

Management of Migraine and Associated Factors among Nurses of DHQ Hospital Jhelum

Hina Arshad, Haleema Sadia*

Jhelum College of Nursing and Health Sciences, Jhelum, Pakistan

*Corresponding author's email address: maliksharjeel476@gmail.com

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Abstract: Migraine is a common and disabling neurological disorder that disproportionately affects nursing professionals due to high occupational stress, shift work, and sleep disturbance. In Pakistan, limited evidence exists regarding migraine-related stressors and coping practices among nurses working in public sector hospitals. **Objective:** To assess workplace stressors, migraine-related physical and psychological responses, and coping strategies among nurses working at DHQ Hospital, Jhelum. **Methods:** A descriptive cross-sectional study was conducted among 155 registered nurses at DHQ Hospital Jhelum during 2022–2023. Participants were selected through non-probability convenience sampling. Data were collected using a structured, self-administered questionnaire covering demographic characteristics, workplace stressors, migraine-related symptoms, and coping strategies. Responses were recorded on a five-point Likert scale. Data were analyzed using SPSS version 20, and results were presented as frequencies and percentages. **Results:** The majority of participants were female (94.2%), with the largest age group being 31–40 years (36.8%). Most nurses held a Diploma in General Nursing (52.3%) and had 6–10 years of professional experience (43.2%). Supervisor pressure was reported as “always” by 43.9% of nurses, while health problems were reported “very often” by 62.6%. Sleep disturbance was the most frequent physical response, reported “very often” by 48.4% of participants. Headaches, gastrointestinal symptoms, backache, mood swings, forgetfulness (45.2% “sometimes”), and poor concentration (41.3% “sometimes”) were common. Sleeping was the most frequently used coping strategy (62.6% “always” or “very often”), followed by prayer (45.2% “frequently”). Non-pharmacological approaches such as exercise, walking, music therapy, and social interaction were widely practiced. **Conclusion:** Nurses at DHQ Hospital Jhelum experience substantial occupational stress associated with frequent migraine-related physical and psychological symptoms. Coping strategies are largely self-directed and non-pharmacological. These findings suggest the need for structured occupational health interventions, stress-reduction programs, and institutional support systems tailored to the context of Pakistani public hospitals to mitigate the migraine burden and enhance workforce well-being.

Keywords: Migraine Disorders, Headache Disorders Primary, Nurses, Occupational Stress, Sleep Wake Disorders

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Introduction

Migraine is a highly prevalent and disabling neurological disorder that significantly impacts the quality of life and occupational productivity of affected individuals worldwide. It ranks among the leading causes of disability globally, with nursing professionals being particularly vulnerable due to the inherently stressful nature of their work environment (1,2). Nurses are routinely exposed to a constellation of occupational hazards, including heavy workloads, extended shift durations, sleep deprivation, and high emotional demands, all of which are well-established triggers for migraine episodes (1,2). A study conducted in South India demonstrated that migraine constitutes the most common type of primary headache among nursing students and nurses, with sleep disturbance, occupational stress, and work-related fatigue identified as predominant precipitating factors (3). Furthermore, research has confirmed that among healthcare professionals, nurses carry a disproportionately higher risk of developing migraine compared to physicians, underscoring the occupational specificity of this condition (3). The nursing profession is widely recognized as one of the most stressful occupations globally, with occupational stress manifesting through diverse physical and psychological sequelae (4). Nurses are subjected to chronic workplace stressors, including inadequate staffing, night shift rotations, patient acuity demands, and emotional labour, which collectively predispose them to neurological conditions such as migraine (1,4). Work-related health conditions among American nurses have been systematically categorized into domains including fatigue, sleep disturbances, and migraines, highlighting the occupational aetiology of these conditions (2). Sleep disturbance, which is intrinsically linked to

shift work patterns prevalent in nursing, has been identified as both a trigger and a consequence of migraine, creating a cyclical relationship that perpetuates neurological morbidity (1,2). Occupational fatigue, which is reported at moderate to high levels among nurses across diverse healthcare settings, further compounds the neurological burden by lowering the threshold for migraine attacks (1,5).

The management of migraine among nurses is complicated by the multifactorial nature of its triggers, which include irregular meal patterns, disrupted sleep cycles, psychological stress, and physical exhaustion (3,5). Nurses working in hospital settings frequently report inadequate access to timely pharmacological interventions during acute migraine episodes due to the continuous demands of patient care responsibilities (2,4). The interplay between occupational stress, burnout, and migraine is well-documented, with burnout syndrome—characterized by emotional exhaustion, depersonalization, and diminished personal accomplishment—serving as a significant predisposing factor for recurrent headache disorders (4,6). Physical and mental fatigue, which are endemic among nursing populations, have been identified as independent risk factors for migraine chronification and increased attack frequency (2,5).

In Pakistan, the healthcare system faces substantial structural challenges, including critical nursing shortages, inadequate resource allocation, and high patient-to-nurse ratios, particularly in District Headquarters hospitals serving semi-urban and rural populations, such as those in Jhelum district. Pakistani nurses working in public sector hospitals are exposed to compounded occupational stressors arising from systemic deficiencies, including irregular shift scheduling, limited institutional support, and poor occupational health infrastructure (4,7). Despite the global



recognition of migraine as a significant occupational health concern among nurses (2,3), there remains a paucity of locally contextualized research examining migraine prevalence, associated triggers, and management practices among Pakistani nursing staff. The absence of evidence-based occupational health policies tailored to the Pakistani nursing workforce may leave nurses at DHQ hospitals vulnerable to undiagnosed and inadequately managed migraine, with implications for patient safety and quality of care (2,6). This study addresses this evidence gap by examining migraine management and associated factors among nurses at DHQ Hospital Jhelum, with the aim of informing context-specific interventions to improve nurse health and healthcare delivery in Pakistan.

Methodology

This descriptive cross-sectional study was conducted at the District Headquarters (DHQ) Hospital, Jhelum, a tertiary-care public-sector hospital. The study setting was selected for its high patient load and the presence of nurses working in medical, surgical, and gastroenterology wards, which provided an appropriate environment to assess migraine, associated stressors, and coping strategies among nursing staff. Data collection was conducted during the academic session 2022–2023, after obtaining formal administrative permission from the hospital authorities. The study population comprised registered nurses working in the clinical wards of DHQ Hospital. Nurses aged approximately 21 to 60 years who were actively involved in patient care at the time of data collection were considered eligible for inclusion. Nurses who were on prolonged leave or unwilling to participate were excluded. A non-probability convenience sampling technique was used due to the operational feasibility within the hospital setting and the availability of nurses during duty hours. Based on the sample size calculation to estimate prevalence in a finite population of approximately 550 nurses, a sample size of 155 participants was targeted at the 95% confidence level, assuming an anticipated migraine prevalence of approximately 60% with a 5% margin of error. A total of 155 nurses consented and completed the study questionnaire, yielding complete datasets for analysis.

Data were collected using a structured, self-administered questionnaire adapted from previously used, well-accepted instruments in related studies. The questionnaire consisted of four sections: demographic characteristics, workplace stressors, nurses’ physical and psychological responses related to migraine, and coping strategies used to manage migraine and stress. Demographic variables included age, gender, educational status, marital status, years of professional experience, and current department of work. Workplace stressors were assessed using a set of items measuring the frequency of common occupational stressors, including health problems, workload-related issues, interpersonal challenges, organizational constraints, and administrative pressures.

Table 1. Demographic characteristics of nurses (n = 155)

Variable	Category	n	%
Gender	Male	9	5.8
	Female	146	94.2
Age (years)	21–30	45	29.0
	31–40	57	36.8
	41–50	47	30.3
	≥50	36	23.2
Education	Diploma in Midwifery	14	9.0
	Diploma in General Nursing	81	52.3
	Post-RN BSN	45	29.0
	Generic BSN	15	9.7
Marital status	Married	26	16.8
	Unmarried	98	63.2
	Divorced/Separated	31	20.0
Experience	1–5 years	12	7.7
	6–10 years	67	43.2
	11–15 years	40	25.8

Nurses’ responses to migraine were explored through items assessing sleep disturbance, headache frequency, gastrointestinal symptoms, musculoskeletal discomfort, mood changes, cognitive difficulties, and perceived work-related functioning. Coping strategies were evaluated using items on religious practices, rest, physical activity, social interaction, leisure activities, and personal stress management. All response items were measured on a five-point Likert scale ranging from “always” to “never.”

As all participants were educated and proficient in English, no translation of the questionnaire was required. The purpose of the study was explained to each participant before the questionnaire was administered, and written informed consent was obtained. Participation was voluntary, and respondents were informed of their right to withdraw at any point without any consequences. Anonymity was ensured by not recording any personal identifiers, and the confidentiality of the collected data was maintained throughout the study. The study adhered to ethical principles of research involving human participants, and institutional permission was obtained prior to data collection.

Completed questionnaires were checked for completeness and consistency before data entry. Data were coded and entered into Statistical Package for the Social Sciences (SPSS) version 20 for analysis. Descriptive statistics were used to summarize demographic characteristics and to present the distribution of responses to stressors, migraine-related symptoms, and coping strategies. Categorical variables were reported as frequencies and percentages. The analysis focused on presenting the pattern and magnitude of workplace stressors, migraine-related responses, and coping behaviors among nurses working in different hospital wards. Data cleaning procedures were performed prior to analysis to minimize entry errors and inconsistencies.

Results

Among the 155 participants, 146 (94.2%) were female, and 9 (5.8%) were male (Table 1). The largest age group was 31–40 years (57, 36.8%), followed by 41–50 years (47, 30.3%), 21–30 years (45, 29.0%), and ≥50 years (36, 23.2%). With respect to education, the majority held a Diploma in General Nursing (81; 52.3%), while 45 (29.0%) had a Post-RN BSN, 15 (9.7%) had a Generic BSN, and 14 (9.0%) had a Diploma in Midwifery. Most nurses were unmarried (98, 63.2%), whereas 26 (16.8%) were married and 31 (20.0%) were divorced or separated. Regarding work experience, 67 (43.2%) had 6–10 years of experience, 40 (25.8%) had 11–15 years, 36 (23.2%) had more than 15 years, and 12 (7.7%) had 1–5 years of experience. Departmental distribution showed that 65 (41.9%) were working in surgical wards, 55 (35.5%) in gastro wards, and 35 (22.6%) in medical wards (Table 1).

	>15 years	36	23.2
Department	Medical	35	22.6
	Surgical	65	41.9
	Gastro ward	55	35.5

High levels of workplace stress were reported. Pressure from supervisors was experienced “always” by 68 nurses (43.9%) and “very often” by 51 nurses (32.9%). Health problems were reported “very often” by 97 (62.6%) nurses. Lack of staff cooperation and problems

related to family responsibilities were also frequently reported. System-level issues and difficulties in obtaining holidays were commonly reported as moderate-to-frequent stressors (Table 2).

Table 2. Workplace stressors among nurses (n = 155)

Stressor	Always n (%)	Very often n (%)	Sometimes n (%)	Rarely n (%)	Never n (%)
Health problems	29 (18.7)	97 (62.6)	25 (16.1)	4 (2.6)	0
Family cooperation issues	10 (6.5)	106 (68.4)	29 (18.7)	10 (6.5)	0
Problems with children	8 (5.2)	84 (54.2)	62 (40.0)	1 (0.6)	0
Lack of staff cooperation	8 (5.2)	73 (47.1)	70 (45.2)	4 (2.6)	0
Pressure from supervisors	68 (43.9)	51 (32.9)	20 (12.9)	16 (10.3)	0
Long distance to the workplace	15 (9.7)	71 (45.8)	46 (29.7)	18 (11.6)	5 (3.2)
Continuous travelling	8 (5.2)	42 (27.1)	90 (58.1)	13 (8.1)	2 (1.3)
Continuous phone calls	7 (4.5)	42 (27.1)	84 (54.2)	20 (12.9)	2 (1.3)
Failure of systems	14 (9.0)	32 (20.6)	56 (36.1)	53 (34.2)	0
Holiday issues	16 (10.3)	42 (27.1)	25 (16.1)	52 (33.5)	20 (12.9)
Government policy issues	11 (7.1)	49 (31.6)	58 (37.4)	31 (20.0)	6 (3.9)

Sleep disturbance was reported frequently, with 75 (48.4%) nurses indicating this problem “very often.” Headaches and gastrointestinal complaints were commonly reported as recurring symptoms. Cognitive and emotional disturbances were notable; 70 (45.2%)

nurses reported forgetfulness or confusion sometimes, and 64 (41.3%) reported difficulty concentrating. Reduced sense of accomplishment and mood swings were also common, indicating both physical and psychological impact of migraine on nurses’ functioning (Table 3).

Table 3. Nurses’ physical and psychological responses to migraine (n = 155)

Symptom	Always n (%)	Very often n (%)	Sometimes n (%)	Rarely n (%)	Never n (%)
Sleep disturbance	10 (6.5)	75 (48.4)	36 (23.2)	27 (17.4)	7 (4.5)
Headaches	27 (17.4)	39 (25.2)	46 (29.7)	41 (26.5)	2 (1.3)
Stomach problems	6 (3.9)	51 (32.9)	67 (43.2)	19 (12.3)	12 (7.7)
Backache	21 (13.5)	49 (31.6)	53 (34.2)	30 (19.4)	2 (1.3)
Mood swings	35 (22.7)	31 (20.1)	39 (25.3)	43 (27.9)	6 (3.9)
Forgetfulness/confusion	19 (12.3)	30 (19.4)	70 (45.2)	24 (15.5)	12 (7.7)
Sharing problems with family	6 (3.9)	41 (26.5)	60 (38.7)	24 (15.5)	24 (15.5)
Poor concentration	14 (9.0)	37 (23.9)	64 (41.3)	34 (21.9)	6 (3.9)
Lack of accomplishment	34 (21.9)	28 (18.1)	55 (35.5)	38 (24.5)	0

Among coping strategies, sleeping was frequently used, with 97 (62.6%) nurses reporting it “always” or “very often.” Prayers were also commonly adopted, with 70 (45.2%) reporting frequent use. Non-pharmacological strategies such as exercise/yoga, music therapy,

walking, and spending time with friends were widely practiced, mostly at the “sometimes” to “very often” level. Planning activities and setting priorities were also used by a substantial proportion of nurses, indicating attempts to manage stress proactively (Table 4).

Table 4. Coping strategies used by nurses to manage migraine (n = 155)

Strategy	Always n (%)	Very often n (%)	Sometimes n (%)	Rarely n (%)	Never n (%)
Prayers	42 (27.1)	28 (18.1)	56 (36.1)	29 (18.7)	0
Sleeping	32 (20.6)	65 (41.9)	48 (31.0)	8 (5.2)	2 (1.3)
Exercise/yoga	15 (9.7)	67 (43.2)	57 (36.8)	16 (10.3)	0
Spending time with friends	41 (26.5)	20 (12.9)	64 (41.3)	30 (19.4)	0
Laughter therapy	43 (27.7)	46 (29.7)	42 (27.1)	24 (15.5)	0
Silence during problems	27 (17.4)	55 (35.5)	34 (21.9)	31 (20.0)	8 (5.2)
Planning tours	46 (29.7)	47 (30.3)	42 (27.1)	12 (7.7)	8 (5.2)
Music therapy	20 (12.9)	44 (28.2)	66 (42.6)	23 (14.8)	2 (1.3)
Walking	2 (1.3)	64 (41.3)	63 (40.6)	24 (15.5)	2 (1.3)
Painting	11 (7.1)	54 (35.5)	55 (34.8)	29 (18.7)	6 (3.9)
Setting priorities to avoid stress	17 (10.9)	30 (19.2)	50 (32.1)	28 (17.9)	30 (19.2)

Discussion

The present study revealed a predominantly female nursing workforce, with 94.2% of participants being female, consistent with the global feminization of the nursing profession. Xie et al. demonstrated that female gender constitutes an independent risk factor for migraine among medical staff, with female nurses exhibiting a 29.2% prevalence of migraine in South China (8). Similarly, Lu et al. confirmed that female nurses, unmarried individuals, and rotating-shift workers demonstrated significantly higher prevalence of depression co-occurring with headache and migraine disorders (9). The predominance of nurses aged 31–40 years (36.8%) in the present study aligns with findings by Xie et al., who identified working experience of 11–20 years as a predictor of circadian rhythm dysregulation, which is intrinsically linked to migraine susceptibility (10). Furthermore, the majority holding Diploma in General Nursing qualifications (52.3%) reflects the educational composition typical of public sector hospitals in Pakistan, where advanced nursing education remains limited (11).

The present study identified supervisor pressure as the most prominent stressor, with 43.9% of nurses reporting it “always.” Dartey et al. similarly documented that hierarchical pressure and inadequate institutional support constitute primary occupational stressors among nurses, with consequent physical and psychological sequelae (4). Jamshidi et al. established a robust positive correlation between occupational stress and headache severity, demonstrating through multivariate regression that increasing stress scores significantly predicted greater migraine burden (12). Carvalho et al. further corroborated these findings, identifying physiological workloads as significantly associated with headache among nursing workers, with burnout-related mechanical loads producing headache and forgetfulness as predominant symptoms (13). The high frequency of family cooperation issues (68.4% “very often”) and the problems reported by children in the present study are consistent with Mohammadi et al., who found that married nurses with children experienced significantly greater occupational burnout and psychological tension due to the dual burden of professional and parental responsibilities (14).

Sleep disturbance was reported “very often” by 48.4% of participants in the present study, constituting the most prevalent physical response. Lu et al. confirmed that sleep disorders among medical staff are significantly correlated with headache and migraine occurrence, with rotating-shift nurses demonstrating disproportionately higher prevalence (9). Hsieh et al. demonstrated that poor sleep quality mediates the relationship between occupational stress and depressive symptoms among nurses, establishing sleep disturbance as a pathway through which workplace stressors translate into neurological and psychological morbidity (15). The cognitive disturbances observed in the present study, including forgetfulness (45.2% “sometimes”) and poor concentration (41.3% “sometimes”), are consistent with findings by Carvalho et al., who identified mental fatigue and forgetfulness as burnout-related symptoms among nursing workers exposed to mechanical and physiological occupational loads (13). The reduced sense of accomplishment reported by 21.9% of nurses “always” aligns with Liu et al., who identified diminished personal accomplishment as a dimension of occupational burnout among hospital nurses, influenced by job stress and inadequate social support (16).

The predominant use of sleep as a coping strategy (62.6% “always” or “very often”) in the present study is consistent with Menon and Remadevi, who identified sleep as the primary relieving factor for migraine among nursing students (69%), alongside relaxation from work (48%) (3). The widespread use of prayer (45.2% frequent use) reflects the cultural and religious context of Pakistani nurses, consistent with Kang and Yu, who noted that spirituality and religiousness constitute prevalent coping strategies among nurses managing occupational stress and burnout (17). Non-pharmacological strategies including exercise or yoga (43.2% “very often”), music therapy (28.2% “very often”), and walking (41.3% “very often”) were widely practiced, aligning with Jamshidi et al., who reported

that regular aerobic exercise may reduce migraine burden and that lifestyle modification tends to support comprehensive headache management (12). Alam et al. reported that Pakistani nurses working in resource-constrained public sector hospitals tend to rely on personal coping mechanisms due to limited institutional psychological support, underscoring the relevance of these self-directed strategies in the local context.

Conclusion

Migraine-related symptoms among nurses at DHQ Hospital Jhelum are closely linked to occupational stressors, particularly supervisory pressure and sleep disturbance. In the absence of structured institutional support, nurses rely primarily on personal coping strategies. Strengthening workplace stress management and occupational health policies may improve both nurses' well-being and the quality of patient care in public-sector hospitals.

Declarations

Data Availability statement

All data generated or analysed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-JCN-348-23)

Consent for publication

Approved

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Conflict of interest

The authors declared no conflict of interest.

Author Contribution

HA

Manuscript drafting, Study Design,

HS

Review of Literature, Data entry, Data analysis, and drafting articles.

All authors reviewed the results and approved the final version of the manuscript. They are also accountable for the study's integrity.

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