	28 (21.40)	4 (3.10)	65 (49.60)	15 (11.50)	6 (4.60)	86 (65.64)
Contractual	13 (9.90)	6 (4.60)	1 (0.80)	12 (9.20)	7 (5.30)	1 (0.80)	17 (13.00)	2 (1.50)	1 (0.80)	25 (19.08)
Non-permanent	15 (11.50)	9 (6.90)	1 (0.80)	10 (7.60)	10 (7.60)	5 (3.80)	22 (16.80)	3 (2.30)	0 (0.00)	20 (15.26)
<i>p</i>		0.536			0.075			0.037		0.329
Working hours										
7 hours	23 (17.60)	13 (9.90)	6 (4.60)	20 (15.30)	18 (13.70)	4 (3.10)	35 (26.70)	5 (3.80)	2 (1.50)	64 (48.90)
8 hours	39 (29.80)	21 (16.30)	4 (3.10)	42 (32.10)	18 (13.70)	4 (3.10)	48 (36.60)	12 (9.20)	4 (3.10)	42 (32.10)
10 hours	7 (5.30)	6 (4.60)	1 (0.80)	8 (6.10)	5 (3.80)	1 (0.80)	12 (9.20)	1 (0.80)	1 (0.80)	11 (8.40)
12 hours	5 (3.80)	6 (4.60)	0 (0.00)	6 (4.60)	4 (3.10)	1 (0.80)	9 (6.90)	2 (1.50)	0 (0.00)	14 (10.70)
<i>p</i>		0.397			0.046			0.241		0.198

*FED: Feeling of energy depletion, **FNJ: Feeling negative toward the job, ***RPE: Reduced professional efficacy

However, the data revealed significant differences in the levels of mental ($r = 127$, $p = 0.018$) and total workload ($r = 0.534$, $p = 0.007$) among different subgroups of working hours. Nurses engaged in extended working hours (12 hours) experienced higher workload [Table 5].

Table 6 presents the relationships between mental health exhaustion dimensions and workload variables among clinical nurses during the SARS-CoV-2 pandemic. The analysis revealed that the feeling of energy depletion was strongly correlated with nurses' effort ($r = 0.71$).

Additionally, the feeling of negativity toward the job showed a significant correlation with mental workload ($r = 0.54$) and effort ($r = 0.53$). Reduced professional efficacy was also highly correlated with mental workload ($r = 0.64$) and effort ($r = 0.59$). Furthermore, there was a notable correlation among the three primary variables: energy depletion, negativity toward the job, and reduced professional efficacy, which are all dimensions of occupational mental health exhaustion.

Discussion

The current study investigated the relationships between occupational and individual risk factors and the psychological health status of Iranian hospital nurses. The major finding of this study demonstrated that workload stressors that perceived to contribute to mental health exhaustion in clinical nurses. The findings of our study indicated a notably elevated incidence of sensations related to energy depletion or fatigue, a heightened cognitive detachment from the nursing profession, and a diminished sense of professional effectiveness among individuals engaged in nursing occupations. Moreover, factors such as employment instability, chronological age, and the duration of work hours were correlated with psychological fatigue.

Our findings revealed a relatively high prevalence of mental health exhaustion across all three dimensions—feelings of energy depletion, job frustration, and deteriorated work performance. This aligns with studies reporting similar results among nurses and family physicians though direct comparisons require accounting for cultural and healthcare system differences.^[19,20] Nevertheless, numerous research investigations have documented varying scores about the dimensions of mental health exhaustion within the nursing

profession.^[21,22] The current research findings revealed that the mean scores for exhaustion exceeded those associated with other dimensions of mental health exhaustion. This observation is consistent with the findings of the Kutluturkan survey conducted among nurses employed in oncology hospital wards.^[23] However, Turkey's research on mental health exhaustion prevalence showed a lower score for exhaustion among hospital nurses.^[24] Mental health exhaustion symptoms may be related to the type and severity of chronic workload stress in various occupational contexts, which needs to be addressed in future studies.

Our findings revealed that nurses in the emergency ward experienced higher levels of all three dimensions of burnout. This aligns with previous research indicating that poor relationships with colleagues and supervisors in emergency services correlate with increased energy depletion.^[25] Moreover, higher work stress levels were associated with more severe mental health symptoms. Earlier studies have suggested that nurses caring for critically ill patients under high workloads and pressure are more prone to frustration, potentially triggering burnout symptoms.^[26,27] Managers should prioritize workload management in the emergency ward. Exploring strategies like adjusted patient-nurse ratios, efficient task delegation,

Table 4: perceptions of psychological health in terms of age and years of employment in nursing professions (Mean values of responses based on scale options from never=0 to everyday=6)

Items	Age			Years worked		
	≤30	>30	<i>p</i>	≤10	>10	<i>p</i>
	Mean (SD)	Mean (SD)		Mean (SD)	Mean (SD)	
Feeling of energy depletion						
Fatigue in mind and body because of my work	3.58 (1.8)	5.78 (1.4)	0.13	2.39 (1.8)	2.52 (2.0)	0.79
Anxious at the end of a working day	2.44 (2.0)	5.79 (1.0)	0.61	3.65 (2.0)	3.16 (2.0)	0.26
Feel tired as soon as I get up in the morning me	2.79 (2.1)	5.10 (1.8)	0.04	3.30 (2.1)	2.84 (2.2)	0.37
Working with people the whole day is stressful for me	0.95 (1.2)	5.19 (2.0)	0.00	5.00 (1.3)	5.24 (0.9)	0.60
Feel depressed	3.58 (1.8)	3.97 (1.9)	0.02	2.40 (1.8)	2.48 (1.9)	0.85
Feel frustrated by my work	0.90 (1.5)	5.48 (1.6)	0.11	5.00 (1.5)	5.48 (1.9)	0.24
Feeling that I work too hard	1.23 (1.6)	14.59 (1.3)	0.03	4.67 (1.6)	5.16 (1.2)	0.23
Feel burned out because of my work	0.62 (1.0)	4.78 (1.0)	0.19	5.38 (1.0)	5.36 (0.9)	0.79
Reacting more emotionally than usual	0.81 (1.5)	5.19 (1.6)	0.13	5.16 (1.6)	5.22 (1.2)	0.70
Feeling negative toward the job						
More unsympathetic to people doing this job	1.09 (1.5)	4.76 (2.0)	0.03	4.91 (1.4)	4.88 (1.9)	0.04
My job makes me emotionally harder?	0.85 (1.2)	4.21 (1.5)	0.00	5.11 (1.2)	5.32 (0.9)	0.05
Treating some patients impersonally	1.36 (1.9)	4.93 (1.3)	0.05	4.65 (1.9)	4.60 (1.9)	0.01
Thinking my colleagues blame me	0.53 (0.9)	3.12 (1.0)	0.01	5.46 (0.9)	5.52 (1.0)	0.01
Not really interested in what is going on with my colleagues	1.27 (1.5)	4.05 (1.2)	0.03	4.68 (1.5)	4.88 (1.4)	0.01
Reduced professional efficacy						
Understand the actions of my colleagues/supervisors	4.31 (1.4)	1.69 (0.8)	0.01	4.26 (1.5)	5.13 (1.3)	0.51
Deal with other people's problems successfully	3.33 (1.5)	1.73 (0.7)	0.10	3.35 (1.5)	4.24 (1.6)	0.81
Influence other people positively through my work	2.94 (1.6)	1.50 (0.7)	0.40	2.92 (1.7)	3.04 (1.2)	0.70
Feel fulling of energy	2.88 (1.7)	1.20 (0.9)	0.17	2.87 (1.7)	2.92 (1.6)	0.81
Finding it easy to build a relaxed atmosphere in my working environment	3.04 (1.7)	1.50 (0.9)	0.03	3.11 (1.8)	2.72 (1.5)	0.28
Reacting more emotionally with my colleagues	3.63 (1.3)	1.75 (1.0)	0.06	3.61 (1.4)	2.72 (1.0)	0.86
I have achieved many rewarding objectives in my work	3.82 (1.7)	1.72 (1.3)	0.03	1.89 (0.8)	1.72 (1.3)	0.04
Feel relaxed when dealing with emotional challenges	3.80 (1.6)	1.64 (0.5)	0.01	1.54 (0.7)	1.64 (0.5)	0.02

Table 5: Mean (SD) and *p* values sub-dimensions of workload across study subgroups (*n*=131)

Variables	Workload items (Mean (SD))				Total
	Mental	Physical	Temporal	Effort	
Age					
≤30	82.24 (7.26)	51.31 (0.18)	79.69 (0.22)	84.34 (0.14)	297.59 (7.28)
31–40	82.89 (6.63)	51.32 (0.19)	79.68 (0.22)	84.36 (0.15)	298.27 (6.56)
≥41	81.40 (6.08)	51.34 (0.18)	79.68 (0.21)	84.32 (0.17)	296.76 (6.07)
<i>p</i>	0.921	0.652	0.796	0.777	0.384
Length of experience					
2–10	82.29 (7.04)	51.31 (0.18)	79.70 (0.22)	84.34 (0.13)	297.66 (7.04)
11–20	82.56 (6.82)	51.32 (0.19)	79.65 (0.23)	84.35 (0.16)	297.89 (6.80)
21–29	81.25 (4.55)	51.37 (0.20)	79.71 (0.20)	84.36 (0.19)	296.70 (4.54)
<i>p</i>	0.687	0.540	0.547	0.937	0.794
Gender					
Female	82.21 (6.62)	51.32 (0.19)	79.67 (0.22)	84.35 (0.15)	297.55 (6.60)
Male	82.53 (7.08)	51.31 (0.17)	79.72 (0.23)	84.35 (0.16)	297.92 (7.07)
<i>p</i>	0.959	0.496	0.644	0.804	0.977
Marital status					
Single	82.37 (7.18)	51.35 (0.17)	79.74 (0.23)	84.36 (0.14)	297.83 (7.18)
Married	82.27 (6.62)	51.31 (0.18)	79.62 (0.22)	84.34 (0.15)	297.60 (6.59)
<i>p</i>	0.638	0.345	0.404	0.539	0.967
BMI					
Underweight	80.62 (6.77)	51.30 (0.19)	79.71 (0.24)	84.42 (0.16)	296.05 (6.96)
Normal	82.83 (7.07)	51.31 (0.18)	79.68 (0.21)	84.32 (0.16)	298.16 (6.99)
Overweight	81.66 (6.45)	51.31 (0.19)	79.70 (0.24)	84.35 (0.12)	297.04 (6.48)
Obesity	82.70 (6.70)	51.38 (0.18)	79.63 (0.19)	84.38 (0.18)	298.10 (6.70)
<i>p</i>	0.622	0.423	0.435	0.438	0.425
Educational status					
Academic	82.30 (6.70)	51.32 (0.18)	79.68 (0.22)	84.35 (0.15)	297.66 (6.67)
Non-Academic	82.17 (7.50)	51.31 (0.20)	79.74 (0.23)	84.36 (0.21)	297.59 (7.51)
<i>p</i>	0.458	0.808	0.754	0.976	0.859
Employment status					
Permanent	82.71 (7.00)	51.32 (0.19)	79.67 (0.22)	84.34 (0.15)	298.06 (6.95)
Contractual	81.12 (4.97)	51.34 (0.16)	79.74 (0.19)	84.33 (0.19)	296.53 (4.97)
Non-permanent	81.80 (7.04)	51.30 (0.18)	79.67 (0.25)	84.38 (0.09)	297.17 (7.14)
<i>p</i>	0.303	0.841	0.481	0.366	0.569
Working hours					
7 hours	83.58 (6.80)	51.34 (0.19)	79.70 (0.23)	84.34 (0.15)	298.97 (6.77)
8 hours	80.25 (6.48)	51.30 (0.18)	79.63 (0.21)	84.34 (0.15)	295.53 (6.42)
10 hours	80.46 (5.39)	51.28 (0.21)	79.65 (0.23)	84.40 (0.13)	295.80 (5.29)
12 hours	84.01 (6.54)	51.31 (0.15)	79.79 (0.18)	84.36 (0.16)	299.49 (6.81)
<i>p</i>	0.018	0.712	0.090	0.758	0.007

Table 6: Correlation coefficients and *p* values between psychological health outcomes and work demand nurses in Semnan Educational Hospital (*n*=131)

Variables		FED*	FNJ**	RPE***	MW****	PW*****	TWS	Effort
		<i>r</i> (<i>p</i>)	<i>r</i> (<i>p</i>)	<i>r</i> (<i>p</i>)	<i>r</i> (<i>p</i>)	<i>r</i> (<i>p</i>)	<i>r</i> (<i>p</i>)	<i>r</i> (<i>p</i>)
FED	1							
FNJ	0.13 (0.02)	1						
RPE	0.12 (0.04)	0.21 (0.03)	1					
MW	0.42 (0.01)	0.54 (0.06)	0.64 (0.001)	1				
PW	0.22 (0.01)	0.23 (0.25)	0.31 (0.03)	0.31 (0.003)	1			
TW	0.32 (0.06)	0.21 (0.05)	0.36 (0.02)	0.64 (0.02)	0.46 (0.009)	1		
Effort	0.71 (0.002)	0.53 (0.04)	0.59 (0.01)	0.27 (0.01)	0.36 (0.01)	0.34 (0.002)	1	

*FED: Feeling of Energy Depletion, **FNJ: Feeling Negative toward the Job, ***RPE: Reduced Professional Efficacy, ****MW: Mental Workload, *****PW: Physical Workload, \$TW: Temporal Workload

and technology integration may alleviate workload and reduce mental health risks. A nursing health program may include training in managing critical situations, emotional regulation, and communication skills to address specific stressors faced in the hospital emergency environment.

The results of the present study showed a potential link between occupational risk factors with mental health symptoms. Nurses who engaged in extended working hours and those who worked in more populated wards experienced more burnout and workload. mental health exhaustion and workload. This finding aligns with prior research that examined workloads across various professions, indicating that excessive workloads and significant mental demands contribute to higher rates of mental exhaustion.^[28,29]

Our research found that nurses in the emergency unit experience a greater level of occupational mental health exhaustion than those in other departments. A prior study indicated that the increased mental exhaustion rates among emergency nurses may be linked to their work conditions, especially long working hours, psychological demands, and organizational influences.^[30-32] These findings confirm the importance of a combination of working conditions leading to chronic stress that cannot be effectively managed. Implementing flexible work arrangements, workload management strategies, and adequate staffing levels is crucial to reduce mental health exhaustion fueled by excessive working hours. Nursing management may consider flexible work arrangements to help nurses maintain a healthy work-life balance.^[33,34]

This study identified a notable connection between years of work experience and decreased professional effectiveness, along with negative emotions related to the job. Additionally, we observed that older nurses tended to experience greater reductions in professional efficacy. Previous research has shown mixed results regarding the impact of age on mental health exhaustion symptoms. In a previous study on nurses, Yao *et al.*, (2018)^[35] found that higher age was linked to higher levels of reduced professional efficacy. Conversely, Jiang *et al.*, (2021)^[36] found higher age was related to a lower level of reduced professional efficacy but found no significant association between age and working years with exhaustion or negative feelings toward the job. Additionally, research conducted by Kangarlou *et al.*,^[37] on clinical nurses has revealed no correlation between age or years of service and burnout or mental health symptoms. Nursing management may offer mentorship programs for younger nurses and skill development opportunities for experienced ones to enhance their sense of competence and efficacy.

In present study, we found that gender and marital status had no statistically significant association with occupational mental health exhaustion. These results are consistent with those of Lwiza and Lugazia (2023).^[38] However, some studies have claimed that age and gender have been

associated with occupational mental health exhaustion.^[39,40] In the current study, we found an association between type of tenure and reduced professional efficacy. Nurses with temporary employment reported a lower level of reduced professional efficacy. A previous study has also indicated an association between precarious employment and health.^[41-43] Our results imply that clinical and nursing managers must recognize the increased mental health exhaustion risk associated with temporary employment. Interventions like offering job security measures, benefits packages, and career development opportunities may help to stabilize and support nurses with precarious employment.

This study found a positive correlation between mental health exhaustion and workload sub-dimensions. As work demands increased, the level of psychological health symptoms increased, which is similar to findings in earlier studies.^[10,33] Furthermore, in line with a previous study by Ortiz-Fune, our study demonstrated that a higher level of negative feelings toward the job is related to increased feelings of energy depletion and reduced professional efficacy. This suggests that interventions aimed at fostering professional job satisfaction, and work engagement could play a crucial role in preventing workload and mental health exhaustion's progression.^[44] Similarly, the observed link between negative feelings and reduced efficacy highlights the need for targeted support programs that strengthen nurses' sense of competence and accomplishment.^[10,45]

This study has limitations that should be considered when interpreting the results. Firstly, while we collected data on individual and occupational characteristics, we did not account for other potential influencing factors such as work-family conflict and organizational factors. Future research could explore a broader range of variables to add a better understanding of the factors affecting mental health exhaustion. Secondly, although our study included a representative sample of clinical nurses, a significant portion of data was lost due to the increased demands on nurses during the pandemic. Future studies should implement strategies to encourage higher participation rates. Finally, the cross-sectional design of this study limits our ability to draw causal conclusions. Longitudinal studies are needed to investigate the temporal relationships between risk factors and psychological health outcomes.

Conclusion

These findings suggest that mental health exhaustion is a significant problem among clinical nurses, particularly in high-stress environments such as the emergency department. The variations in mental health exhaustion rates across different wards highlight the need for targeted interventions to address specific work-related stressors in each department and promote the psychological health of nurses. The present investigation revealed a notably elevated occurrence of the three facets of mental health

fatigue, especially the sensations of energy drain among nursing professionals. This research highlighted the comparatively significant occurrence of mental health fatigue dimensions in nurses experiencing diminished job security. Further research should investigate the full effects of various risk factors and psychological health challenges in light of the pandemic. Moreover, upcoming research into mental well-being ought to emphasize strategies that could help avert symptoms in the nursing field. Our findings suggest that interventions aimed at reducing negative feelings toward the job and promoting professional efficacy should be tailored to specific subgroups of nurses based on their age, length of work experience, and type of employment.

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Conflicts of interest

Nothing to declare.

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