

Psychological Distress and Disability in Patients with Primary Headache: A Cross-Sectional Study Using DASS-42 and IDEAS ScaleBhuvneshwar Meena¹, Suresh Gupta², Kuldeep Pratap Singh Shakya³¹Junior Resident, Department of Psychiatry, S.M.S. Medical College & Attached Hospitals, Jaipur, Rajasthan, India²Senior Professor and Unit Head, Department of Psychiatry, S.M.S. Medical College & Attached Hospitals, Jaipur, Rajasthan, India³Junior Resident, Department of Psychiatry, S.M.S. Medical College & Attached Hospitals, Jaipur, Rajasthan, India

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Abstract**Background:** Primary headache disorders are among the most common neurological conditions and are increasingly recognized as multidimensional disorders with significant psychological and functional impact.**Objective:** To assess the prevalence and severity of psychological distress and disability among patients with primary headache using the Depression Anxiety Stress Scale-42 (DASS-42) and the Indian Disability Evaluation and Assessment Scale (IDEAS).**Methods:** This hospital-based cross-sectional study was conducted among 210 patients diagnosed with primary headache according to ICHD-3 criteria. Psychological distress was assessed using DASS-42, and functional disability was evaluated using IDEAS. Data were analyzed using descriptive and inferential statistics, with $p < 0.05$ considered significant.**Results:** The majority of participants were female (75.7%) with a mean age of 33.03 ± 10.69 years. Migraine was the most common headache subtype (59.52%). Moderate to severe psychological distress was highly prevalent, with over 70% of patients demonstrating moderate to extremely severe DASS scores. Anxiety was the most prominent domain, followed by depression and stress. All participants exhibited some degree of disability, with 54.29% having $\geq 40\%$ disability, indicating clinically significant impairment.**Conclusion:** Primary headache disorders are associated with a high burden of psychological distress and significant functional disability. These findings emphasize the need for routine psychological assessment and integrated multidisciplinary management to improve patient outcomes.**Keywords:** Primary headache; Migraine; Psychological distress; DASS-42; Disability; IDEAS; Anxiety; Depression; Stress.**DOI:** 10.25258/ijcpr.18.6.114

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Introduction

Primary headache disorders constitute one of the most prevalent neurological conditions worldwide, affecting nearly all individuals at some point during their lifetime, with a 1-year prevalence approaching 50–90% [1]. Among these, migraine and tension-type headache (TTH) account for the majority of cases and represent a significant cause of morbidity, reduced productivity, and impaired quality of life [2]. According to the Global Burden of Disease (GBD) 2019 study, migraine ranks as the second leading cause of years lived with disability (YLDs) globally and the leading cause among young and middle-aged women [3]. These findings highlight the immense public health burden posed by primary headache disorders.

Traditionally considered as purely neurological conditions, primary headaches are now increasingly recognized as complex biopsychosocial disorders involving intricate interactions between neurobiological, psychological, and environmental factors [4]. Emerging evidence suggests that headache disorders are strongly associated with psychological distress, particularly depression, anxiety, and stress-related symptoms, which not only influence pain perception but also contribute to chronicity and treatment resistance [5,7]. This multidimensional nature of headache underscores the need for comprehensive assessment beyond pain parameters alone. Psychological distress plays a pivotal role in the pathophysiology and clinical

course of primary headache disorders. Dysregulation of central pain-processing pathways, particularly involving serotonergic and noradrenergic systems, has been implicated in both headache and mood disorders [7]. Functional neuroimaging studies demonstrate altered connectivity between limbic structures, prefrontal cortex, and pain-processing regions, indicating a shared neurobiological substrate between headache and emotional regulation [8]. These shared mechanisms provide a biological basis for the high prevalence of psychiatric symptoms in headache populations.

Epidemiological studies consistently demonstrate a higher prevalence of depression and anxiety among individuals with primary headache compared to the general population. Meta-analytic evidence indicates that patients with migraine have nearly a twofold increased risk of depression and anxiety disorders [9]. Similarly, large cross-sectional studies report that up to 25–50% of headache patients experience clinically significant psychological distress [10]. Importantly, this relationship is bidirectional, wherein psychological distress may precipitate headache episodes, while recurrent headache contributes to emotional disturbances [11].

In addition to psychological morbidity, primary headaches are associated with significant functional disability. Disability in headache disorders is not solely determined by pain intensity but is also influenced by frequency, chronicity, and associated psychological factors [12]. Patients with coexisting psychological distress often demonstrate greater impairment in daily functioning, interpersonal relationships, and occupational performance [13]. This highlights the importance of evaluating both psychological burden and disability to understand the true impact of headache disorders.

The Depression Anxiety Stress Scale-42 (DASS-42) is a validated and widely used instrument that assesses three core domains of psychological distress—depression, anxiety, and stress—providing a comprehensive measure of emotional burden [14]. Unlike disorder-specific diagnostic tools, DASS-42 captures the dimensional severity of distress, making it particularly useful in clinical populations with overlapping symptoms such as headache patients [15]. Concurrently, the Indian Disability Evaluation and Assessment Scale (IDEAS), developed by the Indian Psychiatric Society, offers a culturally relevant tool to quantify functional disability across domains including self-care, communication, interpersonal relationships, and work [16].

In the Indian context, headache disorders represent a major yet underrecognised public health concern. Population-based studies report a prevalence of

migraine ranging from 14% to 26% and TTH from 18% to 30% [17,18]. However, most Indian studies have focused on neurological aspects, with limited emphasis on psychological distress and disability. Cultural factors such as somatization, stigma associated with mental illness, and limited awareness further complicate the identification of psychiatric comorbidities in headache patients [19]. As a result, psychological symptoms often remain underdiagnosed and untreated, contributing to poor clinical outcomes.

Furthermore, regional data from North India, particularly Rajasthan, are scarce. Existing studies have predominantly been conducted in neurology settings, whereas psychiatric settings may provide a more comprehensive understanding of psychological distress associated with headache²⁰. The integration of mental health assessment into headache evaluation is therefore essential for improving patient outcomes and reducing disability.

The present study was conducted at a tertiary care center to assess psychological distress and disability among patients with primary headache using standardized tools, namely DASS-42 and IDEAS. By focusing on these validated instruments, the study aims to quantify the multidimensional burden of headache and provide evidence for integrated neuropsychiatric management approaches. Understanding the interplay between psychological distress and functional impairment may facilitate early identification, targeted interventions, and improved quality of life in patients with primary headache disorders.

Methodology

The present study was designed as a hospital-based, descriptive cross-sectional study conducted in the Departments of Psychiatry and Neurology at SMS Medical College and its attached hospitals, Jaipur, Rajasthan. The study was carried out over a period of one year after obtaining approval from the Institutional Ethics Committee. All procedures adhered to ethical standards, and written informed consent was obtained from each participant prior to enrolment.

The study population comprised adult patients presenting with complaints of headache in the outpatient departments. Participants aged between 18 and 55 years who fulfilled the diagnostic criteria for primary headache according to the International Classification of Headache Disorders, 3rd edition (ICHD-3), were included in the study. Both male and female patients were eligible.

Patients were excluded if they had evidence of organic brain disorders, intellectual disability, recent history of head trauma, cerebrovascular

events, brain surgery, or intracranial tumors. Additionally, patients with secondary headaches due to systemic or neurological illnesses, those with significant acute or chronic medical conditions, or those who were uncooperative or unable to provide reliable responses were excluded.

A total of 210 participants were enrolled in the study. The sample size was calculated at a 95% confidence level with a 5% margin of error, based on the expected prevalence of psychological distress among patients with primary headache. A convenient sampling technique was employed, whereby all eligible patients attending the outpatient departments during the study period were consecutively recruited until the required sample size was achieved.

Data collection was performed using a semi-structured proforma that included socio-demographic variables such as age, gender, marital status, education, occupation, and residence, along with clinical characteristics including type of headache, duration, frequency, severity, and associated features. Information was obtained through direct patient interviews and review of available medical records to ensure accuracy.

Psychological distress was assessed using the Depression Anxiety Stress Scale-42 (DASS-42), a validated self-report instrument that measures three domains—depression, anxiety, and stress—over the preceding week. Each domain consists of 14 items scored on a four-point Likert scale, with higher scores indicating greater severity of symptoms. The DASS-42 provides a dimensional assessment of emotional states, allowing classification into normal, mild, moderate, severe, and extremely severe categories.

Functional disability attributable to psychiatric morbidity was evaluated using the Indian Disability Evaluation and Assessment Scale (IDEAS). This clinician-rated scale assesses disability across four key domains: self-care, interpersonal activities,

communication and understanding, and work. Each domain is rated on a graded scale, and the total score is used to determine the overall level of disability. IDEAS is widely used in the Indian setting and provides a culturally relevant measure of functional impairment.

Data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics version 28.0. Descriptive statistics, including means and standard deviations for continuous variables and frequencies and percentages for categorical variables, were calculated. Inferential statistical tests, including the Chi-square test for categorical variables and independent sample t-test for continuous variables, were applied where appropriate. A p-value of less than 0.05 was considered statistically significant.

Results

A total of 210 patients with primary headache were included in the present study. The results demonstrated significant findings across sociodemographic variables, clinical characteristics, psychological distress, and disability, highlighting the multidimensional burden of primary headache disorders.

The sociodemographic profile revealed a marked female predominance, with females constituting 75.71% of the study population, while males accounted for only 24.28%. This gender distribution aligns with known epidemiological patterns of primary headache disorders, particularly migraine. The majority of participants were married (82.38%), reflecting the adult and socially active nature of the study population. The distribution of participants across rural (50.95%) and urban (49.05%) settings was nearly equal, indicating that primary headache disorders affect individuals irrespective of residence. Most participants belonged to nuclear families (49.05%), followed by joint families (34.28%), suggesting a potential role of family structure and psychosocial environment in influencing disease burden.

Table 1: Sociodemographic Characteristics of Study Participants

Variable	Category	Number of Subjects (%)
Gender	Male	51 (24.28)
	Female	159 (75.71)
Marital status	Married	173 (82.38)
	Unmarried	37 (17.62)
Locality	Rural	107 (50.95)
	Urban	103 (49.05)
Religion	Hindu	162 (77.14)
	Muslim	29 (13.81)
	Sikh	19 (9.05)
Family type	Nuclear	103 (49.05)
	Joint	72 (34.28)
	Extended nuclear	35 (16.67)

With respect to clinical characteristics, migraine emerged as the most common type of primary headache, affecting 59.52% of participants, followed by tension-type headache (32.86%), while other headache types were relatively uncommon. The study population was predominantly young to middle-aged, with a mean age of 33.03 ± 10.69 years, and the majority falling within the 31–50 years age group. This indicates that primary headache disorders primarily affect individuals during their most productive years of life. The

chronic nature of the illness was evident, with a mean duration of 31.51 ± 33.92 months, suggesting long-standing disease in a significant proportion of patients. Furthermore, the mean headache frequency was 15.44 ± 8.64 days per month, reflecting frequent and disabling episodes. Despite this, the mean pain severity (NRS 3.86 ± 1.61) indicated that most patients experienced mild to moderate intensity headaches, suggesting that disability may be driven more by chronicity and frequency rather than extreme pain severity.

Table 2: Clinical Profile of Primary Headache

Variable	Category / Mean ± SD	Value
Type of headache	Migraine	125 (59.52%)
	Tension-type	69 (32.86%)
	Others	16 (7.62%)
Sleep disturbance	Present	122 (58.09%)
Mean age (years)		33.03 ± 10.69
Headache duration (months)		31.51 ± 33.92
Frequency (days/month)		15.44 ± 8.64
Severity (NRS)		3.86 ± 1.61

Sleep disturbances were reported by 58.09% of patients, highlighting their strong association with primary headache disorders and their potential role in exacerbating psychological distress and disease chronicity.

Additionally, approximately two-thirds of participants had at least one medical comorbidity,

with common conditions including alcoholic liver disease (10.18%), thyroid disorders (8.85%), chronic renal disease (7.08%), COPD (6.64%), and hypertension (6.19%).

These comorbidities may further contribute to increased vulnerability to psychological symptoms and functional impairment.

Table 3: Medical Comorbidities

Comorbidity	Number of Subjects (%)
Alcoholic liver disease	23 (10.18)
Thyroid disorders	20 (8.85)
Chronic renal disease	16 (7.08)
COPD	15 (6.64)
Hypertension	14 (6.19)
Parkinsonism	12 (5.30)
Epilepsy	10 (4.42)
Others (combined)	20 (9.52)
No comorbidity	77 (34.07)

Assessment of psychological distress using the DASS-42 revealed a substantial burden across all domains. In the depression domain, although only 9.52% of participants were classified as normal, the majority exhibited mild (45.24%) to moderate (25.24%) depressive symptoms, with 20% demonstrating severe depression.

Anxiety levels were notably higher, with no participants falling into the normal category. More

than half of the patients (55.24%) had moderate anxiety, while 28.57% had severe anxiety, indicating that anxiety was the most prominent psychological component in this population.

Stress levels were also significantly elevated, with 73.81% of participants experiencing mild to severe stress, further emphasizing the pervasive psychological burden associated with primary headache disorders.

Table 4: Psychological Distress (DASS-42) Distribution (n = 210)

Domain	Severity	Number of Subjects (%)
Depression	Normal	20 (9.52)
	Mild	95 (45.24)
	Moderate	53 (25.24)
	Severe	42 (20.0)
Anxiety	Mild	34 (16.19)
	Moderate	116 (55.24)
	Severe	60 (28.57)
Stress	Normal	55 (26.19)
	Mild	63 (30.0)
	Moderate	44 (20.95)
	Severe	48 (22.86)

When overall psychological distress was evaluated using combined DASS scores, a striking finding emerged: more than 70% of patients had moderate to extremely severe levels of distress. Specifically, 38.09% had moderate distress, 20% had severe

distress, and 13.81% had extremely severe distress. Only a small proportion (9.05%) were within the normal range. These findings underscore the high prevalence and severity of psychological morbidity among patients with primary headache.

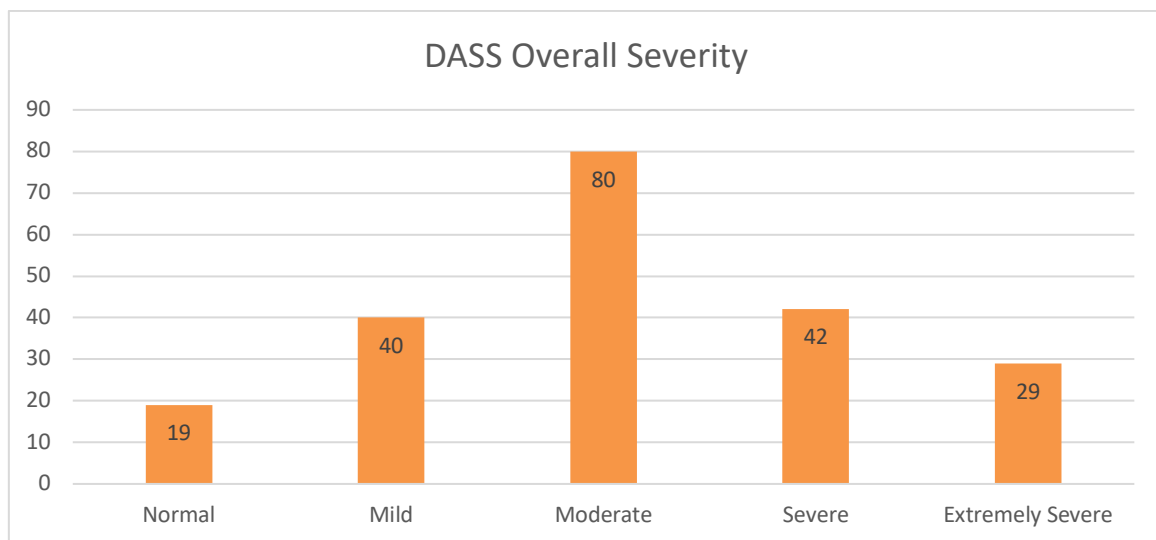


Figure 1: Overall DASS Psychological Distress Severity

Table 5: Overall Psychological Distress Severity (DASS Total)

Severity	Number of Subjects (%)
Normal	19 (9.05)
Mild	40 (19.05)
Moderate	80 (38.09)
Severe	42 (20.0)
Extremely severe	29 (13.81)

Disability assessment using the Indian Disability Evaluation and Assessment Scale (IDEAS) further highlighted the functional impact of the disorder. All participants exhibited some degree of disability, with the majority having mild (45.71%) or moderate (42.86%) disability, and a smaller proportion (11.43%) experiencing severe disability. Importantly, when disability was categorized based

on percentage, more than half of the patients (54.29%) had disability $\geq 40\%$, indicating clinically significant impairment requiring intervention.

This suggests that primary headache disorders are associated with considerable functional limitations affecting daily activities, interpersonal functioning, and occupational performance.

Table 6: Disability Profile (IDEAS) (n = 210)

Variable	Category	Number of Subjects (%)
Disability severity	Mild	96 (45.71)
	Moderate	90 (42.86)
	Severe	24 (11.43)
Disability percentage	<40%	96 (45.71)
	≥40%	114 (54.29)

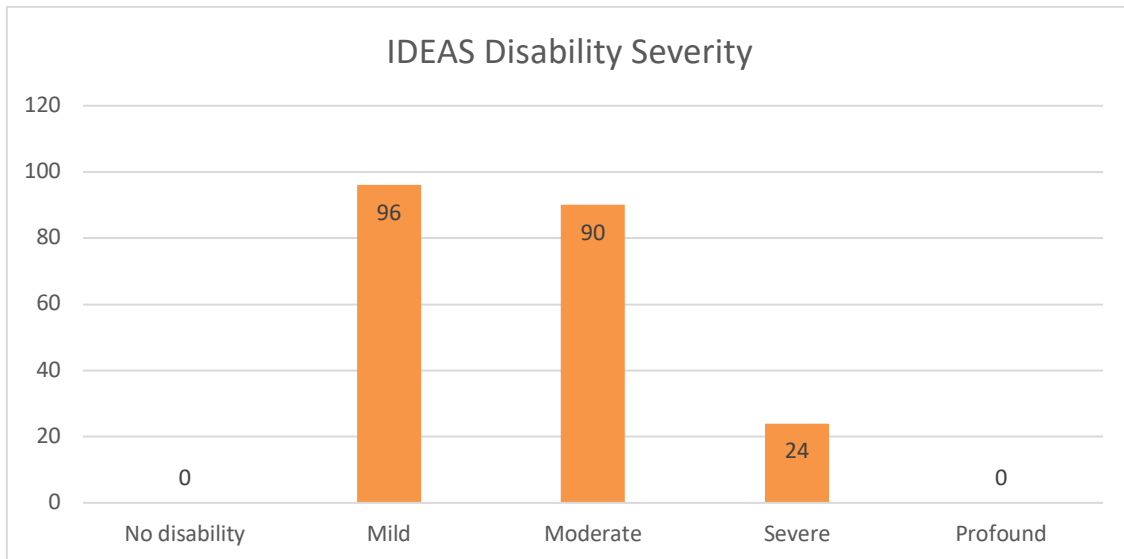


Figure 2: Distribution of Disability Severity According to IDEAS

Overall, the findings of the present study demonstrate that primary headache disorders are not merely episodic pain conditions but are associated with a high burden of psychological distress and significant functional disability. The study demonstrated a predominance of young female patients with migraine as the most common headache subtype. Headache disorders were chronic and frequent, with a high prevalence of sleep disturbances and medical comorbidities. A substantial psychological burden was observed, with over 70% of patients exhibiting moderate to severe distress on DASS-42. Anxiety was particularly prominent, followed by depression and stress. Functional impairment was significant, with more than half of the participants showing ≥40% disability on IDEAS. These findings highlight the strong association between primary headache, psychological distress, and disability. The coexistence of frequent headaches, elevated anxiety and stress levels, and substantial disability highlights the need for a comprehensive biopsychosocial approach in the evaluation and management of these patients.

Discussion

The present study evaluated psychological distress and disability among patients with primary headache using standardized instruments, namely DASS-42 and IDEAS, and demonstrated a substantial burden of emotional morbidity and

functional impairment. The findings reinforce the evolving understanding of primary headache disorders as multidimensional conditions extending beyond nociceptive phenomena into the psychological and functional domains.

The sociodemographic profile in the present study showed a clear female predominance, with females constituting approximately three-fourths of the sample. This observation is consistent with global epidemiological patterns described by Ashina M et al. [2] and Stovner LJ et al. [1], who reported higher prevalence of migraine among women, particularly in reproductive age groups. The mean age of 33 years in the present study further supports the findings of GBD 2019 Collaborators [3], which identified headache disorders as leading causes of disability in young and middle-aged adults. This age group represents the most economically productive population, thereby amplifying the socioeconomic impact of the disease.

Migraine was identified as the most common headache subtype in this study, affecting nearly 60% of patients. This aligns with findings from Gururaj G et al. [17] and Chowdhury D et al. [18], who reported migraine as a predominant subtype in Indian populations. The chronic nature of headache observed in the present study, reflected by prolonged duration and high monthly frequency, is clinically significant. According to Buse DC et al. [4], increasing headache frequency is strongly

associated with disease progression and transformation into chronic migraine, often accompanied by worsening psychological comorbidity.

A key finding of the present study was the high prevalence of sleep disturbances (58.09%), which may act both as a trigger and consequence of headache disorders. This observation is supported by Yin JH et al. [21], who highlighted the role of lifestyle factors, including sleep disruption, in exacerbating migraine severity and associated comorbidities. Sleep disturbances may further amplify central sensitization and contribute to emotional dysregulation.

The burden of medical comorbidities observed in this study also warrants attention. Approximately two-thirds of patients had at least one comorbid condition, including metabolic and systemic disorders. Caponnetto V et al. [10] demonstrated similar findings in a large meta-analysis, reporting a high prevalence of comorbidities such as hypertension and endocrine disorders among headache patients. These comorbidities may contribute to increased vulnerability to psychological distress and poorer clinical outcomes.

The most significant contribution of the present study lies in its assessment of psychological distress using DASS-42. A substantial proportion of patients exhibited moderate to severe levels of depression, anxiety, and stress. Anxiety emerged as the most prominent domain, with no participants falling into the normal category. These findings are consistent with those of Amiri S et al. [9], who reported a significantly higher likelihood of anxiety and depressive symptoms among migraine patients compared to controls. Similarly, Breslau N and Davis GC [5] described a strong association between migraine and psychiatric disorders, emphasizing their bidirectional relationship.

The predominance of anxiety in the present study is particularly noteworthy. Minen MT et al. [6] reported that anxiety disorders are among the most common psychiatric comorbidities in headache populations and are often underrecognized. This may be explained by shared neurobiological mechanisms involving serotonergic and noradrenergic dysregulation, as discussed by Dodick DW [7]. Functional neuroimaging evidence from Schwedt TJ and Chong CD [8] further supports the overlap between pain-processing and emotional regulation circuits.

Stress was also highly prevalent in the present study, with nearly three-fourths of patients exhibiting elevated levels. Chronic stress is known to activate the hypothalamic–pituitary–adrenal (HPA) axis, contributing to both headache

chronification and emotional disorders. Buse DC and Lipton RB [11] highlighted the bidirectional relationship between stress and migraine, wherein each condition exacerbates the other, creating a vicious cycle of symptom amplification.

When overall DASS scores were considered, more than 70% of patients had moderate to extremely severe psychological distress. This finding is comparable to observations by Irimia P et al. [24], who demonstrated a strong association between headache frequency and psychiatric morbidity. Similarly, Sarkar S et al. [28] reported that coexisting anxiety and depression significantly increase both ictal and interictal burden in migraine patients. The disability findings of the present study further emphasize the clinical importance of these psychological disturbances. Using IDEAS, more than half of the patients (54.29%) exhibited disability $\geq 40\%$, indicating clinically significant impairment. These findings are in line with those of Lipton RB and Stewart WF [12], who demonstrated that migraine-related disability extends beyond pain and significantly affects daily functioning. Katsarava Z et al. [13] also highlighted that psychiatric comorbidities are major contributors to disability in headache disorders.

The strong association between psychological distress and disability observed in this study is consistent with the findings of Ayele BA and Yifru YM [23], who reported a positive correlation between depression severity and disability scores. Similarly, Matharu MS et al. [26] and Imai N et al. [27] demonstrated that psychological symptoms significantly increase headache-related disability and reduce quality of life.

Indian studies also support these observations. Grover S et al. [19] reported that somatic symptoms such as headache are frequently associated with underlying psychological distress. Sharma K et al. [20] and Ismail A et al. [25] further confirmed the high prevalence of psychiatric comorbidity in migraine patients in Indian clinical settings.

Recent global evidence continues to reinforce these findings. Padmanathan P et al. [29] and Ravyts SG et al. [30] reported high pooled prevalence of depression and anxiety in chronic headache populations, emphasizing the need for integrated management approaches.

Overall, the findings of the present study strongly support the biopsychosocial model of headache disorders, wherein biological vulnerability, psychological distress, and social factors interact to influence disease expression and outcome. The high prevalence of psychological distress and significant disability observed in this study

underscores the importance of routine mental health screening in patients with primary headache.

Limitations: The present study has certain limitations that should be considered while interpreting the findings. Being a hospital-based cross-sectional study conducted at a single tertiary care center, the results may not be generalizable to the wider community population. The use of convenient sampling may have introduced selection bias, particularly with overrepresentation of more symptomatic or treatment-seeking individuals. Additionally, the cross-sectional design limits the ability to establish causal relationships between psychological distress and headache characteristics. Although validated tools such as DASS-42 and IDEAS were used, reliance on self-reported measures for psychological distress may be subject to reporting bias. Furthermore, potential confounding factors such as medication use, socioeconomic stressors, and detailed psychiatric diagnoses were not explored in depth, which could have influenced the observed associations.

Conclusion

The present study demonstrates that primary headache disorders are associated with a substantial burden of psychological distress and significant functional disability. A majority of patients exhibited moderate to severe levels of depression, anxiety, and stress, with anxiety emerging as the most prominent component.

More than half of the participants had clinically significant disability, indicating that headache disorders extend beyond pain to impair daily functioning and quality of life.

These findings highlight the strong interplay between psychological factors and headache severity, reinforcing the need to view primary headache as a biopsychosocial condition.

Early identification and comprehensive assessment of psychological distress and disability are essential for improving overall patient outcomes.

Recommendations: Based on the findings, it is recommended that routine screening for psychological distress using standardized tools such as DASS-42 should be integrated into the clinical evaluation of patients with primary headache. Assessment of functional disability using IDEAS should also be incorporated to identify patients requiring additional psychosocial support.

A multidisciplinary approach involving psychiatrists, neurologists, and psychologists is essential for effective management. Early intervention strategies targeting stress, anxiety, and coping mechanisms may help reduce headache frequency and improve functional outcomes.

Further large-scale, longitudinal, and community-based studies are recommended to better understand causal relationships and to guide the development of integrated headache management protocols at both clinical and public health levels.

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