



RELATIONSHIP BETWEEN MIGRAINE AND DEPRESSION

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ABSTRACT

Background: The following characteristics differentiate migraines apart from other headache types: they usually last between 4 and 72 hours, have a pulsating nature, affect only one side of the head, are moderate to severe in intensity, and are made worse by physical activity. A multitude of factors, including genetics, hormones, the environment, food choices, sleep quality, and psychological elements, all play a distinct role in the development of migraine, making it a complex disorder. Depression is a psychological disease that is frequently experienced by those who have migraine headaches. Depression in migraineurs is thought to increase the likelihood of developing chronic migraines, decrease responsiveness to migraine therapies, lead to medication abuse, induce suicidal thoughts linked to psychological issues, and have a detrimental effect on migraineurs' general quality of life.

Objective: This study aimed to find out how common depression is among those who get migraines.

Study design: A cross-sectional study

Place and Duration This study was conducted in Usman Memorial Hospital Karachi from July 2022 to July 2023

Methodology: The patients involved in this research were those who had visited the clinic of neurology during the period of our research. Every patient in this research was diagnosed with a migraine and was on regular follow-up care. The patients were given the choice of answering a questionnaire on paper or online. SPSS version 26 was used to analyze the data. Every statistical technique used was a two-sided test, with a significance level of 0.05 being applied to determine significance (p-values less than or equal to 0.05).

Results: In this research, there were a total of 150 people selected as participants who were diagnosed with migraine. The age of the individuals was more than 18 years. The average age calculated was 36.9 years. Overall, 111 (74%) of the total participants were female. A total of 111 people were married, 30 were single, and 9 were divorced. A total of 89.3% of the participants indicated difficulty focusing on tasks; 84.6% expressed feelings of fatigue or low energy; 82% had diminished interest or enjoyment in activities; and 82% encountered issues with falling asleep, staying asleep, or experiencing excessive sleep.

Conclusion: The present study confirmed that migraine headaches are strongly linked to an increased prevalence of psychiatric disorders, particularly depression.

Keywords: Depression, Migraine, Headache, adults

INTRODUCTION

The following characteristics differentiate migraines apart from other headache types: they usually last between 4 and 72 hours, have a pulsating nature, affect only one side of the head, are moderate to severe in intensity, are made worse by physical activity, and frequently accompany other symptoms like phonophobia (sensitivity to sound), nausea, vomiting, photophobia (disturbances from light), and visual disturbances. It's also possible for these aura symptoms to appear before a migraine headache [1, 2]. A multitude of factors, including genetics, hormones, the environment, food choices, sleep quality, and psychological elements, all play a distinct role in the development of migraine, making it a complex disorder [3, 4]. Emotional issues are often linked to headaches and migraines [5].

Depression is a psychological disease that is frequently experienced by those who have migraine headaches. A meta-analysis of 12 studies found that the prevalence of depression among migraineurs varies from 8.6% to 47.9% [6]. Depression in migraineurs is thought to increase the likelihood of developing chronic migraines, decrease responsiveness to migraine therapies, lead to medication abuse, induce suicidal thoughts linked to psychological issues, and have a detrimental effect on migraineurs' general quality of life [7, 8]. People who suffer from both depression and migraines have different brain chemistry than people who simply have depression or migraines. Numerous neuroimaging studies on migraines have revealed anatomical alterations in the brain as well as unusual functions in specific brain regions [9, 10]. These results imply that these particular brain areas might be involved in the emergence of depressive symptoms as well as migraines without aura.

Conversely, having frequent migraine attacks increases the likelihood of developing depression. When comparing the symptoms of people with migraines and major depression to those without depression, there were very minor variations. On the other hand, migraineurs who suffered from severe depression had a higher likelihood of experiencing aura symptoms and a more noticeable worsening of their headaches when engaging in physical activity. According to certain research, the fundamental process causing migraine auras is cortical spreading depression, or CSD. In addition, compared to the general population, migraineurs are 2.2 to 4.0 times more likely to experience depression [11].

METHODOLOGY

The patients involved in this research were those who had visited the clinic of neurology during the period of our research. Every patient in this research was a known case of migraine and was on regular follow-up care. Every participant in this research was either 18 years of age or older. All of the participants were diagnosed with migraines for more than 6 months. The patients had no other psychiatric illness or other comorbidities. The participants were briefed about this research, and informed written consent from each individual was obtained.

The patients were given the choice of answering a questionnaire on paper or online. The questionnaire had three parts. The first part asked about the patients' personal information; the second part talked about different medical and non-medical ways that people dealt with migraines;

and the third and final part used the validated Patient Health Questionnaire, which included the PHQ-9 scales, to find out how common depression was among the patients. The PHQ-9 scale is a set of nine questions used to evaluate whether or not a person has experienced depression during the previous two weeks. Likert ratings range from 0 (indicating no presence) to 3 (representing almost every day) for each of the PHQ-9 items. Depression levels were classified into five groups based on the PHQ-9 scores: little or no depression (0–4), mild depression (5–9), moderate depression (10–14), moderately severe depression (15–19), and severe depression (20–27).

SPSS version 26 was used to analyze the data. Every statistical technique used was a two-sided test, with a significance level of 0.05 being applied to determine significance (p-values less than or equal to 0.05). For the PHQ-9, the sum of the scores for each individual item—which ranged from 0 to 24 points—was used to determine the final score. The predetermined cutoff points specified in the scale were used to classify the individuals according to the degree of their depression.

RESULTS

In this research, a total of 150 people were selected as participants who were diagnosed with migraine. The age range of the individuals was 18 years or older. The average age calculated was 36.9 years. Overall, 111 (74%) of the total participants were female. A total of 111 people were married, 30 were single, and 9 were divorced. Table 1 shows the demographic data of the participants.

Table number 1: demographic data of the participants.

Variables	N	%
Age (years)		
•Below 25	25	16.7
•25 to 35	48	32.0
•36 to 46	50	33.3
•Above 45	27	18.0
Gender		
•Female	111	74.0
•Male	39	26.0
Educational level		
•Undergraduate	99	66.0
•Intermediate	38	25.3
•Post graduate	13	8.7
Marital status		
•Single	30	20.0
•Married	111	74.0
•Divorced	9	6.0
Job title		
•Student/non healthcare worker	48	32.0
•Student/healthcare worker	21	14.0
•Not employed	81	54.0
Monthly income		
•< PKR 20,000	45	30.0
•PKR 20,000	48	32.0
•PKR 20,000-50,000	42	28.0
•> PKR 50,000	15	10.0
Chronic health problem		
•Yes	25	16.7
•No	125	83.3

Table number 2 shows the methods and drugs that the patients used to get relief from migraine attacks.

Table number 2: Drugs used for migraine

Methods	N	%
Used drugs		
• Yes	114	76.0
• No	36	24
Degree of improvement after drugs (%)		
• Below 25	50	33.3
• 25 to 50	48	32.0
• 50 to 75	30	20.0
• Above 75	22	14.7
Drugs alternatives		
• Cupping therapy	38	25.3
• Chinese acupuncture	8	5.3
• Islamic therapy	53	35.3
• Traditional medicine	48	32.0
• Others	21	14.0
• None	38	25.3
Degree of improvement after alternatives (%)		
• Below 25	72	48.0
• 25 to 50	28	18.6
• 50 to 75	28	18.6
• Above 75	22	14.8
Using the following		
• Tea and coffee	144	96.0
• Smoking	15	10.0
• Power and soft drinks	45	30

A total of 89.3% of the participants indicated difficulty focusing on tasks; 84.6% expressed feelings of fatigue or low energy; 82% had diminished interest or enjoyment in activities; and the same percentage, 82%, encountered issues with falling asleep, staying asleep, or experiencing excessive sleep. Only 32% reported thoughts of being better off dead or having self-harming thoughts. Table 3 shows the distribution of depression severity among participants.

Table number 3: distribution of depression severity among participants

Variables	Minimal (%)	Mild/Moderate (%)	Severe (%)
Age (years)			
• Below 25	0.0	31.2	69.0
• 25 to 35	16.7	63.0	20.0
• 36 to 46	16.1	58.1	26.5
• Above 45	17.6	58.9	24.0
Gender			
• Female	33.3	45.0	23.2
• Male	7.1	58.6	20.9
Educational level			
• Undergraduate	9.7	63.0	27.2
• Intermediate	8.8	52.2	39.1
• Post graduate	55.6	11.1	33.3

Marital status			
• Single	5.2	42.0	53.0
• Married	17.2	60.0	23.0
• Divorced	0.0	40.0	60.0
Job title			
• Student/non healthcare worker	23.3	60.0	16.1
• Student/healthcare worker	21.2	50.0	28.2
• Not employed	6.0	55.0	40.0
Monthly income			
• < PKR 20,000	10.0	53.6	35.7
• PKR 20,000	0.0	63.4	36.6
• PKR 20,000-50,000	18.0	55.3	25.9
• > PKR 50,000	55.0	33.2	11.0
Had diseases			
• Yes	6.3	75.0	18.8
• No	15.2	51.2	33.3
Had drugs			
• Yes	9.7	57.0	33.3
• No	27.3	50.0	22.0

DISCUSSION

The purpose of the current study was to examine the psychological effects of migraine headaches and identify contributing elements. People who experience migraine episodes regularly are more likely to experience mental health problems, specifically depression [12]. The likelihood of depression is three times higher for people who suffer from regular migraine attacks. Furthermore, anxiety affects 30% to 50% of people with chronic migraines and even 20% of people with episodic headaches, which occur less frequently than 15 times each month. Moreover, there is data that points to a possible association between bipolar disorder and migraines.

According to this study, 86% of people with migraine also showed signs of depression, but their severity varied. Of these individuals, 30.8% had severe depression, and 42% had mild depression. The participants most commonly reported mental health problems as being fatigued, having trouble concentrating, losing interest in or enjoying activities, and having trouble sleeping, which included both insomnia and excessive sleep. More than 75% of migraineurs reported experiencing these symptoms. According to the study, the most important variables that contributed to depression in migraine sufferers were younger age, female gender, lower educational attainment, lower economic status, and experiencing a breakup or separation [13].

In a worldwide study, Dueland et al. found that 44% of adult females with migraines reported feeling depressed as a result of their migraines, suggesting a reduced incidence of depression [14]. The percentage of people who felt frustrated by their migraines ranged from 32% in Italy to 84% in Finland. From 21% in Norway to 57% in Italy, people reported feeling anxious, and from 13% in Greece to 61% in Italy, people reported feeling confused [15]. Furthermore, Yalinay Dikmen et al. observed that anxiety disorders were significantly less common than those seen in the current study, with anxiety disorders being the most common among migraine patients (38%), followed by depressive disorders (26%) [16].

A study by Jeya Gurunathan et al. found a strong link between migraines and major depressive disorder (prevalence ratio: 1.8), obsessive-compulsive disorder (prevalence ratio: 2.20), bipolar disorder (prevalence ratio: 3.55), and generalised anxiety disorder (prevalence ratio: 2.04) [17]. In order to look into this relationship, Amouroux and Rousseau Salvador reviewed the literature. They found that, in the majority of population studies, those with migraines tended to score slightly higher than people in the control group on at least one anxiety or depression scale [18]. It's crucial to remember that, according to the established norms of validated measures, the average anxiety and

sadness ratings among children with migraines stayed below the cutoff that was deemed pathological. According to research by Hamelsky, Lipton, Peterlin, and others, those who suffer from migraines are two to five times more likely to experience anxiety or depression [19, 20].

In our investigation, there are particular restrictions to take into account. First off, the cross-sectional nature of our data collection made it difficult for us to determine the direction or causation of the association between the intensity of migraines and various depression subtypes. Longitudinal studies are necessary in order to look at the temporal progression of migraine and depression. Second, the majority of participants in our study were female, and the sample size was quite small. Additionally, there was an unequal gender distribution. Thus, greater equitable representation of both genders should be a goal of future study.

CONCLUSION

The present study confirmed that migraine headaches are strongly linked to an increased prevalence of psychiatric disorders, particularly depression.

Funding Source

This study was conducted without receiving financial support from any external source.

Conflict in the Interest

The authors had no conflicts related to their interest in the execution of this study.

Permission

Prior to initiating the study, approval from the ethical committee was obtained to ensure adherence to ethical standards and guidelines.

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