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Original Research Article

Psychiatric Comorbidity in Patients with Migraine: A Cross-Sectional Hospital-Based Study.

Name of Author:

[1]Dr Anant Agarwal, [2]Dr Minny Jain, [3]Dr Anurag Singh Sengar

Affiliation:

[1] Assistant Professor, Dept of Psychiatry, Rama Medical College Hospital & Research Center, Pilkhuwa Hapur.
[2]Assistant Professor, Dept of Psychiatry Rama Medical College Hospital & Research Center, Pilkhuwa Hapur.
[3]Consultant

Corresponding Author:
Dr. Anant Agarwal

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Abstract: ***Background:*** Migraine is a prevalent, highly disabling chronic neurological disorder. Clinical and population observations suggest an elevated prevalence of mental health disorders among these patients. This study aims to quantify psychiatric comorbidities in migraineurs using standardised clinical assessment metrics. ***Methods:*** A cross-sectional observational study was conducted with 120 migraine patients diagnosed under the International Classification of Headache Disorders (ICHD-3) guidelines. Psychiatric conditions were evaluated using the Hospital Anxiety and Depression Scale (HADS) alongside structured clinical psychiatric diagnostic interviews. ***Results:*** Among the 120 recruited participants, 71.7% met the criteria for at least one psychiatric comorbidity. Generalized Anxiety Disorder (GAD) was the most common condition (38.3%), closely followed by Major Depressive Disorder (MDD, 24.2%). Significantly higher rates of psychiatric pathology were observed in patients suffering from migraine with aura compared to those without aura (81.6% vs. 67.1%, $p = 0.038$). Chronic migraineurs also demonstrated significantly higher anxiety and depression scores compared to episodic sufferers ($p < 0.001$). ***Conclusions:*** Psychiatric comorbidities, specifically anxiety and depressive disorders, are exceptionally prevalent in the migraine population. Integrating routine mental health screenings into standard neurological care is critical to optimizing therapeutic outcomes.

Keywords: Psychiatric Comorbidity; Generalized Anxiety Disorder; Major Depressive Disorder; Hospital Anxiety and Depression Scale (HADS); Bidirectional Relationship.

INTRODUCTION

Migraine is a complex neurovascular disorder characterized by recurrent, severe headache attacks. It ranks as one of the leading global causes of years lived with disability. While traditionally handled purely as a physical pain condition, contemporary neurobiology highlights a profound, bidirectional relationship between migraine and psychiatric conditions.

Patients with migraine demonstrate significantly higher rates of generalized anxiety disorder (GAD), major depressive disorder (MDD), bipolar affective disorder, and somatoform conditions compared to healthy controls. This dynamic is bidirectional: having an active mood disorder predisposes individuals to future migraine development, while frequent migraine attacks fuel severe psychological distress.

The presence of these psychiatric conditions triggers the chronification of episodic migraine into continuous daily headaches, spikes the rate of medication overuse headaches (MOH), and lowers a patient's overall quality of life. This hospital-based study explores the local prevalence of psychiatric comorbidities in diagnosed migraine patients (N = 120) to establish specific clinical associations and phenotypes.

MATERIALS AND METHODS

Study Design & Setting

This cross-sectional, observational clinical study was conducted over a 12-month period at a tertiary care hospital's outpatient neurology and psychiatry departments. Institutional Ethics Committee approval was obtained, and all participating subjects provided written informed consent.

Inclusion & Exclusion Criteria

- Inclusion Criteria: Patients aged 18–60 years diagnosed with episodic or chronic migraine according to the International Classification of Headache Disorders, 3rd Edition (ICHD-3).
- Exclusion Criteria: Intellectual disabilities, primary psychotic disorders predating migraine onset, cognitive impairment, or severe comorbid systemic terminal medical conditions (e.g., advanced malignancies).

Assessments & Data Tools

1. Clinical Intake Form: Gathered basic demographic data (age, gender, education, employment status, locality) and headache-specific details (attack frequency, duration, presence of aura, family history).
2. Hospital Anxiety and Depression Scale (HADS): Used to screen for individual symptom severity, with a score of \(\ge \) 11 indicating clinical significance on both subscales (Anxiety and Depression).
3. Structured Diagnostic Tool: Standardized psychiatric diagnostic checklists were deployed by a consultant psychiatrist to confirm formal clinical diagnoses based on ICD-10 criteria.

Statistical Analysis

Continuous baseline variables were analyzed via means and standard deviations, while categorical variables were structured as percentages. Group variations (such as comparing migraine with aura versus migraine without aura) were determined using Chi-Square (χ^2) tests. Differences in continuous scores across clinical subgroups were evaluated via independent Student's t-tests. Statistical significance was established at $p < 0.05$.

RESULTS

Socio-demographic Profiles

A total of 120 patients were evaluated. The mean age of the cohort was 32.1 ± 8.4 years. Consistent with broader global patterns, females constituted the large majority of the sample size (82.5%, n = 99). Detailed socio-demographic breakdowns are provided in **Table 1**.

Table 1: Socio-demographic Profiles of the Study Cohort (N = 120)

Demographic Variable	Sub-category	Patient Count (n)	Percentage (%)
Age Groups (Years)	18–30	54	45.0%
	31–45	46	38.3%
	46–60	20	16.7%
Gender	Female	99	82.5%
	Male	21	17.5%
Employment Status	Employed / Self-employed	68	56.7%
	Unemployed / Student	22	18.3%
	Homemaker	30	25.0%
Locality	Urban	74	61.7%
	Rural	46	38.3%

Clinical Characteristics of Migraine

Migraine without aura (MO) was observed in 68.3% (n = 82) of the sample, while 31.7% (n = 38) experienced migraine with aura (MA). Episodic migraine was more common than chronic migraine. Clinical characteristics are compiled in **Table 2**.

Table 2: Clinical Characteristics of Migraine (N = 120)

Clinical Parameter	Sub-category	Patient Count (n)	Percentage (%)
Migraine Type	Migraine Without Aura (MO)	82	68.3%
	Migraine With Aura (MA)	38	31.7%
Attack Frequency	Episodic (<4 attacks/month)	78	65.0%
	Chronic (>4 attacks/month)	42	35.0%
Illness Duration	< 2 Years	25	20.8%
	2–5 Years	51	42.5%
	> 5 Years	44	36.7%
Family History	Present	64	53.3%
	Absent	56	46.7%

prevalence of Confirmed Psychiatric Comorbidities

Of the 120 patients tracked, 86 individuals (71.7%) met the criteria for at least one comorbid psychiatric disorder. Generalized Anxiety Disorder (GAD) was the most prominent finding, diagnosed in 38.3% (n = 46) of patients, followed by Major Depressive Disorder (MDD) at 24.2% (n = 29). These distributions are illustrated in **Table 3**.

Table 3: Prevalence of Confirmed Psychiatric Comorbidities (N = 120)

Psychiatric Diagnosis (ICD-10 Criteria)	Patient Count (n)*	Percentage (%)
Generalized Anxiety Disorder (GAD)	46	38.3%
Major Depressive Disorder (MDD)	29	24.2%
Dysthymia / Persistent Depressive Disorder	11	9.2%
Bipolar Affective Disorder (BPAD)	8	6.7%
Somatoform / Dissociative Disorders	7	5.8%
Panic Disorder	6	5.0%
Any Comorbid Psychiatric Diagnosis	**86**	**71.7%**
No Comorbid Psychiatric Diagnosis	**34**	**28.3%**

*Note: Total counts exceed individual category summaries because 19.2% (n = 23) of patients presented with multiple overlapping psychiatric diagnoses (e.g., co-occurring MDD and GAD).

Stratification and Symptom Severity Breakdown

Subgroup analysis revealed that migraine with aura was significantly associated with higher rates of overall psychiatric comorbidity (81.6%) compared to migraine without aura (67.1%, $\chi^2 = 4.31$), $p = 0.038$), as shown in **Table 4**.

Furthermore, patients with high attack frequencies (chronic migraine) displayed significantly higher mean HADS anxiety and depression scores compared to episodic sufferers ($p < 0.001$), detailed in **Table 5**.

Table 4: Stratification of Psychiatric Comorbidity by Migraine Subtype

Psychiatric Status	Migraine without Aura (n = 82)	Migraine with Aura (n = 38)	χ^2 Value	p-value
Psychiatric Comorbidity Present	55 (67.1%)	31 (81.6%)	4.31	**0.038***
Psychiatric Comorbidity Absent	27 (32.9%)	7 (18.4%)		

*Statistically significant at $p < 0.05$ (Chi-Square test).

Table 5: Mean Hospital Anxiety and Depression Scale (HADS) Scores Across Attack Frequencies

Baseline Headache Frequency	Mean HADS-Anxiety Score (± SD)	p-value	Mean HADS-Depression Score (± SD)	p-value
Episodic Migraine (≤ 4/month; n = 78)	8.4 ± 3.1	< 0.001*	7.1 ± 2.8	< 0.001*
Chronic Migraine (> 4/month; n = 42)	12.8 ± 3.9	—	11.2 ± 3.4	—

*Statistically significant at $p < 0.001$ (Independent Student's t-test).

DISCUSSION

The results of this study confirm that psychiatric conditions are highly prevalent among migraine patients, with a localized prevalence rate of 71.7%. This aligns closely with broader epidemiological studies, which routinely establish a 65% to 75% psychiatric comorbidity rate within neurological tertiary care spaces [1, 2].

Anxiety disorders outperformed depression as the most common mental health issue (38.3% vs 24.2%), a finding mirrored in multiple global headache registries [3, 4]. This high rate of co-occurrence is not just an emotional response to chronic pain; it points directly to shared neurobiological pathways:

1. Neurotransmitter Transporters: Shared alterations in central serotonergic and dopaminergic neurotransmission lower thresholds for both clinical anxiety and trigeminovascular hyper-excitability.
2. Calcitonin Gene-Related Peptide (CGRP): Aside from serving as a major primary driver of neurogenic inflammation during migraine attacks, elevated CGRP is heavily involved in central stress-response networks.
3. Common Genetic Load: Large-scale genome-wide association studies show significant shared genetic heritability between migraine phenotypes and primary mood disorders.

Our data also highlights that patients experiencing migraine with aura face a higher burden of psychiatric

symptoms (81.6% vs 67.1%). Cortical spreading depression (CSD)—the neurophysiological underpinning of aura—is linked to cortical hyper-excitability, which may directly interact with the limbically driven panic and emotional processing pathways.

Furthermore, our finding of elevated HADS anxiety (12.8) and depression (11.2) scores in chronic migraineurs reinforces the concept that psychological stress and attack frequency fuel a destructive cycle [4, 5]. The stark clinical implication of this data is the necessity of comprehensive, integrated management. Failing to address comorbid anxiety or depression regularly causes standard migraine preventative therapies to fail, increases emergency room utilization, and promotes medication overuse.

CONCLUSION

Psychiatric comorbidities are the rule rather than the exception in patients presenting with migraine headaches. Generalized anxiety disorder and major depressive disorder represent the primary psychiatric challenges in this demographic. Effectively reducing global migraine disability requires a fundamental shift away from isolated headache management toward an integrated model. This model should combine routine psychometric screening with dual-benefit pharmacotherapies and targeted behavioral interventions.

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