ORIGINAL ARTICLE

Migraine Prevalence and Productivity Impact in Healthcare Professionals: A MIDAS Assessment

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ABSTRACT

Objective: To detect the frequency of migraine headaches among healthcare professionals and to determine the associated triggering factors and level of functional disability using the Migraine Disability Assessment Score (MIDAS).

Study Design: Descriptive Cross-sectional study design.

Place and Duration of Study: Federal Government Polyclinic Hospital, Islamabad, from 1st July 2023 to 30th December 2023.

Materials and Methods: After obtaining informed consent, 283 healthcare professionals experiencing headaches were included using convenience sampling, regardless of their gender or department. The demographic details were documented on a proforma, and migraine was diagnosed according to the International Classification of Headache Disorders (ICHD-3) criteria.

The disability due to migraine was then determined by calculating the migraine disability assessment score (MIDAS) score. The data analysis was done using the Statistical Package for the Social Sciences (SPSS) version 24.0. The descriptive statistics were expressed using frequency/percentage and mean/standard deviation.

Results: Based on the ICHD-3 criteria, 84 (29.7%) respondents were found to have migraine. The most common triggering factor was stress (73.8%) followed by sleep disturbances (56%), noise (39.3%) and fatigue (35.7%). Most of the respondents with migraine had Grade IV MIDAS score (32.1%) - indicating severe disability followed by Grade III (29.8%), indicating moderate disability.

Conclusion: The prevalence of migraine in healthcare workers is very high, and it is associated with significant disability that negatively impacts our healthcare system. The majority of healthcare workers experience moderate to severe disability due to migraine, with stress and sleep disturbances being the most common triggering factors.

Key Words: *Migraine, Headaches, Migraine Disability Assessment Score, MIDAS, Healthcare Professionals.*

Introduction

Migraine, a primary headache disorder marked by recurring episodes of moderate to severe intensity, is a prevalent health condition. Globally, its estimated prevalence is 14–15%, and in terms of burden, migraine contributes to 4.9% of global ill health measured as years lived with disability.[1] In Pakistan, a study was done to assess the prevalence of migraine in the general population. Out of 986 participants, 393 individuals were diagnosed as migraine. Notably, most of these individuals were young females, indicating a higher prevalence of migraines in this demographic within the sampled population.[2] Migraine greatly affects the quality of life leading to significant disability, impaired work at home & workplace and disrupted family & leisure activities. It is also a major cause of depression, anxiety and sleep disturbances in people experiencing migraine.[3] Another study from Korea also showed increased migraine related disability over time due to missed days from work or education.[4] In addition, migraine is also a contributor to significant financial burden for the individual and the healthcare system. It includes consultation fees, drugs, hospital stays and absence/impaired work.[5]

There are many known trigger factors for migraines such as weather changes, intense physical exertion, sensory stimuli such as strong smells or flashing

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lights, alcohol, caffeine, menstruation, menopause, pregnancy, medications such as oral contraceptive pills, salty foods, food additives and cheese. But of all these triggering factors, sleep deprivation, emotional & physical stress and skipping meals are among the most frequent causes.[6] Migraine triggers extend beyond biological factors, with occupational elements playing a substantial role. The demanding nature of healthcare professionals, such as those of doctors and nurses, heightens stress levels, creating an environment conducive to migraine onset. Moreover, irregular sleep patterns and infrequent meals, consequences of the demanding work schedules and on-call hours inherent in healthcare roles, further amplify these challenges.[7]

In Pakistan, studies have been conducted addressing migraine in the general population and medical students. However, one study conducted in Faisalabad determined the prevalence of migraine among physicians and medical students. But it didn't include nurses and failed to address the impact of migraine on their productivity. Migraine can affect individuals from all aspects of life, but healthcare professionals are particularly susceptible to develop migraine.

Our study was designed to detect the frequency of migraine among healthcare professionals including consultants, resident doctors and nurses in Pakistan and determined its triggering factors and impact on their productivity. By understanding how migraines affect the productivity of doctors and nurses, we could gain insight into their broader effects on the healthcare system. This study might set the foundation for future research, fostering awareness about migraine-related disabilities, and contributing to the development of effective treatments and preventative measures. It might have implications for stress management, and public health interventions tailored to address the needs of the healthcare workers.

Materials and Methods

This cross-sectional descriptive study was conducted at Federal Government Polyclinic Hospital, Islamabad, from 1st July 2023 to 30th December 2023. The study was approved by the Hospital Ethical and Research Committee (Ethical Approval Number: FGPC.1/12/23). A sample size of 283 healthcare professionals was estimated using a 24.4%

prevalence of migraine among doctors and medical students and a 5% margin of error.[8] The participants were recruited using convenience sampling. After obtaining informed consent, healthcare professionals experiencing headaches were included, regardless of gender or department. Healthcare professionals unwilling to participate or those who did not experience headaches were excluded. The demographic details of the participants were recorded on a proforma, and migraine was diagnosed according to the International Classification of Headache Disorders (ICHD-3) criteria. The disability due to migraine was determined by calculating the Migraine Disability Assessment Score (MIDAS). A score of 0–5 was classified as little or no disability (Grade I), 6–10 as mild disability (Grade II), 11–20 as moderate disability (Grade III), and >20 as severe disability (Grade IV). The participants provided information on the frequency of headaches during the three months preceding the study, and headache intensity was evaluated using a visual analogue scale (VAS). Data analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 24.0. Descriptive statistics were expressed as frequencies/percentages and means with standard deviations.

Results

Among 283 participants, 174 (61.5%) were female and 109 (38.5%) were male. There were 43.1% (122) respondents from the department of Internal Medicine, 15.9% (45) were from General Surgery, 7.8% (22) from Obstetrics & Gynaecology and 33.2% (94) from other specialties. Mean age of the respondents was 29.8±7.7 years. Based on the ICHD-3 criteria, 84 (29.7%) respondents were found to have migraine. The average daily working hours of those with migraines were calculated as 7.5 ± 2.1 hours. 4.8% of those with migraines were smokers. 38.1% of them had positive family history for migraines as well.

The most common triggering factor of migraine was stress (73.8%) followed by sleep disturbances (56%), noise (39.3%) and fatigue (35.7%). The triggering factors of migraine are shown in Table I.

Among these, the disability due to migraine was then determined by calculating the MIDAS score. Most of the respondents with migraine had Grade IV MIDAS

Table I: Frequency of Different Triggering Factors for Migraines among The Respondents

Triggering Factors for migraines	Frequency (N)	Percentage (%)
Stress	62	73.8
Sleep disturbances	47	56.0
Loud noise	33	39.3
Fatigue	30	35.7
Travelling	24	28.6
Excess screen time	23	27.4
Dieting or missed meals	22	26.2
Dehydration	21	25.0
Menstrual periods	19	22.6
Certain smells	8	9.5
Bright sunshine	7	8.3
Certain foods (chocolate / caffeine)	4	4.8
Weather change	4	4.8
Exercise	2	2.4
Pregnancy	2	2.4
Oral Contraceptive pills	1	1.2
Other hormonal medications	1	1.2
Sexual activity	1	1.2

score (32.1%) showing severe disability followed by Grade III (29.8% indicating moderate disability) (Table 2).

Table II: MIDAS Score of Respondents with Migraines

MIDAS Grading	Frequency (N)	Percentage (%)
Grade I (0-5)	18	21.4
Grade II (6-10)	14	16.7
Grade III (11-20)	25	29.8
Grade IV (21+)	27	32.1

Discussion

Our results revealed a high frequency of migraine (29.7%) among healthcare professionals. This prevalence underscores the importance of understanding the specific challenges faced by healthcare professionals grappling with migraines. Our results are similar to another study conducted in Faisalabad in which the prevalence of migraine among physicians and medical students was found to be 24.4%.[8] Evers *et. al.*,[10] found that chronic migraine has a higher prevalence among doctors with the highest frequency in headache specialists (53.0%) and neurologists (43.0%). In another Egyptian study, migraine was reported in 17.9% of medical students.[11] In Pakistan, most of the studies are conducted on medical students. Jamali *et. al.*,[12] found that migraine prevalence is significantly high among the Pakistani population, especially among doctors and medical students as compared to university students. Two studies conducted in Karachi among medical students reported 17.84% and 52.3% frequencies of migraine.[13,14] This wide variation may be attributed to the difference in study population, diagnostic criteria, gender ratio and academic stress levels of the study participants. In our study, the most common triggering factor of migraine was stress (73.8%) followed by sleep disturbances (56%), noise (39.3%) and fatigue (35.7%). Stress and sleep deprivation were the most common contributing factors of migraine in medical students in two other studies.[13,14] A cross-sectional study in Saudi Arabia found a significant link between increased weekly working hours and the prevalence of migraines among healthcare professionals.[15] It was also observed in our study that 22.6% of the individuals suffered from migraines triggered by menstrual periods. Vetvik *et. al.,*[16] reported that menstrual migraine manifests in approximately 20–25% of women in the general population who experience migraines.

Our study showed that 29.8% of the respondents suffered from moderate disability and 32.1% suffered from severe disability. These results indicate a significant amount of disability associated with migraine headaches and consequently affecting the productivity of the healthcare system. Another study showed many individuals exhibited moderate to severe disability, underscoring the substantial

impact of migraines on their overall functional capacity and quality of life.[17] Another study from Egypt found that among medical students with migraines, 19.9% experienced moderate disability, while 56.9% suffered from severe disability.[18] According to another study conducted among physiotherapists from Lahore, significant number of participants experienced severe migraine disability, leading to reduced work productivity and quality of life.[19] Another study from Spain demonstrated that increasing the number of migraines per month is not only associated with severe disability but also increases the risk of anxiety and depression.[20] Similarly, another study in KSA showed not only increased prevalence of migraines among health care professionals but also demonstrated significant disability and consequently affecting the quality of life.[21] Alkahtani *et. al.*,[22] also found that migraine had a substantial negative impact on the quality of life and ability to work. Thiagarajan *et. al.*,[23] conducted a study among medical students of Malaysia and found that those with migraines reported significantly higher levels of functional disability compared to students suffering from non-migraine headaches.

Conclusion

The prevalence of migraine in healthcare workers is very high, and it is associated with significant disability that negatively impacts our healthcare system. The majority of healthcare workers experience moderate to severe disability due to migraine, with stress and sleep disturbances being the most common triggering factors.

Recommendations of the Study

As migraine frequently affects healthcare professionals, we recommend that healthcare institutions should address this issue by promoting workplace wellness programs, providing resources for stress management, and creating environments that support the overall well-being of their staff.

Limitations of the Study

Our study recruited healthcare professionals from a single institute and did not investigate different migraine subtypes. But as the frequency of migraine was high in our study, a multicentre study should be conducted in the future with a large sample size and documenting the types of migraine.

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CONFLICT OF INTEREST
Authors declared no conflicts of Interest.
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DATA SHARING STATEMENT
The data that support the findings of this study are available from the corresponding author upon request.

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