

IMPACT OF MIGRAINE ON QUALITY OF LIFE: A QUESTIONNAIRE-BASED STUDY
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Article Received on 25/03/2025

Article Revised on 15/04/2025

Article Published on 05/05/2025

ABSTRACT

Background: Migraine is a chronic neurological disorder that significantly impacts the physical, emotional, and social well-being of individuals. Evaluating the quality of life (QoL) in migraine patients can aid in better understanding the burden of disease and guide holistic patient care. **Objective:** To assess the quality of life among patients with migraine presenting to the outpatient department (OPD) at the Atal Institute of Medical Super Specialties (AIMSS), Shimla using a structured questionnaire. **Methods:** A cross-sectional, questionnaire-based study was conducted in the Neurology OPD of AIMSS, Shimla, over a period of 6 months. Adult patients diagnosed with migraine based on ICHD-3 criteria were included. The Migraine-Specific Quality of Life Questionnaire version 2.1 (MSQ v2.1) was used to assess QoL across three domains: Role Function-Restrictive (RR), Role Function-Preventive (RP), and Emotional Function (EF). Data were analyzed using appropriate statistical tools. **Results:** A total of 150 patients were enrolled (65% female, 35% male; mean age: 32.5 ± 9.4 years). The average scores in the MSQ domains were: RR – 55.2, RP – 58.7, and EF – 49.5, indicating moderate impairment in quality of life. Female patients and those with more frequent migraine attacks showed significantly lower scores across all domains ($p < 0.05$). **Conclusion:** The study highlights a significant impact of migraine on quality of life, particularly in emotional and functional domains. Regular assessment of QoL and incorporation of psychosocial support into management plans may improve outcomes in migraine patients.

INTRODUCTION

Migraine is a chronic, recurrent neurovascular disorder characterized by moderate to severe headaches, often unilateral and pulsating, accompanied by symptoms such as nausea, vomiting, photophobia, and phonophobia. It affects approximately 1 billion people worldwide, making it the third most prevalent illness and one of the leading causes of disability globally among people under the age of 50 years.^[1,2] According to the Global Burden of Disease (GBD) 2019 study, migraine ranks as the second highest cause of years lived with disability (YLDs), underscoring its substantial public health impact.^[3] In India, the prevalence of migraine ranges from 14% to 30%, with a higher burden observed among women, young adults, and individuals living in high-altitude regions.^[4] The clinical burden of migraine is compounded by its psychosocial and functional consequences. Migraine attacks often lead to absenteeism, presenteeism, impaired social functioning, and emotional distress, contributing to a poor quality of life (QoL).^[5] Patients frequently experience fear of the next attack, reduced work performance, social withdrawal, and symptoms of depression and anxiety, even between migraine episodes.^[6] Traditional clinical assessments of migraine focus primarily on frequency,

duration, and intensity of headaches. However, these do not capture the subjective impact of the disease on daily life. In this context, the use of migraine-specific quality of life (MSQoL) tools, such as the Migraine-Specific Quality of Life Questionnaire version 2.1 (MSQ v2.1), allows for a more comprehensive evaluation of disease burden and treatment outcomes.^[7] Despite its high prevalence, there is limited data on the quality of life of migraine patients in hilly and rural regions of North India, including Himachal Pradesh. Unique geographic, environmental, and healthcare access factors in these regions may influence the presentation and impact of migraine. This study aims to assess the QoL among patients with migraine attending the Neurology Outpatient Department at the Atal Institute of Medical Super Specialties (AIMSS), Shimla, using the MSQ v2.1 questionnaire.

MATERIALS AND METHODS

Study Design and Setting

This was a cross-sectional, questionnaire-based observational study conducted at the Neurology Outpatient Department (OPD) of the Atal Institute of Medical Super Specialties (AIMSS), Shimla, a tertiary care referral center located in the Himalayan region of

North India. The study was carried out over a period of 6 months from September 2023 to February 2024].

Study Population

The study population consisted of adult patients attending the Neurology OPD with a clinically confirmed diagnosis of migraine, based on the criteria laid down by the International Classification of Headache Disorders, 3rd edition (ICHD-3).

Inclusion Criteria

- Adults aged 18 to 65 years
- Diagnosed with episodic or chronic migraine as per ICHD-3 guidelines
- Provided written informed consent
- Literate and able to understand the questionnaire in English or Hindi

Exclusion Criteria

- Patients with other primary or secondary headache disorders (e.g., tension-type headache, cluster headache)
- Patients with co-existing major psychiatric disorders (e.g., schizophrenia, bipolar disorder)
- Individuals with cognitive impairment, neurological deficits, or visual/hearing disabilities that hinder comprehension or participation
- Those currently undergoing treatment for major systemic illnesses (e.g., cancer, chronic kidney disease)

Sample Size Calculation

The sample size was calculated using the formula for single population proportion, assuming a prevalence (p) of poor QoL in migraine patients as 50%, 95% confidence level, and 8% precision, resulting in a minimum required sample size of 150 participants.

Sampling Technique

A consecutive sampling method was used. All eligible migraine patients visiting the Neurology OPD during the study period were invited to participate until the required sample size was met.

Data Collection Tool

Data were collected using a structured proforma that included:

1. Sociodemographic Details: Age, gender, education, occupation, residence (urban/rural), socioeconomic status.
2. Clinical Profile: Type of migraine (episodic/chronic), duration of illness, attack frequency, average pain severity (Visual Analog Scale), known triggers, and medications used.
3. Quality of Life Assessment: The Migraine-Specific Quality of Life Questionnaire version 2.1 (MSQ v2.1) was used to assess QoL. This is a validated instrument comprising 14 items divided into three domains:

- Role Function–Restrictive (RFR): 7 items
- Role Function–Preventive (RFP): 4 items
- Emotional Function (EF): 3 items

Each item is rated on a 6-point Likert scale (1 = None of the time to 6 = All of the time). Scores were transformed into a 0–100 scale for each domain, with higher scores indicating better quality of life.

Procedure

After obtaining informed consent, participants were interviewed in a private setting. The MSQ was self-administered when possible, or administered by the interviewer for participants with reading difficulty. On average, each interview took 10–15 minutes. Anonymity and confidentiality of responses were ensured.

Ethical Considerations

- Participants were informed about the purpose, risks, and benefits of the study.
- Written informed consent was obtained from all participants.
- Participants retained the right to withdraw at any point without any impact on their clinical care.

Data Analysis

Data were entered and analyzed using SPSS version 26.0. Continuous variables (e.g., age, MSQ scores) were summarized as means and standard deviations. Categorical variables (e.g., gender, type of migraine) were expressed as frequencies and percentages. The association between QoL scores and variables like age, gender, frequency of attacks, and type of migraine was assessed using: Independent t-test or ANOVA for group comparisons, Pearson's correlation for continuous variables. A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 150 patients with migraine were enrolled in the study. The mean age of the participants was 34.2 ± 10.6 years, ranging from 18 to 65 years. The majority were females (72%), while males accounted for 28% of the study population, with a female-to-male ratio of approximately 2.5:1. Most participants (58%) resided in urban areas, and 65.3% had completed higher secondary education or higher (Table 1).

Table 1: Demographic profile of patients included in the study.

Variable	Number (n = 150)	Percentage (%)
Age (years) (Mean \pm SD)	34.2 \pm 10.6	-
Gender		
- Male	42	28%
- Female	108	72%
Residence		
- Urban	87	58%
- Rural	63	42%
Education Level		
- Up to 10th Standard	52	34.7%
- Higher Secondary and above	98	65.3%

Clinically, 82% of patients were diagnosed with episodic migraine and 18% with chronic migraine (Table 2). The mean duration of illness was 5.8 ± 4.1 years, with an average of 5.2 ± 2.7 migraine attacks per month. The

mean pain severity score on the Visual Analog Scale (VAS) was 7.4 ± 1.6 . Stress (65%), sleep disturbances (45%), and weather changes (30%) were the most frequently reported migraine triggers.

Table 2: Clinical Characteristics of Migraine Patients.

Variable	Value
Type of Migraine	
- Episodic	123 (82%)
- Chronic	27 (18%)
Mean Duration of Illness (years)	5.8 ± 4.1
Mean Frequency of Attacks (per month)	5.2 ± 2.7
Mean Pain Severity (VAS score)	7.4 ± 1.6
Common Triggers	Stress (65%), Sleep disturbances (45%), Weather changes (30%)

Quality of life, assessed using the Migraine-Specific Quality of Life Questionnaire version 2.1 (MSQ v2.1), revealed mean scores of 58.6 ± 14.2 for Role Function–Restrictive (RFR), 62.1 ± 13.7 for Role Function–Preventive (RFP), and 55.3 ± 16.8 for Emotional Function (EF) domains. Patients with chronic migraine had significantly lower QoL scores across all three

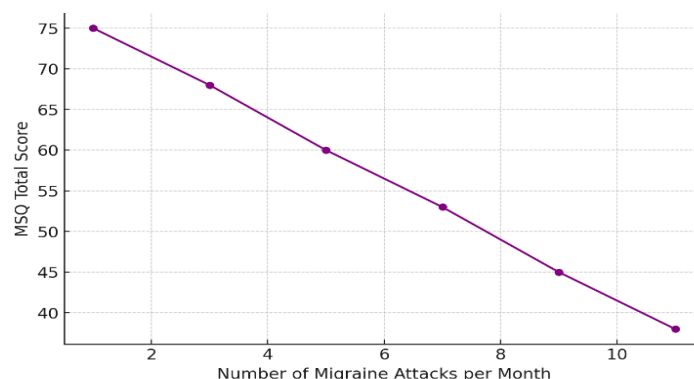
domains compared to those with episodic migraine ($p < 0.001$) (Table 3). This highlights the greater functional impairment and emotional burden in chronic migraine sufferers. Female patients also showed lower scores in the Emotional Function domain compared to males, a difference that was statistically significant ($p = 0.04$).

Table 3: Mean MSQ Scores According to Clinical Subgroups.

Group	RFR Score (Mean \pm SD)	RFP Score (Mean \pm SD)	EF Score (Mean \pm SD)
Episodic Migraine	61.4 ± 13.2	64.8 ± 12.5	57.8 ± 15.6
Chronic Migraine	45.2 ± 11.6	49.6 ± 10.7	42.5 ± 14.2
p-value	< 0.001	< 0.001	< 0.001

Further analysis showed a strong inverse relationship between the frequency of migraine attacks and overall MSQ scores. Patients experiencing more frequent attacks

had progressively poorer quality of life scores (Figure 1). Those with more than six attacks per month had notably lower MSQ scores across all domains ($p < 0.001$).

**Fig. 1: Relationship between attack frequency and MSQ total score.**

DISCUSSION

This study highlights the significant negative impact of migraine on the quality of life of patients attending AIMSS, Shimla, particularly in the domains of emotional functioning, role restriction, and role prevention. These findings are consistent with national and global literature that reports substantial impairment in daily functioning and emotional well-being among migraine patients.^[8,9]

The mean MSQ scores in our study—particularly the low scores in the Emotional Function (EF) domain—underscore the psychological toll that migraine exerts. Patients commonly reported feelings of frustration, helplessness, and anxiety due to the unpredictability of attacks. These results echo findings from Buse *et al.* (2010), who documented that a significant proportion of migraine patients experience depression and anxiety symptoms, which further exacerbate the perceived disability.^[10] Female participants in our study reported worse QoL scores compared to males, a trend observed in other Indian and international studies.^[11] This may be attributed to hormonal influences, increased domestic responsibilities, and potentially underdiagnosed mental health issues in women. Moreover, the frequency of migraine episodes was inversely correlated with QoL, emphasizing that chronic migraine patients experience higher levels of disability and emotional burden, as previously demonstrated by Lipton *et al.* (2007).^[12] Our study also adds to the limited body of evidence from hilly and high-altitude regions like Shimla. Environmental triggers such as barometric pressure fluctuations, cold weather, and limited access to tertiary care may play a role in worsening the migraine burden in this region. Public health interventions focusing on early diagnosis, patient education, and tele-neurology services could potentially help reduce this burden. From a clinical perspective, these findings advocate for a multi-disciplinary approach to migraine management. Alongside pharmacological therapy, interventions such as cognitive-behavioral therapy (CBT), stress management, and patient support groups could significantly enhance patient well-being.^[13] Additionally, routine use of validated QoL tools like the MSQ v2.1 in outpatient settings can help clinicians monitor treatment efficacy and adjust management plans holistically.

CONCLUSION

Migraine significantly affects quality of life in patients attending AIMSS, Shimla, with emotional and functional limitations being most prominent. A holistic approach including pharmacological treatment, lifestyle modifications, and psychological support is essential for improving QoL in these patients.

CONFLICT OF INTEREST

None declared.

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