

Original Article

Qualitative Exploration of Challenges and Management of Migraine among Pakistani Female University Students

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Abstract

A migraine is a health condition of recurrent headaches with symptoms such as nausea, vomiting, dizziness, and sensitivity to light and sound. Migraine attacks can last up to a few hours to several days. Although it is a physiological condition, it is reported to cause psychological problems such as mood disorders and social issues. This study aimed to gain insight into the experiences associated with migraines among female university students. Challenges associated with migraines at emotional, cognitive, social, and physical levels were explored. Migraine management mechanisms were also explored. A qualitative study was conducted where in-depth interviews were taken from 10 participants. The participants were approached through snowball sampling with inclusion criteria of being a female university student diagnosed with migraine for at least three months. The thematic analysis was conducted to analyze participants' verbatims. Emotional challenges associated with migraines included feelings of anxiety, depression, and helplessness. The cognitive challenges were distressing thoughts about the future, thoughts about death, and orientation and attention issues. The social challenges included social isolation and maintaining good relationships. The physical challenges reported were related to sleep, appetite, fatigue, and hypersensitivity to sensory stimuli. Further, most of the participants used avoidant/passive mechanisms for management and only a few participants used positive management mechanisms such as meditation. The study provides insight into the experiences of female university students living with migraine and highlights the need for integrated management approaches that address the physical, social, and psychological aspects of migraine.

Keywords: Migraine, challenges, management, female students, qualitative exploration

1. INTRODUCTION

Migraine is a prevalent health issue that is characterized by recurrent unilateral episodes of headache which often occurs with sensitivity to sound and light, nausea, and vomiting (Amani et al., 2023). The word migraine was derived from the word 'hemicrania' meaning 'half-head' (Gupta & Gaurkar, 2022). Migraine has two main types. One type is migraine with aura, which has sensory or neurological symptoms before the attack. It is also known as classical migraine. Another type is migraine without aura which occurs without such prior symptoms. It is also known as a common migraine (Gupta & Gaurkar, 2022). Moreover, migraines can either be episodic or chronic. Episodic migraine is less than 5 days of headache per month while chronic migraine is 15 or more days of headache per month (Seng et al., 2017).

Migraine affects more than one billion people worldwide (Ashina et al., 2021). According to a study of Global Burden Disease, migraine is the second leading cause of years lived with disability (Vos et al., 2020). It is associated with various comorbidities such as psychiatric disorders, cardiovascular disorders, neurological diseases, sleep conditions, and inflammatory conditions (Buse et al., 2020).



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A study by Wang and his colleagues (2016) demonstrated that migraine prevalence in university students is 16.1%. They also pointed out that gender may have a significant influence on the prevalence of migraine. Later, a study with medical students concluded that the female gender is a potential positive predictor of suffering from migraine (Ragab et al., 2023). Ragab et al. (2023) also reported a negative correlation between the degree of disability of students and their academic performance. Studies have also found that migraines cause stress and distress in female university students (Ragab et al., 2023). Therefore, this study aimed to gain insight into the experiences associated with migraines among female university students. We explored their challenges at emotional, cognitive, social, and physical levels. We also explored their management mechanisms. The study is important because it gives an account of an important health issue and the way it affects the daily life of female students.

2. LITERATURE REVIEW

Scientists believe in the involvement of the nervous system in migraines. Studies have identified brain structure differences during comparison between migraine and tension-type headaches (Chen et al., 2018). MRI studies report an association of abnormal cortex thickness with migraine (Amin et al., 2021). Furthermore, Potassium ATP channels are involved in the pathophysiology of migraine. These channels are activated by elevated levels of cyclic adenosine monophosphate and cyclic guanosine monophosphate that trigger a migraine attack (Kokoti et al., 2020).

The role of genetics in the susceptibility to migraines is significant and a family history of migraine attacks is common among individuals with migraine tendencies. Furthermore, a stronger family history of migraine is associated with migraine with aura, earlier onset, and increased medication usage (Pelzer et al., 2019).

Prevalence

The global prevalence of migraine is 9.7% in males and 20.7% in females (Burch, 2019). Studies in India and Pakistan have stated that the occurrence of migraine is more common in females than in males (Athar et al., 2022; Ramasamy et al., 2019). Several factors including genetic variations, brain structures, neuronal activity, hormones, and stress are involved in modulating the predisposition of migraine in females (Allais et al. 2020). Moreover, a study on menstrual migraines highlighted the important role of estrogen and prostaglandin in migraine onset (Vetvik & MacGregor, 2021). In a study in Pakistan conducted with 393 individuals who were suffering from migraine aged between 10-69 years, 78.1% were females and 76.1% were students (Athar et al., 2022). Similarly, the study by Alatawi et al. (2023) with 374 participants demonstrated females' comparatively higher percentage (54.5%) than males (45.5%) as well as majority were students (60.2%).

Triggers

The occurrence of migraine attacks is associated with various triggers, including sleep disturbances, high levels of stress, excessive screen time, exposure to loud noises, skipping meals, and hormonal changes in females (Athar et al., 2022). There is a strong association between migraine headaches and both mental and physical stress. A narrative review study of migraine triggers in Asian countries revealed that stress and sleep disturbance are the most common triggering factors of migraine (Iba et al., 2023). It is suggested that stress may potentially lead to sensitization and alteration in cortical excitability that partially account for triggering migraine attacks and progression to chronic migraine (Stubberud et al., 2021). Besides, visual discomfort by exposure to light such as bright sunlight reflected sunlight, and flickering light was reported as a trigger of migraine attack by 69% of the patients (Artemenko et al., 2022).

Impacts

Migraine not only significantly affects daily functioning but also impacts psychological well-being. The unpredictable nature of migraine attacks is believed to be a significant contributor to its negative impact on the quality of life. The findings of a survey with 11,266 adult individuals with migraines demonstrated that 85% of the participants stated at least one negative impact of migraine. The most reported impacts included being misunderstood by people, depression, hating their lives, and feeling that migraine has control over their lives (Martelletti et al., 2018). Additionally, 78% of the participants reported migraine's impact on their social activities including not being able to participate in their hobbies, stopping from attending social events, and not engaging in exercise or sports (Martelletti et al., 2018).

It is estimated that approximately 25% of individuals with migraines meet the criteria for mood and anxiety disorders (Corallo et al., 2015; Malik et al., 2023). However, a larger number of individuals experience symptoms of mood and anxiety even without meeting the full diagnostic criteria for a specific disorder (Corallo et al., 2015). A qualitative study evaluated the impact of migraine on multiple domains of life. The findings highlighted that anger, frustration, guilt, and isolation were more expressed by the participants than formal depression (Estave et al., 2021).

Several studies have concluded that migraine leads to cognitive dysfunction. It is linked to deficits in orientation, attention, executive functioning, calculation, language, memory, and psychomotor speed (De Dhaem & Robbins, 2022). Moreover, negative automatic thoughts were found more in individuals with migraine than in healthy participants. The frequency of migraine headaches is significantly correlated to negative beliefs about danger and uncontrollability, stress, anxiety, and depression which further increases the severity of disability due to migraines (Goksan et al., 2022). Studies have also suggested a higher prevalence of suicidal ideations and suicidal attempts in individuals living with migraine. Suicidal ideation was found higher in individuals with migraine with aura than in migraine without aura. Also, a significant relationship was indicated between migraines and suicide attempts (Wei et al., 2023). Migraines also impact sleep and appetite. Studies have identified that brainstem and diencephalic regions are involved in the pathogenesis of migraine as well as in sleep-wake cycle regulation (Holland et al., 2018). Therefore, people with migraine are at risk of developing insomnia (Tiseo et al., 2020).

Management

Two types of management mechanisms are used by individuals with migraines, positive and avoidant/passive. Positive strategies include stress management and relaxation while avoidant ones include social withdrawal, disengagement, and avoidance of perceived triggers (Thelakkad et al., 2018). The most commonly employed management strategy by individuals experiencing migraines in a study conducted in Pakistan was taking rest with a percentage of 65.9%. Additionally, to seek relief from the pain, medication, staying in a dark and quiet place and massage were also used (Athar et al., 2022). Besides, migraine was found to be significantly managed in quiet and dark environments, reducing noise, and massage as relieving factors.

3. SAMPLE & METHODOLOGY

A qualitative study with individual in-depth interviews was conducted. The inclusion criteria were being 18 years or older and having a diagnosis of migraine for at least three months. The participants were approached through snowball sampling. The interviews were conducted face-to-face or over video call. A total sample of 10 individuals participated in the study. Informed consent was taken from participants before the interview. Participants were informed about the study and were assured of anonymity and confidentiality. For face-to-face interviews, written consent was taken while for video calls, consent was taken through Google form. Then, a demographic section was filled that was intended to obtain information about participants. It included age, gender, diagnosis duration, marital status, family structure, and socioeconomic status. After consent and demographic data, semi-structured interview questions were used to gain insight into the experiences of the participants. The questions were designed to gain insight into the experiences of individuals diagnosed with migraine. The questions were aimed to reveal physical, emotional, cognitive, and social challenges associated with migraine. We also explored the management strategies used by the participants.

The interviews were conducted bilingually in English and Urdu. Each interview took around 25 minutes. Then thematic analysis was conducted to extract the themes from the interviews. All the participants were females and single. They were students of a private or public sector university based in Karachi, Pakistan. Table 1 demonstrates that their ages ranged between 20 to 24 years. Their diagnosis duration varied from 3 months to 9 years. Three (30%) participants reported other health issues also. Six (60%) participants belonged to upper-middle whereas 4 (40%) belonged to middle socioeconomic status.

Table 1

Demographic characteristics of participants (N=10)

participant	Age (years)	Diagnosis duration	Other health issues	Family structure	Socioeconomic status
1	22	3 months	No	Nuclear	Middle
2	21	3 years	No	Nuclear	Middle
3	21	4 years	No	Nuclear	Upper middle
4	23	6 years	No	Nuclear	Upper Middle
5	22	5 years	No	Nuclear	Upper Middle
6	20	2 years	Liver Disease	Joint	Upper Middle
7	22	3 years	Iron and vitamin D deficiency	Nuclear	Upper Middle
8	22	5 years	No	Nuclear	Upper Middle
9	23	2 years	No	Joint	Middle
10	24	9 years	Chronic Constipation, Chronic Sinusitis	Nuclear	Middle

Qualitative Analysis

Table 2

Thematic Analysis of Participants' Responses

Themes		
Challenges Associated with Migraine	Emotional Challenges	Cautious, Anxious, and Fearful Irritation and Anger Down and Depressed Feels Helpless and useless
	Cognitive Challenges	Worst thing ever to happen Lifelong illness Inability to complete the task Reduced functioning Inattention at university
	Social Challenges	Isolation Quietness Avoidance of interaction by family Bad encounters with family
	Physical Challenges	Difficulty falling asleep Short sleep Lost appetite Nausea and fear of vomit Sensitivity to lights and sounds Weakness and Lethargy
Management of Migraine		Meditation Avoidance of sensory stimulus Avoidance of workload Avoidance of tension/stress Medication

Emotional Challenges

One of the highlighted points in the verbatim of participants was emotional disturbance. According to them, the overwhelming pain and uncertainty surrounding potential migraines lead to emotional distress, stress, and anxiety. Some of them felt cautious that unintentionally they might trigger a migraine. They were in constant fear and anxious state that migraine may occur and there would be unbearable pain.

"I always have to consider the fact that I might get attacked. I am in a constant stressed and anxious state" (P10).

A few participants also shared that they felt irritated due to the constant unbearable pain and discomfort which makes them more sensitive to their surroundings.

"I get irritated often even if someone is trying to help me" (P4).

Besides, three of the participants expressed their feelings of helplessness. They feel powerless when

they are unable to control the throbbing pain and associated symptoms. Also, when they are uncertain about its intensity and duration.

“No one has any idea when it gets triggered and how long it will take to leave” (P2).

Some of the participants reported that the pain and helplessness of not having control over it, makes them feel depressed.

“I feel exhausted physically as well as mentally. I feel kind of depressed with my situation” (P8).

Few participants mentioned that when the pain is present as well as when it subsides it leaves them with the feeling of being unworthy.

“I survive the worst time of my life when I am having it because its symptoms make me feel useless during the pain” (P2).

Cognitive Challenges

It was identified that participants had constant distressing thoughts during and after migraine. Two of the participants said that the desperation to get relief from the pain led them to desire something extreme like death.

“One wishes for nothing but death when experiences migraine” (P3).

“I think when it occurs to anyone, he/she might wish to end their life because of its intensity and its symptoms” (P2).

Few of them said that it was the worst thing to deal with and they had to bear it throughout their life.

“My constant thought is that will I be able to live a life without migraine?” (P4).

Migraines disrupted their daily routine. Participants shared the difficulties they faced in their daily routine:

“If I have a migraine attack then it's my day wasted” (P10).

Moreover, due to orientation and attention issues, participants' productivity was reduced. They are not able to accomplish daily tasks and complete assignments. The seventh participant reported:

“I cannot complete my tasks, cannot concentrate in class, I am not able to submit my assignments on time” (P7).

A few participants also found it difficult to be regular and active in class and reported the negative impact migraine has on their academic life.

“I often take time off from university or leave class in middle” (P6).

Social Challenges

Migraine's impact on socialization and relationships was prominent in the verbatim of participants. Almost all the participants reported that they felt immense pain during migraine that led them to go towards isolation.

“I need to isolate myself” (P2).

An avoidance of social gatherings and meeting with people was also found in the verbatim.

“I cannot attend social gatherings” (P5).

Participants also felt emotional pain because of the isolation.

“I feel down because of pain, I isolate myself that causes me so much distress” (P1).

Moreover, they avoided having conversations with anyone and felt annoyed even if someone was trying to help. A participant shared that her family also avoided talking to her due to her mood swings. However, some participants mentioned that their family was supportive and understanding, therefore there was no impact on their relationships.

Physical Challenges

Three physical challenges were reported in the study, which were sleep disturbance, appetite disturbance, and increased sensitivity to sensory stimuli. It was difficult for the participants to find a comfortable sleeping position during a migraine attack.

"It is extremely difficult to sleep as even keeping the head on pillow feels painful" (P3).

The impact on sleep duration was also prominent which had reduced to only a few hours. Few of them were only able to have restless and fragmented sleep.

"It's difficult to sleep in pain. My sleeping hours are 3 to 4 hours" (P1).

"I sleep in chunks only" (P8).

Regarding appetite disturbance, participants reported that the pain and associated symptoms caused a reluctance to eat. The participants either didn't feel like eating or feared that they might vomit. It was demonstrated in the verbatim that there was a disturbance in appetite and diet due to migraine.

"For almost 2 to 3 days, my appetite gets totally disturbed" (P2).

Participants also shared having a sensory sensitivity.

"There is sensitivity to light" (P2).

Besides, the attacks make them physically drained. They experience extreme weakness. The fifth participant shared that:

"Migraine leads to weakness" (P5).

Also, when the pain subsides, the tiredness lingers around and there is a lethargy that restrains them from accomplishing tasks.

"I feel a lack of energy, unable to do anything the whole day!" (P9).

Migraine Management

It was identified that some of the participants managed migraines by trying to identify, avoid, or manage the triggering factors such as television, phone, workload, etc.

"I don't have coffee or chocolates (dark) as it triggers migraine" (P3).

Most of the participants reported managing their sensitivity to lights to avoid a migraine attack or reduce its potential of worsening. They avoid direct sunlight or bright lights.

"I avoid sunlight and I use sunglasses so that it won't directly impact my eyes. My phone brightness is at 0% always" (P10).

Moreover, almost all of the participants rely on medical management. They use prescribed medication to alleviate the pain.

"I consume medicine if it becomes unbearable" (P6).

Additionally, few of the participants opted for maintaining a healthy lifestyle to manage their migraine attacks. They try to incorporate meditation and exercise into their daily routine.

"By having a good routine that includes exercise, meditation, good quality sleep, healthy diet and do not stress out" (P5).

Discussion

Migraines, which are recurrent headaches, are associated with multiple challenges. Migraines are common among university students and the female gender. Therefore, this study aimed to gain insight into the experiences associated with migraines among female university students. Challenges associated with migraines at emotional, cognitive, social, and physical levels were explored. Migraine management mechanisms were also explored.

The findings of the study reveal that migraines have a significant impact on the well-being and functioning of an individual. There was an extreme emotional disturbance associated with migraine in our participants. During a migraine attack, neurons in the posterior hypothalamus, lateral hypothalamus, and adjacent midbrain are active. These areas have a connection with the limbic system which may

explain the mood changes in an individual (Kumar et al., 2022). Our participants reported anxiety and depression which have also been reported in earlier research (Corallo et al., 2015). Earlier research also reports that anxiety precedes migraines (Jahangir et al., 2020). This was also shared by one participant in our study that she remained in a constant state of anxiety about getting a migraine attack. Moreover, our participants' feelings of helplessness, uselessness, and exhaustion are also supported by the existing literature (Estave et al., 2021).

It was identified that migraine impacts our participants' daily functioning by affecting their cognitive abilities. There is an association between higher levels of maladaptive cognitions and migraine in the existent literature (e.g., Seng et al., 2017). Distressing thoughts during and after migraines were unbearable for the participants and sometimes led them to think about death. None of the participants shared suicidal ideation, which has been reported in migraine patients in earlier research (Pei et al., 2020). The thought that the illness was lifelong gave them so much emotional pain. Our participants also reported a concern for the wasted time due to migraines. They shared that they missed deadlines at university and could not attend lectures during the migraine attacks. Results of the previous studies support that migraine leads to substantial functional impairment, reduced productivity, decreased regular activity, and incapacity to work (Wong et al., 2020).

Our participants also reported the social isolation due to migraines and distress that it created for them. They shared an inability to attend gatherings which may also influence their ability to maintain social relationships. Migraines have been linked to poor social functioning in previous studies too (Lui et al., 2020). Migraines not only impact relationships with others but also with family members (Raggi et al., 2012). One of our participants shared that her family kept a distance from her during migraines because of her moods during the attack.

Our participants also reported physical challenges of sleeping, eating, sensory sensitivities, and weakness, which are usually reported by people suffering from migraines (Amani et al., 2023). The difficulty was not only in falling asleep but also in maintaining a healthy sleep, challenges which are well explained in other studies too (Tiseo et al., 2020). Eating was restricted mainly because of the feeling and fear of vomiting. This is because appetite pathways have an overlap with migraine pathophysiology (Martins-Oliveira et al., 2021). Sensory sensitivity, especially towards light was present. Participants stated that a feeling of tiredness and fatigue continued to persist after the migraine attack. Previous studies show that individuals with migraine are at increased risk of developing chronic fatigue syndrome (Lau et al., 2015).

Most of the participants used avoidant/passive mechanisms for management. For example, they reported avoidance of sunlight and chocolates. A few participants used positive management mechanisms and reported using meditation, and a healthy lifestyle for the management of migraines. This finding of the study was similar to the findings of the research (Battista et al., 2023) where the majority of the individuals with migraines were focused on avoidant/passive mechanisms by identifying triggers to have control over them. They were always in a state of readiness to control the attack by avoiding the triggers. None of our participants considered taking rest as a management mechanism, which is in contrast to previous research that reported 66% of the responses were about resting (Athar et al., 2022). This may be due to the diverse nature of their sample (children to old age) when our participants were all university students. University students may not be able to take a proper rest because of their university routine. It may also be possible that our participants might not consider rest as a management mechanism, but rather a compulsion in their hectic schedules. In the survey with more than 11000 adults, 85% of the participants stated at least one negative impact of migraine (Martelletti et al., 2018). Along with that, 57% of the participants reported at least one positive aspect of existing with migraine such as gaining strength and resilience. However, our participants did not report any positive aspect of having migraine.

4. CONCLUSION

The findings of the study highlight that migraine is a physical condition that has a significant impact on various aspects of the lives of female students. Migraine impacts them emotionally, cognitively, socially, and physically. These challenges make them unable to perform like other students. They cannot attend the lectures regularly or with full attention. Also, their use of passive/avoidant strategies over positive strategies for the management of migraines may make the condition even more challenging for them.

This study has a few limitations. The types of migraine, with and without aura, were not differentiated for the participants. The two types may have distinct symptoms and impacts on individuals. Future

studies may focus on exploring the challenges and management of participants suffering from each type. Second, to fulfill the purpose of the study, the sample was comprised of females. The experiences of males and gender differences in the experiences of migraines could not be explored in the current study. Future research may recruit male participants to qualitatively study their experiences. Future studies may also consider gender differences in studying the two types of migraine and the prevalence of the two types in both genders. Follow-up studies may also be considered to understand the long-term impact of migraine. Additionally, integrated management approaches must be designed to address several aspects of migraine. Students suffering from migraine should be counseled to use positive strategies for migraine management. University-wide campaigns can be introduced to give students an awareness of positive management strategies.

Competing Interests

The authors did not declare any competing interest.

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