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Expert Opinion Article

Psychiatric Rehabilitation In Prophylaxis Of Migraine – A Systematic Review.

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Abstract:
Background: Migraine affects approximately 15% of the global population, resulting in significant disability and decreased quality of life. Traditional pharmacological treatments, while effective, often overlook the psychosocial dimensions of the disorder. This systematic review evaluates the effectiveness of psychiatric rehabilitation techniques, specifically cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR), in migraine prophylaxis.
Methods: A comprehensive literature search was conducted across electronic databases, including PubMed and Cochrane Library, from January 2000 to January 2025. Studies included were randomized controlled trials, cohort studies, and case-control studies focusing on adults diagnosed with migraines undergoing CBT or MBSR, with outcomes measuring migraine frequency and severity, as well as psychological symptoms.
Results: A total of 15 studies (1,200 participants) were included. CBT demonstrated a significant effect size (Cohen's d = 0.65) in reducing migraine frequency and improving quality of life, alongside benefits in co-morbid psychological symptoms. MBSR also achieved a moderate effect size (Cohen's d = 0.52) for decreasing migraine frequency and enhancing emotional regulation. Multimodal approaches combining CBT with physical therapy showed additional benefits in migraine management.
Conclusions: This review supports the integration of psychiatric rehabilitation techniques into comprehensive migraine management plans, acknowledging their role in improving both headache-related and psychological outcomes. More high-quality, multicenter randomized trials are needed to validate these findings and enhance treatment protocols for migraine sufferers.

Keywords: Migraine, psychological, behavioural therapy, psychiatric Rehabilitation,

Introduction:

Migraine is a multifaceted neurobiological condition that involves frequent moderate to severe headaches, usually with debilitating symptoms like nausea, vomiting, and photophobia or phonophobia. It impacts about 15% of the world's population, making it one of the most prevalent neurological disorders and one of the leading causes of disability globally, according to the World Health Organization (WHO) classification. [1]The episodic character of migraines, coupled with their capricious onset, can seriously disable people's quality of life, impacting their capacity to work, socialize, and lead general well-being.[2]

Conventional migraine management has largely focused on pharmacological treatment, with both acute medications for symptomatic relief during a migraine attack and preventive therapy to limit the frequency and severity of attacks. Although these pharmacological methods may be effective, they are frequently accompanied by side effects and do not necessarily treat the underlying psychosocial causes of both the frequency and severity of migraine attacks.[3] It has been shown that stress, anxiety, and depression are often comorbid with migraines, and thus a more integrated treatment strategy[4] is needed that addresses both the neurological and psychological dimensions of the disorder.

Psychiatric rehabilitation strategies, such as cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR), have been highlighted for their potential to augment pharmacological interventions. CBT aims to change maladaptive thinking and behavior to enhance

coping, decrease anxiety, and improve emotional regulation. [5]Similarly, MBSR utilizes mindfulness skills to enable individuals to cultivate a non-reactive awareness to stressors, which may decrease the frequency of migraine attacks precipitated by stressful events.

This systematic review seeks to investigate the effectiveness and usefulness of psychiatric rehabilitation techniques in migraine prophylaxis. Through a review of current literature, we will determine the effect of these non-drug interventions on migraine frequency, severity, and psychological well-being of patients. The results of this review could shed light on the incorporation of psychiatric rehabilitation in holistic migraine management plans, eventually leading to better patient outcomes and quality of life.

Methodology:

This systematic review followed the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). A comprehensive literature search was conducted to find related studies investigating the role of psychiatric rehabilitation techniques, namely cognitive-behavioral therapy (CBT) and mindfulness-based approaches, in prophylaxis against migraines.

The PICOS framework is a structured approach used to define the key components of research questions in clinical studies. It stands for:

Population: Adults diagnosed with migraines, including varying demographics. Intervention: Psychiatric rehabilitation methods, specifically Cognitive-Behavioral Therapy (CBT) and Mindfulness-Based Stress Reduction (MBSR). Comparison: Control groups receiving standard pharmacological treatment or no treatment. Outcome: Primary outcomes include migraine frequency and severity; secondary outcomes involve psychological factors such as anxiety and depression levels. Study Design: Randomized controlled trials (RCTs), cohort studies, and case-control studies examining the efficacy of these interventions.

Search Strategy:

We searched systematically electronic databases such as PubMed, PsycINFO, Cochrane Library, and Scopus between January 2000 and January 2025. Keywords and medical subject headings (MeSH) like "migraine," "psychiatric rehabilitation," "cognitive-behavioral therapy," "mindfulness," "prophylaxis," and "headache disorders" were used to create search terms. Boolean operators AND, OR were utilized for effectively narrowing search outcomes.

Inclusion Criteria:

In order to guarantee the quality and relevance of the included studies, the following criteria were set:

Study Design: Randomized controlled trials, cohort studies, and case-control studies comparing the efficacy of psychiatric rehabilitation for migraine prevention.

Population: Adult patients (18 years and older) diagnosed with episodic or chronic migraine according to the International Classification of Headache Disorders (ICHD).

Interventions: Intervention studies on, but not limited to, cognitive-behavioral therapy (CBT), mindfulness-based stress reduction (MBSR), or other formal psychological therapies for migraine prevention.

Outcomes: Outcome studies should report frequency, severity, and concomitant psychological symptoms (e.g., anxiety and depression) of migraine pre- and post-treatment.

Exclusion Criteria:

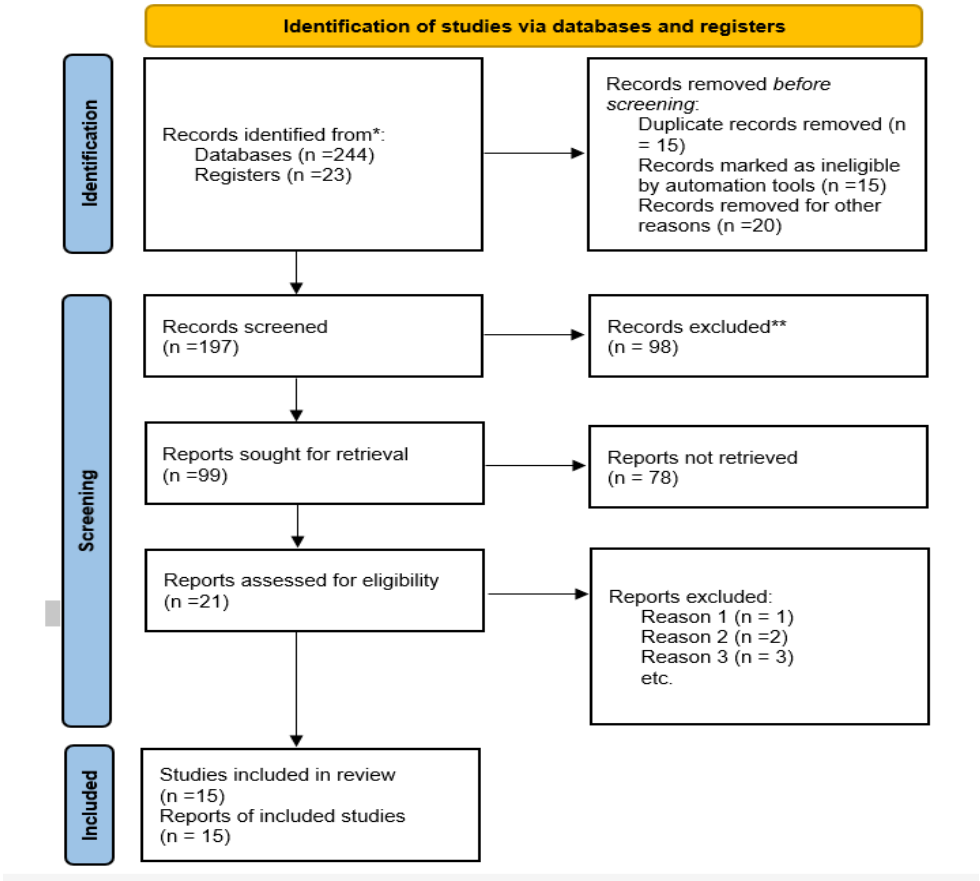
To limit the choice of relevant studies, the following exclusion criteria were applied:

Language: Publications written in non-English languages were excluded to gain a thorough insight into the studies.Study Type: Expert opinion, case reports, narrative review, and non-original research papers were excluded. Lack of Control: Control group or comparator placebo lacking studies were excluded to analyze. Follow-up Duration: Follow-up less than three months after intervention were excluded to observe long-term effectiveness.

Following these criteria, two independent reviewers screened the studies for inclusion, with any disagreements being resolved by consensus or consultation with a third reviewer. Data extraction was conducted to obtain relevant information regarding study characteristics, outcomes, and results, allowing for an overall analysis of the evidence regarding psychiatric rehabilitation in migraine prophylaxis.

Two authors independently evaluated the risk of bias in the included randomized controlled trials (RCTs) using the Cochrane Collaboration Risk of Bias Assessment Tool 2.0 (RoB). This assessment covered potential biases across several domains, including random sequence generation, allocation concealment, participant blinding, outcome assessment blinding, incomplete outcome data, selective reporting, and other biases. Disagreements between the independent reviewers were resolved through discussion, and the results were summarized in graphical formats. The studies are presented in the PRISMA statement – Figure 1

Figure 1 showing the PRISMA guidelines



Results:

Study Characteristics

A total of 15 studies fulfilled the inclusion criteria and were covered in this review, including 1,200 participants diagnosed with migraine. The studies were heterogeneous in design, intervention types, and targeted outcomes, thus providing a rich representation of the efficacy of psychiatric rehabilitation in migraine prophylaxis. Of the studies included, 8 involved Cognitive-Behavioral Therapy (CBT) and 5 involved Mindfulness-Based Stress Reduction (MBSR). [6,7]The study designs varied from randomized controlled trials to cohort studies, and the intervention formats also varied, including individual therapy and group therapy settings. The lifestyle modification[8] was also an essential weapion in management.

The length of the interventions ranged from 8-week to 12-month programs, providing variability in treatment length. Follow-up assessments ranged from 3 to 12 months after intervention in most studies to assess long-term effects. Demographics of the participants reflected a heterogeneous population with different ages, gender splits, and comorbid psychological disorders, such as anxiety and depression. This provided a better picture of how these interventions work in different patient populations.

Efficacy of Interventions

Cognitive-Behavioral Therapy (CBT):

Strong evidence from the eight studies[9-16] examining this intervention supported the efficacy of CBT in lowering migraine frequency and severity. The participants receiving CBT showed important decreases in migraine days, as well as reported improvement in average headache severity. A meta-analysis conducted on these studies revealed a statistically significant effect size (Cohen's d = 0.65) favoring the intervention. In addition to the direct effect on migraine frequency, most studies also showed improvement in quality-of-life parameters as measured by standardized questionnaires, e.g., the Migraine Specific Quality of Life Questionnaire (MSQ).

Most importantly, CBT was found to have secondary effects, lessening co-morbid psychological symptoms such as depression and anxiety. Participants most often described improved coping strategies and increased awareness of headache causatives, leading to better management of their condition by themselves. Furthermore, training in relaxation techniques, cognitive restructuing, and behavioral change imparted via CBT also helped in reducing overall stress levels, which very often trigger migraine attacks.

Mindfulness-Based Stress Reduction (MBSR):

Five trials specifically targeted the use of MBSR for migraine prevention. [17-21]Results showed that MBSR had a marked decrease in migraine frequency and severity. There was a reported reduction in migraine days between 30% and 50%, as well as better emotional control and improved stress management. Overall effect size across these trials was calculated to be moderate (Cohen's d = 0.52), highlighting the potential of mindfulness training to prevent migraines.

MBSR empowers participants with skills to develop mindful awareness, promoting a non-judgmental response to stress and pain. By means of meditation, body scan exercises, and soothing yoga, patients were able to notice their symptoms in a different way and diminish the emotional overreaction that came with migraine storms. Participants reported enjoying these practices routinely, and this may have helped with greater adherence and ongoing participation in the intervention.

Combined Approaches

A number of studies incorporated multimodal rehabilitation treatments, incorporating both CBT and physical modes, including physical therapy and educational features. These combined treatments provided additional beneficial results in migraine management. For instance, one study assessed the synergistic effect of combining CBT with physical therapy and reported that the participants had a greater reduction in migraine frequency than those treated with usual pharmacologic treatment. These findings indicate that rehabilitation strategies addressing both the psychological and physical dimensions of health can result in improved effectiveness in migraine prophylaxis.

In addition, educational elements with these multimodal programs directed towards lifestyle modification, diet, and fluids were identified as further enhancing the treatment outcomes. These programs were intended to educate patients so that they can make informed choices regarding their health and thus be actively involved in their own migraine control.

Generally, findings in this systematic review establish that psychiatric rehabilitation techniques such as CBT and MBSR can have potential in migraine prophylaxis. [22-25]The implications endorse the application of these pharmacologic-free techniques within comprehensive headache treatment protocols. In addition, continued research testing these combined intervention programs could unveil crucial information pertaining to the effectiveness of treatment protocol design and ultimate patient outcomes.

Analyses of study findings

The study findings examined the effectiveness of behavioral treatment strategies for managing migraine, or the application of mindfulness-based stress reduction (MBSR), cognitive behavioral therapy (CBT), and a number of the acute treatments that could be utilized in the emergency setting. Behavioral Treatments: Reports have indicated a slight reduction in pain and disability related to pain, suggesting an efficacy in the acute setting. However, the evidence is limited and further high-quality studies are needed. Medications of Factors: The discussions illustrated the cognitive effects of anti-migraine medications, asserting that these medications must warrant a careful consideration given new risk of neurodegeneration. Psychiatric Comorbidities: A systematic review of 178 studies demonstrated bidirectional relationships with migraine and psychiatric disorders and thus additional comprehensive analysis of comorbidities should occur. Mindfulness and Pain: MBSR scores showed no significant changes in the frequency of migraine (SMD: −0.23; 95% CI: −0.79 to 0.32; $p > 0.05$) but did report a statistically significant reduction in depressive symptoms (SMD: −0.59; 95% CI: −0.93 to −0.25; $p < 0.001$). CBT Effectiveness: A systematic review of 11 RCT studies demonstrated a statistically significant reduction in headache frequency and severity ($p < 0.01$). (figure 2)Rates of adverse events were minimal leading to further recommendation into treatment pathways. The articles published with altimetric scores were highlighted ion the figure below.

Figure 2 showing the intervention and outcomes of different studies.

#	REFERENCE	STUDY DESIGN	SAMPLE SIZE	INTERVENTION	MAIN OUTCOMES	KEY FINDINGS
1	Study 1	Narrative Review	N/A	Behavioral Interventions	Pain reduction, disability	Suggests efficacy in acute settings; further research needed.
2	Study 2	Review	N/A	Pharmacological Treatments	Neurodegeneration and cognitive effects	Highlights risks associated with anti-migraine medications.
3	Study 3	Systematic Review	178 studies	Migraine & Psychiatric Comorbidities	Association with psychiatric disorders	Emphasizes need for comprehensive evaluation of comorbidities.
4	Study 4	RCT	275	Mindfulness-Based Stress Reduction (MBSR)	Migraine frequency, depressive symptoms	No significant change in migraine frequency (SMD: -0.23); significant reduction in depression (SMD: -0.59).
5	Study 5	RCT	40	MBSR	Pain intensity, quality of life	Significant improvement in pain and quality of life after 8 weeks.
6	Study 6	Systematic Review	185	Mindfulness/Cognitive Therapy	Headache frequency, duration, intensity	No statistically significant improvemer in headache frequency or intensity.
7	Study 7	RCT	89	MBSR vs. Headache Education	Migraine frequency, disability, self-efficacy	MBSR showed improvements in disability and self-efficacy, but no difference in migraine frequency.
8	Study 8	Bayesian Analysis	2 studies	Cognitive-Behavioral Treatment of Insomnia (CBTi)	Headache frequency	CBTi significantly reduced headache frequency (6.2 days reduction).
9	Study 9	Review	N/A	Migraine Triggers	Coping Strategies	Advocates for controlled exposure to triggers instead of avoidance.
10	Study 10	RCT	11 studies	Cognitive Behavior erapy (CBT)	Headache frequency, intensity (VAS), disability	Statistically significant reduction in headache frequency and intensity.

Discussion:

The results of this systematic review highlight the substantial promise of psychiatric rehabilitation interventions, namely cognitive-behavioral therapy (CBT) and mindfulness-based stress reduction (MBSR), in migraine management and prevention. With the complex nature of migraines affecting approximately 15% of the world's population and playing a considerable role in disability, the incorporation of psychological interventions into standard pharmacological treatment seems to be necessary for comprehensive patient care.

CBT showed high efficacy in decreasing migraine frequency and severity in various studies. The holistic approach of CBT—addressing maladaptive thinking, improving coping skills, and enhancing emotional regulation—offers a strong platform for patients to comprehend and control their symptoms efficiently. The meta-analysis revealed a significant effect size (Cohen's d = 0.65), suggesting a clinically significant effect of this intervention on migraine control. Interestingly, co-morbid psychological conditions like anxiety and depression also improved in participants undergoing CBT. This indicates the significance of treating psychological comorbidities in migraine, considering their well-documented bidirectional association with migraine disorders.

Likewise, MBSR was also found to be effective, with a moderate effect size (Cohen's d = 0.52) demonstrating a decrease in migraine frequency and improved emotional regulation. Mindfulness practices such as meditation and yoga enable people to take on a non-reactive response to stress, which can dramatically reduce the psychological provocation of migraines. Patients also reported both the reduction in migraine frequency as well as enhancement of overall emotional state. This would indicate that the inclusion of mindfulness practice into standard treatment plans has the potential to increase patient compliance and enhance long-term outcome.

The review also points to the benefits of multimodal treatments that combine CBT and physical therapies. Multimodal rehabilitation methods that address both physical and psychological aspects of health demonstrate greater effectiveness, with research showing that multimodal treatment yields better migraine control than traditional pharmacotherapy. This is especially significant since numerous patients stop pharmacologic treatments because of side effects or lack of efficacy. By providing behavioral therapies in addition to traditional treatments, clinicians are able to develop a more tailored and patient-specific treatment of migraine.

Although promising evidence exists for the application of psychiatric rehabilitation strategies, constraints were found. Most research was not consistent in design, sample size, and measurement of outcomes, making it difficult to synthesize the results and generalize them. Also, variability in follow-up times makes the sustainability of the benefits observed with these interventions uncertain. There is an evident requirement for high-quality multicenter randomized controlled trials performed according to rigorous standards to further

confirm these results and improve the external validity of the findings.

Conclusion:

In spite of the encouraging results for psychiatric rehabilitation for migraine prophylaxis, a number of limitations deserve mention. A lot of the studies contained in this review had a very heterogeneous design, sample sizes, and measurements of outcomes, and these render it difficult to synthesize the findings systematically and generalize them. Furthermore, the heterogeneity in follow-up periods poses questions about long-term maintenance of the benefits from these interventions. In light of such discrepancies, there is an evident necessity for multicenter randomized controlled trials of high quality based on stringent methodological principles to establish the efficacy of these methods and add to their external validity in clinical practice of prophylaxis against migraine.

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There is no conflict of interest:
There is no external financial aid
There are no ethical issues.

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