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Effects of Migraine on the Performance of Nursing Professionals

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ABSTRACT

Background: Migraine is a highly prevalent and disabling neurological condition, particularly among healthcare professionals exposed to chronic occupational stress. Nurses are disproportionately affected due to shift work, high emotional labor, and demanding clinical responsibilities, yet limited research exists on migraine's impact on their job performance and coping strategies in resource-constrained settings like Pakistan. **Objective:** This study aimed to assess the effects of migraine on the clinical performance of nursing professionals by evaluating symptom burden, workplace stressors, and adopted coping strategies, while identifying gaps for targeted healthcare interventions. **Methods:** A cross-sectional descriptive study was conducted among registered nurses (n = 155) working in medical, surgical, and gastroenterology wards of a tertiary care hospital in Lahore. Participants were recruited via convenience sampling based on predefined inclusion/exclusion criteria, including self-reported migraine history. Data were collected using a validated 31-item self-administered questionnaire assessing demographic characteristics, migraine symptoms, stressors, and coping mechanisms. Ethical principles were upheld in accordance with the Declaration of Helsinki, and informed consent was obtained. Descriptive statistics were analyzed using SPSS v27. **Results:** Among participants, 57% reported migraine symptoms, with 48.4% experiencing sleep disturbances and 45.2% reporting forgetfulness or confusion. Significant workplace stressors included pressure from superiors (43.9% always) and lack of coworker support (47.1% very often). Coping strategies such as prayer (27.1%) and exercise (43.2% very often) were commonly adopted. These findings are clinically relevant given the cognitive and emotional disruptions affecting patient care quality. **Conclusion:** Migraine substantially impairs the performance and well-being of nurses, driven by occupational stress and limited structured coping strategies. Integrating institutional support systems and culturally sensitive stress management programs is crucial to enhance nurse health and optimize healthcare delivery. **Keywords:** Migraine Disorders, Occupational Stress, Nurses, Work Performance, Coping Strategies, Cross-Sectional Studies, Health Personnel

INTRODUCTION

Migraine is a prevalent and disabling neurological disorder that poses a significant burden on individuals' quality of life and work productivity. Among healthcare professionals, nurses are particularly vulnerable to stress-induced conditions such as migraines due to the demanding and high-pressure nature of their work. Nursing roles often involve long shifts, emotional labor, inadequate staffing, and continuous exposure to suffering, all of which contribute to psychological and physiological strain (1). While the physiological aspects of migraine have been widely studied, less attention has been given to the unique impact of migraine on nursing professionals, especially in low- to middle-income countries such as Pakistan. This research explores the intersection of occupational stress and migraine, focusing on how migraine symptoms influence the performance, coping strategies,

and overall well-being of nurses working in high-stress hospital environments.

Previous literature has established that occupational stress can manifest in a variety of physical symptoms, including recurrent headaches, sleep disturbances, fatigue, and mood fluctuations—all of which can compromise job performance and increase susceptibility to chronic conditions like migraine (2). Studies have also identified specific stressors that are endemic to nursing, such as lack of managerial support, conflicts among staff, continuous multitasking, and the emotional toll of patient care (3). These stressors often result in maladaptive coping strategies and increased vulnerability to mental health conditions, further compounding the burden of migraine in this workforce. Notably,

migraine is not only a personal health concern for nurses but also a professional challenge that can affect patient safety and the overall efficiency of healthcare delivery (4). Research conducted in various settings has shown that female nurses, in particular, report a higher prevalence of migraines, which is attributed to both hormonal factors and workplace stress (5). However, there remains a gap in localized data that links the presence of migraine among nurses to specific occupational and psychosocial stressors, especially in the context of public tertiary care hospitals in Pakistan.

Although international studies have emphasized the role of both pharmacological and non-pharmacological interventions in managing migraines—such as analgesics, triptans, yoga, meditation, and time management strategies—there is limited understanding of how these are accessed or utilized by nurses in Pakistan's healthcare infrastructure (6). Furthermore, coping strategies rooted in cultural and religious practices, such as prayers and spiritual grounding, have been found to play a vital role in how South Asian nurses manage stress and pain, yet these factors remain underrepresented in current scholarly discussions (7). Workplace-based interventions, such as managerial support, workload redistribution, and mental health resources, have shown promise in reducing migraine episodes and improving staff retention internationally, but their implementation in Pakistani hospitals is either inconsistent or lacking altogether (8). Thus, a contextualized understanding is urgently needed to tailor interventions that are both culturally sensitive and institutionally feasible.

The psychosocial implications of unmanaged migraines among nurses extend beyond individual suffering. When nurses are cognitively impaired or physically distressed due to migraines, the risks to patient care quality and safety rise significantly (9). Moreover, continuous exposure to unmanaged stressors without effective institutional support increases the likelihood of burnout, absenteeism, and even career abandonment among skilled professionals (10). This not only impacts the affected individuals but also exacerbates the broader healthcare workforce crisis, particularly in resource-constrained settings where nurse-to-patient ratios are already suboptimal. Understanding how nurses perceive their migraines, what coping strategies they adopt, and how these strategies impact their performance can offer valuable insights for healthcare administrators and policymakers.

This study seeks to address a critical knowledge gap by exploring the prevalence, triggers, and coping strategies associated with migraines among registered nurses in a tertiary care hospital in Lahore, Pakistan. By integrating both subjective experiences and quantifiable data, the research aims to provide a comprehensive understanding of how migraines influence nursing performance and well-being. The findings will inform the development of context-specific interventions aimed at improving occupational health outcomes for nurses. Therefore, the research is driven by the following question: *How does migraine affect the job performance of nursing professionals, and what coping strategies do they employ to manage its impact in high-stress clinical settings?*

MATERIAL AND METHODS

This study employed a cross-sectional descriptive design to evaluate the effects of migraine on the performance of nursing professionals working in a tertiary care hospital in Lahore, Pakistan. The target population comprised registered nurses working across various clinical settings, including medical, surgical, and gastroenterology wards. A total of 155 nurses were recruited using non-probability convenience sampling. Inclusion criteria required participants to be registered nurses with at least six months of clinical experience, currently working in the selected hospital, and self-reporting a history of migraine either through prior medical diagnosis or self-identification based on symptom patterns. Nurses working any shift—morning, evening, or night—were considered eligible. Exclusion criteria included nurses without any history of migraine, those diagnosed exclusively with other headache types such as cluster or tension headaches, individuals with unrelated chronic conditions (e.g., epilepsy or uncontrolled hypertension), pregnant nurses, and those who submitted incomplete questionnaires.

Participants were invited to join the study voluntarily, and informed written consent was obtained from each before data collection. Data were collected over a three-month period using a structured, self-administered questionnaire designed to assess migraine prevalence, its impact on job performance, and coping strategies. The questionnaire included demographic information (age, gender, education, marital status, clinical department, and years of experience), migraine-related symptoms (e.g., headache intensity, sleep disturbances, mood changes), and stress-coping behaviors. The instrument consisted of both closed and open-ended questions and incorporated a well-validated 31-item format previously used in similar occupational stress research. The content validity of the tool was assessed by domain experts prior to data collection, and a pilot study was conducted to ensure clarity and reliability, with internal consistency evaluated using Cronbach's alpha.

The primary outcome was the self-reported impact of migraine on professional performance, including physical symptoms (such as sleep disturbances, stomach discomfort, and concentration difficulties) and job-related stressors (e.g., lack of co-worker support, workload, administrative pressure). Secondary outcomes included identification of coping mechanisms such as prayers, rest, exercise, music therapy, and social interactions. Data were anonymized at the point of collection, and confidentiality of responses was maintained throughout the study. All procedures were conducted in accordance with the ethical principles of the Declaration of Helsinki. Participants were informed of their right to withdraw at any stage without penalty, and data were stored securely with access restricted to the research team.

Statistical analysis was conducted using IBM SPSS Statistics version 27. Descriptive statistics including means, standard deviations, frequencies, and percentages were used to summarize demographic variables and response distributions. Likert-scale data on stress levels and migraine responses were treated as ordinal variables and analyzed using frequency distributions. No imputation was applied for missing data; only completed responses were included in the final analysis. The dataset was

reviewed for inconsistencies and outliers prior to interpretation to ensure data accuracy and integrity (1).

RESULTS

A total of 155 registered nurses participated in this study. The demographic characteristics of the participants are summarized in **Figure 1**. The majority of the participants were female (94.2%), with the most common age group being 31–40 years (36.8%), followed by 41–50 years (30.3%). Most nurses held a diploma in

general nursing (52.3%), while 29% had completed a post-RN BSN and 9.7% had a generic BSN. Unmarried nurses comprised the largest marital status group (63.2%). Regarding clinical experience, 43.2% had 6–10 years of experience, and 23.2% had more than 15 years. The surgical department was the most represented among participants (41.9%), followed by the gastro ward (35.5%) and medical ward (22.6%).



Figure 1 Demographics and Study Variables

Participants reported experiencing several prominent work-related stressors, as presented in **Table 1**. The most frequently encountered stressor was health-related problems, with 62.6% of nurses experiencing these issues "very often." Pressure from superiors was reported as a persistent challenge, with 43.9% of participants reporting experiencing it "always." Lack of cooperation from employees was also significant, noted by 47.1%

as occurring "very often" and 45.2% "sometimes." Continuous travel and commuting stress affected a substantial portion, with 58.1% and 45.8% reporting these issues occurring "sometimes" and "very often," respectively. Challenges in coping with governmental policies were commonly experienced, with 31.6% encountering this "very often" and 37.4% "sometimes."

Table 1: Frequency Distribution of Reported Work-Related Stressors

Stress Factor	Always (%)	Very Often (%)	Sometimes (%)	Rarely (%)	Never (%)
Health problems	18.7	62.6	16.1	2.6	0.0
Family cooperation	6.5	68.4	18.7	6.5	0.0
Problems from children	5.2	54.2	40.0	0.6	0.0
No employee cooperation	5.2	47.1	45.2	2.6	0.0
Pressure from boss	43.9	32.9	12.9	10.3	0.0
Long distance to workplace	9.7	45.8	29.7	11.6	3.2
Continuous travelling	5.2	27.1	58.1	8.1	1.3
Continuous phone calls	4.5	27.1	54.2	12.9	1.3
System failures	9.0	20.6	36.1	34.2	0.0
Holiday issues	10.3	27.1	16.1	33.5	12.9
Difficulty coping with policies	7.1	31.6	37.4	20.0	3.9

Table 2: Frequency Distribution of Migraine-Associated Symptoms Among Nurses

Migraine Symptom	Always (%)	Very Often (%)	Sometimes (%)	Rarely (%)	Never (%)
Sleep disturbance	6.5	48.4	23.2	17.4	4.5
Headaches	17.4	25.2	29.7	26.5	1.3
Stomach problems	3.9	32.9	43.2	12.3	7.7
Backaches	13.5	31.6	34.2	19.4	1.3
Mood swings	22.7	20.1	25.3	27.9	3.9
Forgetfulness/Confusion	12.3	19.4	45.2	15.5	7.7
Not sharing with family	3.9	26.5	38.7	15.5	15.5
Lack of concentration	9.0	23.9	41.3	21.9	3.9
No sense of accomplishment	21.9	18.1	35.5	24.5	0.0

Nurses reported multiple migraine-related symptoms that adversely impacted their daily professional performance (Table 2). Sleep disturbances were notably frequent, with 48.4% experiencing this issue "very often." Headaches, a central symptom of migraines, were reported "very often" by 25.2% and "sometimes" by 29.7% of participants. Mood swings represented another critical concern, with 22.7% indicating they experienced this symptom "always." Cognitive impairments such as forgetfulness or confusion were frequently encountered, with 45.2% reporting these symptoms "sometimes." Physical manifestations including backaches and stomach issues were also prevalent, reported "sometimes" by 34.2% and 43.2%, respectively. Participants adopted diverse coping mechanisms to manage

migraine symptoms and workplace stress, detailed in Table 3. Spiritual coping methods were prevalent, with prayers being used "always" by 27.1% and "sometimes" by 36.1%. Rest and sleep were consistently employed strategies, with 41.9% reporting they utilized sleep "very often." Physical activity and exercise, such as yoga, were practiced "very often" by 43.2%. Social support through spending time with friends was used "always" by 26.5% and "sometimes" by 41.3%. Passive approaches, such as maintaining silence during stressful situations, were commonly reported, with 35.5% using this strategy "very often." Less frequent were structured methods such as planning tours or setting priorities, highlighting a tendency toward immediate, emotionally oriented coping rather than systematic stress management.

Table 3: Frequency Distribution of Coping Strategies Adopted by Nurses

Coping Strategy	Always (%)	Very Often (%)	Sometimes (%)	Rarely (%)	Never (%)
Prayers	27.1	18.1	36.1	18.7	0.0
Sleeping	20.6	41.9	31.0	5.2	1.3
Yoga/Exercise	9.7	43.2	36.8	10.3	0.0
Spending time with friends	26.5	12.9	41.3	19.4	0.0
Laughing therapy	27.7	29.7	27.1	15.5	0.0
Silence during problems	17.4	35.5	21.9	20.0	5.2
Planning a tour	29.7	30.3	27.1	7.7	5.2
Music therapy	12.9	28.2	42.6	14.8	1.3
Walking	1.3	41.3	40.6	15.5	1.3
Painting	7.1	35.5	34.8	18.7	3.9
Setting priorities	10.9	19.2	32.1	17.9	19.2

These results collectively underscore the significant impact of migraine and related stressors on nursing professionals, highlighting the need for targeted institutional interventions to improve workplace well-being and productivity.

DISCUSSION

This study provides a detailed evaluation of migraine prevalence, associated stressors, and coping mechanisms among nursing professionals at a tertiary care hospital. Nurses frequently experienced significant occupational stress, notably health-related issues, pressures from supervisors, and interpersonal conflicts, which appeared to exacerbate migraine episodes. The prevalence of migraines in this cohort aligns closely with earlier research that reported higher susceptibility among nurses due to demanding work environments, shift patterns, and chronic exposure to psychosocial stressors (1,2). Previous studies also indicate that nurses often face excessive workloads, lack of

managerial support, and challenging interpersonal dynamics, all of which directly contribute to heightened stress responses and migraine frequency (3,4). Thus, this study reinforces the notion that nursing professionals are a particularly vulnerable occupational group with distinct healthcare needs requiring targeted interventions.

Comparatively, the migraine-associated symptoms reported here, including sleep disturbances, mood swings, headaches, and cognitive impairment, are consistent with prior international findings, highlighting the significant impact of migraines on work performance and quality of life among healthcare workers (5,6). For instance, cognitive disruptions such as forgetfulness or reduced concentration were reported frequently, reflecting how chronic migraine symptoms can compromise clinical decision-making and patient safety. Similar findings were documented by Andrews et al., who emphasized the clinical relevance of migraine

management in nursing settings to maintain optimal patient care standards (7).

The coping strategies identified in this study exhibit a blend of spiritual, emotional, social, and physical dimensions, consistent with earlier research conducted in similar cultural contexts (8). Spiritual coping, notably through prayers, was frequently utilized, indicating its cultural relevance and acceptance in Pakistani healthcare settings. This aligns with findings by Akbar et al., who emphasized the role of spirituality as a culturally preferred coping mechanism among nurses facing occupational stress in South Asia (9). However, structured approaches such as setting priorities or proactive planning were less prevalent, potentially reflecting a gap in awareness or access to systematic stress management programs. This finding contrasts slightly with Western studies, where structured and organizational-level coping mechanisms, such as mindfulness programs and institutionalized stress management training, have gained prominence and proven effective in reducing migraine-related absenteeism (10).

Mechanistically, chronic exposure to high stress levels likely predisposes nurses to frequent migraine episodes by dysregulating neuroendocrine pathways, altering serotonin levels, and increasing inflammatory cytokines, thereby reinforcing the biopsychosocial model of migraine etiology (11,12). Moreover, continuous occupational stress and limited effective coping strategies may perpetuate a cycle of stress-induced migraine, cognitive impairment, reduced job satisfaction, and diminished overall well-being. Therefore, from a theoretical standpoint, integrating robust psychosocial support mechanisms and promoting structured coping strategies could reduce migraine frequency and severity among nurses, subsequently enhancing their clinical performance and patient outcomes.

A notable strength of this study is its comprehensive approach in assessing a wide range of symptoms and coping strategies specifically within the nursing context, thus offering practical insights relevant to healthcare administrators and policymakers. Nevertheless, several limitations warrant careful interpretation of the findings. First, the use of convenience sampling restricts the generalizability of results beyond the study setting. Second, the cross-sectional design limits causal inference between stressors, coping strategies, and migraine outcomes. Lastly, reliance on self-report questionnaires introduces potential recall and social desirability biases, possibly affecting data accuracy.

Future research should address these limitations by employing longitudinal designs, larger representative samples, and objective measurements such as clinical evaluations or biomarkers to strengthen causal interpretations. Additionally, intervention studies evaluating structured stress management programs tailored to nursing professionals should be prioritized, examining their efficacy in reducing migraine incidence and improving occupational performance. Investigating organizational-level interventions and their impact on nurse well-being and patient safety could further guide institutional policy and health practice standards.

In conclusion, this study underscores the significant interplay between occupational stress, migraine, and coping mechanisms

among nurses, highlighting critical areas for targeted intervention. Healthcare institutions must prioritize migraine awareness, structured stress management training, and supportive environments to mitigate occupational stress, improve nurse health, and ensure high-quality patient care outcomes.

CONCLUSION

This study highlights the substantial impact of migraine on the performance of nursing professionals, revealing that a majority of nurses experience frequent migraine-related symptoms, including sleep disturbances, cognitive impairments, and emotional instability, primarily driven by occupational stressors such as workload, interpersonal conflicts, and administrative pressure. The findings underscore the need for targeted clinical interventions that address both symptom management and workplace stress reduction, emphasizing the importance of integrating structured coping strategies, institutional support, and culturally appropriate mental health resources into nursing practice. Clinically, these results advocate for proactive migraine screening and individualized stress management plans within healthcare settings. From a research perspective, this study establishes a foundation for future longitudinal and intervention-based investigations to explore causality and develop sustainable models for enhancing nurse well-being and, ultimately, patient care quality.

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