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Work Stress and its Relationship with Some Demographic Variables among Nurses Working at Teaching Hospitals

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A R T I C L E I N F O

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Abstract

Background: Work-related stress is a common issue among healthcare professionals, particularly nurses, due to the demanding nature of their jobs. Factors such as inadequate income, long working hours, and challenging work environments increase stress levels. This study focuses on nurses working in teaching hospitals in Diwaniya City to explore their demographics, working conditions, and the prevalence of work-related stress.

Aim: The study aims to assess the demographic characteristics, working conditions, and stress levels of nurses in teaching hospitals in Diwaniya city and examine the correlation between work-related stress and various factors such as income, work shift, and housing status.

Method: A cross-sectional descriptive study was conducted using nurses from teaching hospitals in Diwaniya city. Data were collected using a structured questionnaire that assessed demographic information, work conditions, and levels of work-related stress. The sample included male and female nurses with varying levels of education and work experience. Statistical analysis was performed to identify correlations between stress levels and various factors.

Results: The average age of nurses was 33.5 ± 8.5 years, with 41.3% in the 20–29 age range. The sample consisted of 45.4% male and 54.6% female nurses, and 46.3% were married. Nearly half of the nurses (47.3%) had completed a nursing diploma, and their average work experience was 12 ± 9 years. Approximately 29.2% had worked for one to five years, 34% worked in emergency rooms, and 50.8% were employed at Al-Diwaniya Teaching Hospital. A significant portion (47.3%) reported insufficient monthly pay, 40.3% lived in rented homes, 85.4% lived in metropolitan areas, and 59.4% worked morning shifts. Moderate levels of work-related stress were observed in 98.8% of nurses (M±SD= 66.50±4.424). A significant correlation was found between work-related stress and inadequate monthly income (p = .009), while no significant correlation was observed with other variables.

Conclusion: The study highlights the prevalence of moderate work-related stress among nurses in Diwaniya, which is mainly linked to inadequate income. Addressing financial concerns could help mitigate stress levels and improve nurses' well-being. No significant associations were found between stress and other variables, such as work shift and housing status.

What is already known about the topic? Nurses in teaching hospitals face high work stress due to patient care and academic duties. Factors like age, gender, experience, and shift work affect stress levels, with younger and female nurses often experiencing more stress. Chronic stress impacts health and job performance, leading to burnout. Coping strategies include peer support and wellness programs.

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Introduction

Workplace stress is a well-recognized issue that significantly impacts healthcare professionals, particularly nurses, due to the demanding nature of their profession. Nursing has long been identified as a high-stress occupation, largely attributed to the immense responsibility for patients' lives and well-being. Stress is often defined as an individual's subjective assessment of the demands placed upon them and their perceived ability to cope with these demands (Pham & Mercado, 2019). Across all professions, stress can stem from various factors, with nursing being especially vulnerable due to the complex patient care, high level of skill required, and the need for constant vigilance, particularly in critical care areas (Santoso & Zakiyah, 2018). The negative consequences of occupational stress are well-documented, affecting nurses' personal and professional well-being, as well as the smooth operation of healthcare institutions.

Work-related stress among nurses can manifest through physical and psychological symptoms, such as burnout, fatigue, depression, and anxiety, which may ultimately affect patient safety and the quality of care provided (Laeeque et al., 2018). The World Health Organization (WHO) and the International Labor Organization (ILO) have recognized workplace stress as a global health threat, contributing significantly to absenteeism and low job satisfaction among healthcare workers (Hassard et al., 2018). Nursing, in particular, is associated with unique stressors, such as exposure to hazardous environments, shift work, and the emotional toll of caring for critically ill patients (Białek & Sadowski, 2019).

Occupational stress has been identified as a major factor leading to job dissatisfaction, conflicts among staff, poor health outcomes, and a decrease in the quality of care provided by nurses (Rippon et al., 2020). High stress levels have also been linked to increased turnover rates among nurses, further straining healthcare systems and exacerbating staff shortages (Werke & Weret, 2023). Addressing work-related stress in nursing is therefore essential for improving both nurse well-being and patient outcomes.

Given the significant implications of stress for both healthcare professionals and institutions, this study aims to explore the relationship between work stress and demographic variables among nurses working in teaching hospitals in Diwaniya city. By identifying key stressors and examining their correlation with factors such as income, work experience, and housing conditions, this research seeks to provide insights into effective strategies for managing stress in this critical profession.

Methodology

This study employed a correlational research design to explore the relationship between work-related stress and certain demographic variables among nurses employed in teaching hospitals in Diwaniya city, Iraq. The research was conducted from December 1, 2023, to March 31, 2024, and utilized both descriptive and inferential statistical methods to analyze the data.

Study Setting and Population

The study was conducted across three teaching hospitals in Diwaniya city: Al-Diwaniya Teaching Hospital, Maternity and Children’s Teaching Hospital, and Al-Hussein Specialized Hospital. The population of the study comprised nurses

working in general wards at these hospitals.

Sample Size and Sampling Method

The study targeted a population of approximately 1,200 nurses. Using the sample size calculation formula for a finite population, a sample size of 315 nurses was determined to provide an adequate representation of the population. A non-probability convenience sampling method was used to select the participants. This method allowed for the inclusion of nurses who were available and willing to participate at the time of the study, given practical constraints such as shift work and availability during data collection.

Inclusion and Exclusion Criteria

- **Inclusion Criteria**:
  - Nurses who were actively employed in the selected teaching hospitals.
  - Nurses with at least one year of work experience.
- **Exclusion Criteria**:
  - Nurses who were on extended leave (e.g., maternity or sick leave) during the study period.
  - Nurses who refused to participate after being informed about the study.

Data Collection Instruments

A structured questionnaire was utilized for data collection. The questionnaire was divided into two parts:

1. **Work-Related Stress Scale**: The occupational stress scale used in this study was developed by Karasek (1979) and consists of 26 items designed to measure the level of work-related stress. The items were rated on a 4-point Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (4). Items 6, 7, 8, 9, 13, 19, 20, 22, 23, 24, and 25 were reverse-scored to ensure consistency in responses. The total score was categorized into three levels of work-related stress:
   - **Low**: 26–52
   - **Moderate**: 53–78
   - **High**: 79–104
2. **Demographic Questionnaire**: This section collected sociodemographic data, including age, gender, marital status, nursing qualifications, years of experience, type of hospital, department, monthly income, residency status, housing type, and work shift.

Validity and Reliability of Instruments

The questionnaire was reviewed and validated by a panel of 15 experts from the fields of psychiatric mental health, community health nursing, and medicine. The panel was drawn from universities including Holy Karbala, Kufa, Al-Qadisiyah, and Baghdad. Based on their feedback, revisions were made to ensure content validity, clarity, and appropriateness for the study population. The final Arabic version of the questionnaire was tested for internal consistency using Cronbach's alpha, yielding a reliability coefficient of 0.725, which indicated acceptable reliability.

Ethical Considerations

Ethical approval for the study was obtained from the College of Nursing Research Ethics Committee at the University of Holy Karbala (approval number: uok.con.23.033) on December 26, 2023. All participants were informed about the study's objectives, and voluntary verbal consent was obtained prior to participation. Confidentiality was maintained throughout the study, with participants assured that their responses would remain anonymous. Additionally, participants were informed of their right to withdraw from the study at any time without any consequences.

Data Collection Procedure

Data collection took place over a four-month period. Trained research assistants distributed the questionnaires to nurses during their shifts in general wards. They provided instructions on how to complete the questionnaire and remained available to clarify any doubts or questions. The completed questionnaires were collected immediately after completion to ensure a high response rate. The data were then entered into the Statistical Package for Social Sciences (SPSS) version 26.0 for analysis.

Data Analysis

The data were analyzed using both descriptive and inferential statistical methods.

- **Descriptive Statistics**: Frequency distributions, percentages, means, and standard deviations were used to summarize the demographic characteristics of the nurses and the levels of work-related stress.
- **Inferential Statistics**:
  - **One-way Analysis of Variance (ANOVA)**: This was used to compare the means of work-related stress levels across multiple groups (e.g., age, years of experience).
  - **Independent t-tests**: These were used to assess differences in work-related stress between two groups (e.g., male vs. female nurses).
  - **Chi-square tests**: These were applied to examine the associations between categorical variables (e.g., marital status, nursing qualifications) and work-related stress levels.
  - **P-value**: A significance level of $p < 0.05$ was used to determine whether associations between work-related stress and demographic variables were statistically significant.

Limitations of the Study

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- **Sampling Method**: The use of non-random convenience sampling may limit the generalizability of the findings. The study was restricted to nurses who were available during the data collection period, which may introduce selection bias.
- **Self-reported Data**: The reliance on self-reported measures may lead to response bias, as participants may have underreported or overreported their stress levels due to social desirability or recall bias.
- ResultsThe results of the study showed that the majority of nurses (98.8%) experienced moderate levels of work-related stress, with an average stress score of 66.50 ± 4.424. The demographic analysis revealed that the average age of nurses was 33.5 ± 8.5 years, with most participants being female (54.6%) and holding a nursing diploma (47.3%). A significant correlation was found between work-related stress and the perception of insufficient monthly income ($p = .009$), nursing qualification ($p = .021$), and the hospital of employment, particularly among those working at Al-Diwaniya Teaching Hospital ($p = .001$). However, there were no significant associations between work-related stress and other demographic factors, including age, gender, marital status, residency, housing, years of experience, and work shift. These findings suggest that inadequate income and educational background play critical roles in contributing to stress among nurses, emphasizing the need for interventions to address these factors in order to reduce stress levels and improve work conditions.

Table (1): Distribution of Nurses according to their Socio-demographic Characteristics

List	Characteristics		F	%
1	Age (year) M±SD= 33.5 ± 8.5	20 – 29 years	130	41.3
		30 – 39 years	115	36.5
		40 – 49 years	49	15.5
		50 year and more	21	6.7
		Total	315	100
2	Sex	Male	143	45.4
		Female	172	54.6
		Total	315	100
3	Marital status	Unmarried	122	38.7
		Married	146	46.3
		Divorced	22	7.1
		Widowed/ widower	25	7.9
		Total	315	100
4	Qualification in nursing	Secondary school	67	21.3
		Diploma	149	47.3
		Bachelor	76	24.1
		Postgraduate	23	7.3
		Total	315	100
5	Years of experience M±SD= 12 ± 9	1 – 5 years	92	29.2
		6 – 10 years	68	21.6
		11 – 15 years	58	18.4
		16 – 20 years	38	12.1
		21 years and more	59	18.7
		Total	315	100
6	Hospitals	Al-Diwaniyah	160	50.8
		Obstetrics & gynecology	93	29.5
		Al-Hussein	62	19.7
		Total	315	100
7	Department	Emergency unit	101	34
		Intensive care unit	48	15.2
		Oncology unit	22	7
		GIT unit	30	9.5
		Psychiatric ward	24	7.6
		Neonatal intensive care	74	23.2
		Neurology unit	10	3.2
		Total	315	100
8	Income	Insufficient	149	47.3
		Barely sufficient	141	44.8
		Sufficient	25	7.9
		Total	315	100
9	Residency	Rural	46	14.6
		Urban	296	85.4
		Total	315	100
10	Housing	Owned house	83	26.3
		Rented house	127	40.3
		Shared house	78	24.8
		Informal house	27	8.6
		Total	315	100
11	Shift	Morning	187	59.4
		Evening	128	40.6
		Total	315	100

Table (2): Overall Assessment of Work-Related Stress among Nurses

Work-stress	F	%	Mean	SD	Ass.
Low	2	.6	66.50	4.424	Moderate
Moderate	311	98.8			
High	2	.6			
Total	315	100			

Table (3): Association among Work-related Stress Levels and Socio-demographic Characteristics of Nurses

Variables		Work-related stress				Association
		Low	Moderate	High	Total	
Age (year)	20 – 29	0	128	2	130	F= 1.602 P-value= .189 Sig= N.S
	30 – 39	2	113	0	115	
	40 – 49	0	49	0	49	
	50 and more	0	21	0	21	
	Total	2	311	2	315	
Sex	Male	2	139	2	143	t= 1.042 P-value= .298 Sig= N.S
	Female	0	172	0	172	
	Total	2	311	2	315	
Marital status	Unmarried	2	120	0	122	F= 1.046 P-value= .372 Sig= N.S
	Married	0	144	2	146	
	Divorced	0	22	0	22	
	Widowed/er	0	25	0	25	
	Total	2	311	2	315	
Monthly income	Insufficient	2	147	0	149	F= 4.787 P-value= .009 Sig= S
	Barely sufficient	0	141	0	141	
	Sufficient	0	23	2	25	
	Total	2	311	2	315	
Residency	Rural	0	46	0	46	t= 1.302 P-value= .194 Sig= N.S
	Urban	2	265	2	269	
	Total	2	311	2	315	
Housing	Owned	2	81	0	83	F= 1.284 P-value= .280 Sig= N.S
	Rented	0	125	2	127	
	Shared	0	78	0	78	
	Informal	0	27	0	27	
	Total	2	311	2	315	

F: F-statistics, P: probability, t: Independent sample T-test, Sig: Significance, N.S: Not significant, S: Significant, H.S: High significant

Table (4-4): Association among Work-related Stress Levels and Professional Characteristics of Nurses

Variables		Work-related stress				Association
		Low	Moderate	High	Total	
Nursing qualification	Secondary school	0	67	0	67	F= 3.272 P-value= .021 Sig= S
	Diploma	2	145	2	149	
	Bachelor	0	76	0	76	
	Postgraduate	0	23	0	23	
	Total	2	311	2	315	
Years of service	1 – 5	0	90	2	92	F= 1.744 P-value= .140 Sig= N.S
	6 – 10	0	68	0	68	
	11 – 15	2	56	0	58	
	16 – 20	0	38	0	38	
	21 and more	0	59	0	59	
	Total	2	311	2	315	
Hospital	Al-Diwaniyah	2	158	0	160	F= 7.924 P-value= .001 Sig= H.S
	Obstetrics gynecology	0	91	2	93	
	Al-Hussein	0	62	0	62	
	Total	2	311	2	315	
Department	Emergency unit	2	103	2	107	F= .902 P-value= .494 Sig= N.S
	Intensive care unit	0	48	0	48	
	Oncology unit	0	22	0	22	
	GIT unit	0	30	0	30	
	Psychiatric ward	0	24	0	24	
	Neonatal intensive care	0	74	0	74	
	Neurology unit	0	10	0	10	
	Total	2	311	2	315	
Shift	Morning	1	185	1	187	t= 1.591 P-value= .113 Sig= N.S
	Evening	1	126	1	128	
	Total	2	311	2	315	

F: F-statistics, P: probability, t: Independent sample T-test, Sig: Significance, N.S: Not significant, S: Significant, H.S: High significant

Discussion:

The primary goal of this study was to examine the relationship between work-related stress and demographic variables among nurses working in teaching hospitals in Diwaniya city. The findings revealed that the average age of nurses was 33.5 ± 8.5 years, with the majority (41.3%) falling within the 20–29 age group, followed by 36.5% in the 30–39 age group. These results align with previous research by Imenpanah et al. (2023), which reported a similar mean age of 33.6 ± 5.1 years among nurses, with a comparable gender distribution of

45.4% male and 54.6% female. In terms of marital status, 46.3% of nurses were married, while 38.9% remained single. Regarding educational qualifications, 47.3% held a nursing diploma, and 24.1% held a bachelor's degree. The average years of experience among the nurses was 12 ± 9 years, with 29.2% having between one and five years of experience. Most of the nurses (50.8%) were employed at Al-Diwaniya Teaching Hospital, with 34% working in emergency rooms and 23.2% in neonatal intensive care units. These findings reflect the diversity and experience level within the nursing population in Diwaniya.

The study identified that 47.3% of the nurses considered their monthly income insufficient, with 44.8% viewing it as barely sufficient. This financial dissatisfaction, coupled with the fact that 85.4% of the nurses lived in urban areas and 40.3% resided in rented homes, likely contributed to their reported stress levels. Additionally, 59.4% of nurses worked morning shifts, while the remaining 40.6% worked during the evening or night, which could influence their work-life balance and contribute to stress.

The results indicated that nearly all nurses (98.8%) experienced moderate levels of work-related stress, with a mean score of 66.50 ± 4.424. This finding is consistent with similar studies. For instance, Jiju and Singh (2022) conducted research among 105 nurses in India and found that 60% reported moderate stress, 36.2% experienced severe stress, and only 3.8% reported low stress. The nature of nursing, which involves interacting with patients in difficult and sometimes emotionally charged situations, undoubtedly contributes to the stress levels reported by the nurses. Nurses are often the first point of contact for patients and their families, and this constant exposure to patient needs and expectations can increase their workload and stress.

A significant relationship was found between work-related stress and the nurses' monthly income, with those reporting insufficient income experiencing higher levels of stress ($p = .009$). This finding is in line with the research conducted by Asadi et al. (2017), which identified low income as a primary contributor to stress among nurses in private hospitals. Similarly, Davey et al. (2019) emphasized that inadequate pay is a major source of stress in healthcare settings, underscoring the financial pressures nurses face. These studies support the current findings, suggesting that low monthly income exacerbates work-related stress.

Moreover, the study found a significant correlation between stress and nurses' qualifications ($p = .021$), particularly among diploma holders, as well as their place of employment ($p = .001$), with those working at Al-Diwaniya Teaching Hospital reporting higher stress levels. This is consistent with previous research by Adriani et al. (2022), which highlighted the association between workload and stress in hospital settings. Nurses with less advanced qualifications, such as diplomas, often take on more routine tasks with heavier workloads, contributing to increased stress levels. Additionally, working in high-demand environments like Al-Diwaniya Teaching Hospital can exacerbate the stress experienced by nurses due to

the workload, complexity of care, and patient acuity.

The findings also align with studies examining stress factors such as work environment, workload, and work-family conflict. Rizany et al. (2022) emphasized that workload and poor working conditions significantly contribute to nurses' stress, affecting both job performance and patient care. Similarly, Hermansyah and Riyadi (2019) noted that excessive job demands, insufficient staffing, and role overload are major contributors to stress, particularly among diploma-holding nurses who may lack the resources or support available to more experienced or highly trained colleagues. This was further supported by Ayomi (2016), who found that 74.5% of diploma nurses experience work stress due to these compounding factors.

In conclusion, the current study underscores the multifaceted nature of work-related stress among nurses, with factors such as income, qualifications, and hospital environment playing significant roles. Addressing these stressors through financial incentives, educational support, and workload management could help reduce stress levels and improve both nurse well-being and patient care outcomes.

Conclusion:

This study highlights the significant levels of work-related stress among nurses in teaching hospitals in Diwaniya city, with nearly all participants experiencing moderate stress. The findings demonstrate that inadequate monthly income, lower educational qualifications (specifically, diploma-level nurses), and employment at specific hospitals (such as Al-Diwaniya Teaching Hospital) were strongly correlated with higher stress levels. Other demographic factors, such as gender, marital status, and years of experience, did not show significant correlations with work-related stress. Addressing these stressors is critical not only for improving nurses' mental and physical health but also for enhancing the quality of patient care and reducing turnover in nursing staff. The study underlines the importance of workplace interventions to mitigate stress, particularly in areas related to financial compensation and workload management.

Recommendations:

1. **Increase Financial Support**: Hospitals and healthcare administrators should consider improving the financial compensation for nurses, particularly those who report inadequate income. Revising salary structures to align with the cost of living and workload demands could help reduce financial stress.
2. **Educational and Professional Development**: Institutions should offer continuing education and professional development programs to enhance the skills and qualifications of nurses, especially those with diploma-level education. Higher qualifications can equip nurses with better coping mechanisms and decision-making skills, thereby reducing stress.
3. **Workload Management**: Implementing measures to distribute workloads more equitably, especially in high-demand departments like emergency and neonatal units, can alleviate some of the pressure on nurses. Hospitals should consider hiring additional staff or improving staff

allocation based on the acuity of care needed.

4. **Supportive Work Environment**: Hospitals should foster a supportive and collaborative work environment, where nurses feel comfortable discussing stress-related concerns with management. Regular mental health assessments and stress management workshops could be provided to help nurses develop resilience and coping strategies.
5. **Flexible Scheduling**: Offering more flexible shift scheduling, including rotating shifts and opportunities for time off, can help nurses manage work-life balance more effectively, which in turn could reduce their stress levels.
6. **Further Research**: Additional studies are needed to explore the long-term impact of work-related stress on nurses' health and the efficacy of different interventions. Research focusing on the benefits of stress management programs and their outcomes would provide valuable insights for healthcare administrators and policymakers.
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