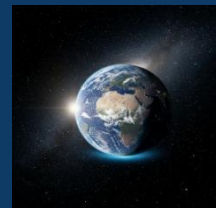




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Effectiveness of Yoga as an Adjunctive Therapy in Migraine: A Narrative Review

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Abstract

Background: Migraine remains a challenging neurological disorder, affecting millions worldwide and often disrupting daily life. While medications are still the first-line therapy, many patients struggle with side effects or end up discontinuing treatment. Consequently, there

is a growing interest in complementary, non-pharmacological approaches, particularly mind-body practices such as yoga.

Objective: In this narrative review, we explore what recent research reveals about adding yoga to standard migraine care. We focus on whether yoga can help with key clinical outcomes.

Material and Methods: This narrative review evaluates the effectiveness of yoga therapy in migraine management, based on a comprehensive literature search of PubMed and Scopus (2007–2026). Included studies—primarily randomized controlled trials and meta-analyses—assessed yoga’s clinical and physiological impacts on headache frequency, pain severity, disability and autonomic balance.

Results: Integrating yoga into standard medical care appears to significantly reduce the frequency, duration and severity of migraine attacks. Regular practice may also minimize migraine-related disability and help restore autonomic nervous system (ANS) balance.

Conclusions: Current evidence suggests that yoga is a safe and cost-effective adjunctive therapy for migraines. It significantly reduces headache frequency, pain intensity and attack duration, while simultaneously mitigating disability, restoring autonomic balance and enhancing patients' overall quality of life.

Key words: Migraine; Yoga; Yoga therapy; Complementary and alternative medicine (CAM); Autonomic nervous system; Quality of life.

1. INTRODUCTION

Migraine is a highly prevalent and debilitating chronic neurological disorder, ranking as the second leading cause of disability worldwide [Long et al., 2022]. It affects approximately 15% of the global population and imposes a substantial socio-economic burden, with a particularly high prevalence and disability rate among women of reproductive age [Sujan et al., 2025]. Clinically, migraine attacks are characterized by recurrent episodes of moderate-to-severe, pulsating and typically unilateral headaches lasting from 4 to 72 hours [Mehta et al., 2021]. The pain is often aggravated by routine physical activity and accompanied by a constellation of sensory and autonomic symptoms, including hypersensitivity to light (photophobia) and sound (phonophobia), nausea, vomiting, dizziness and cognitive disturbances [Kachhadia et al., 2023; Skrzypek et al., 2024].

Conventional pharmacological management of migraine is generally divided into acute (abortive) and preventive therapies [Aguilar-Shea et al., 2022]. Acute treatments aim to halt symptom progression and include analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), triptans, calcitonin gene-related peptide (CGRP) antagonists and antiemetics [Kachhadia et al., 2023; Belcarz et.al.,2025]. Preventive therapies, designed to reduce the frequency and severity of future attacks, utilize classes of drugs such as beta-blockers, anti-epileptic medications (e.g., topiramate, valproic acid), calcium channel blockers, tricyclic antidepressants and botulinum toxin injections [Sujan et al., 2025; Belcarz et.al.,2025]. Despite these options, pharmacological treatment is often limited by inadequate efficacy and significant adverse effects, like medication-overuse headache, gastrointestinal bleeding and cognitive impairment, which lead up to two-thirds of patients to discontinue therapy [Long et al., 2022].

Given these limitations, complementary mind-body interventions like yoga have gained increasing clinical prominence as safe and potentially cost-effective alternatives [Sujan et al., 2025]. Yoga is a holistic practice that combines physical postures (asanas), controlled breathing techniques (pranayama) and meditation or relaxation [John et al., 2007]. Its therapeutic efficacy in migraine management is thought to result from multiple physiological and psychological mechanisms [La Touche et al., 2023].

Primarily, yoga may help modulate the autonomic nervous system; slow diaphragmatic breathing stimulates vagal afferents, shifting the sympathovagal balance away from sympathetic hyperactivity and toward parasympathetic (vagal) dominance, as evidenced by improved heart rate variability [Kisan et al., 2014; Sujan et al., 2025].

Neurochemically, yoga practices have been shown to increase brain levels of gamma-aminobutyric acid (GABA), a key inhibitory neurotransmitter, by up to 27%, which may help suppress the cortical hyperexcitability characteristic of migraine pathophysiology [Streeter et al., 2007]. Furthermore, integrated yoga interventions alleviate muscle tension in the head, neck and shoulders, common trigger zones for pain episodes [Kachhadia et al., 2023]. By regulating the hypothalamic-pituitary-adrenal (HPA) axis, yoga may help mitigate stress, anxiety and depression, thereby addressing major psychological comorbidities and precipitating factors of migraine attacks [Singh et al., 2026; Małajewicz et.al.,2026].

Research Objective: The primary objective of this review is to systematically analyze the effectiveness of yoga therapy in the treatment and management of migraines. Specifically, it aims to assess the impact of yoga interventions on migraine frequency, pain intensity and attack

duration, as well as their effects on migraine-related disability, autonomic nervous system (ANS) balance and overall quality of life.

Research Problem: Despite the widespread use of pharmacological treatments for migraines, many patients experience inadequate relief, high discontinuation rates and intolerable side effects. This review addresses whether integrating yoga therapy into standard medical care can effectively improve core clinical symptoms, such as headache frequency, pain intensity and attack duration, reduce functional disability and positively influence autonomic nervous system (ANS) function in migraine patients compared to conventional pharmacotherapy alone.

Research Hypotheses: The integration of yoga into conventional medical management provides greater clinical benefits than standard pharmacological care alone. Specifically, it is hypothesized that yoga will reduce migraine frequency, pain severity and attack duration, alleviate functional disability and enhance overall quality of life by restoring physiological autonomic balance and mitigating psychological triggers.

2. RESEARCH MATERIALS AND METHODS

A comprehensive literature search was conducted to evaluate current evidence regarding yoga therapy in migraine management. The electronic databases PubMed and Scopus were systematically searched for relevant publications. The search strategy utilized specific keywords and their combinations, focusing on the terms: “migraine”, “yoga”, “migraine and yoga”, “migraine treatment” and “headaches”.

The literature selected for this narrative review covers publications from 2007 to 2026.

To ensure a comprehensive and balanced analysis, various types of scientific articles were included. Primary evidence was drawn from original clinical studies, predominantly randomized controlled trials (RCTs) and quasi-randomized controlled trials (q-RCTs).

In addition to primary research, the review incorporates secondary literature such as systematic reviews, meta-analyses and network meta-analyses, which provide pooled data and broader comparisons of intervention efficacy. To capture additional clinical context and background, other study designs-including cohort studies, case series and narrative reviews, were also included in the synthesis.

The synthesized literature encompassed adult patients (typically 18 to 60 years old) with a confirmed clinical diagnosis of episodic or chronic migraines, predominantly classified according to the International Headache Society (IHS) diagnostic criteria. Reflecting the global

epidemiological burden, participant cohorts in the reviewed clinical trials and meta-analyses were predominantly female.

Extracted data focused on core clinical outcomes: headache frequency, pain intensity, attack duration, functional disability and objective changes in autonomic nervous system (ANS) balance. Although no new quantitative pooling was performed for this narrative review, the analysis relied on a critical evaluation of the statistical findings reported in the source literature. The comparative clinical efficacy of yoga interventions versus standard pharmacological care was assessed by analyzing key statistical metrics extracted from the studies, including Standardized Mean Differences (SMDs), 95% Confidence Intervals (CIs) and corresponding p-values (with statistical significance generally set at $p < 0.05$). This approach allowed for an evidence-based synthesis of the treatment's effect sizes and therapeutic significance.

In this study, artificial intelligence (AI) tools were used as supportive instruments for language analysis, refinement of academic English and identification of potential errors or inconsistencies. All AI-assisted processes were conducted under continuous human supervision and the authors retained full responsibility for the interpretation of results, error classification and the final content of the manuscript.

3. RESEARCH RESULTS

3.1. Effect on Migraine Frequency

Numerous clinical trials and meta-analyses have demonstrated that yoga interventions significantly reduce the frequency of migraine attacks. Comprehensive meta-analyses consistently report large effect sizes (Standardized Mean Difference [SMD] = -1.43; 95% Confidence Interval [CI]: -2.23 to -0.64; $p = 0.0004$) [Long et al., 2022].

At the level of individual randomized controlled trials, a significant reduction in migraine frequency has been observed, dropping from 10.22 ± 2.59 to 4.56 ± 1.79 attacks per month following a holistic yoga program over three months, compared to a slight increase in the self-care control group (from 9.82 ± 2.31 to 10.18 ± 2.14) [John et al., 2007]. Similarly, a marked decrease in headache frequency from 11.3 ± 5.0 to 1.8 ± 1.5 episodes per month was reported when yoga was added to conventional care, outperforming the control group [Kisan et al., 2014]. More recently, a 12-week yoga-based breathing and relaxation program, used

alongside standard pharmacological care, was shown to lead to an 85% reduction in monthly headache frequency (from 8.3 ± 1.8 to 1.2 ± 1.0 days/month), which was significantly greater than the 60% reduction observed with standard care alone ($p < 0.001$) [Sujan et al., 2025]. Another study confirmed, that adding yoga therapy to conventional medical management decreased headache frequency from 5.65 ± 1.30 to 3.50 ± 1.05 episodes over three months [Mehta et al., 2021].

While a few smaller trials observed reductions in both yoga and control groups without statistically significant differences between them [Kumari et al., 2022], the overall consensus strongly favors yoga as an effective adjunctive treatment.

Supporting this, a comprehensive network meta-analysis ranked yoga among the most effective interventions for reducing migraine frequency, demonstrating significant superiority over pharmacological treatment alone (SMD = -1.30; 95% CI: -2.09 to -0.51) [Reina-Varona et al., 2024]. Consequently, recent evidence-based clinical practice guidelines have awarded yoga a Grade B recommendation, specifically advising interventions of at least 6 weeks (three sessions per week) to effectively improve headache frequency in patients with episodic migraine [La Touche et al., 2023].

3.2. Effect on Pain Intensity

The impact of yoga on the severity and intensity of migraine attacks is well-documented, with largely positive results. Several randomized controlled trials have reported significant reductions in pain intensity following yoga interventions. For example, it has been observed that the visual analog scale (VAS) score dropped from 8.70 ± 1.26 to 2.03 ± 1.29 in patients practicing yoga as an adjunct therapy, compared to a smaller reduction (from 9.30 ± 1.15 to 7.73 ± 1.23) in the conventional care group [Kisan et al., 2014]. Similarly, a greater VAS decrease was found in the group receiving yoga and conventional therapy (from 9.06 ± 0.83 to 5.0 ± 1.0) versus conventional therapy alone (from 8.88 ± 0.78 to 5.88 ± 1.17 ; $p = 0.041$) [Kumari et al., 2022]. More recently, a 12-week yoga-based relaxation program was demonstrated to result in a marked VAS reduction (from 9.0 ± 0.4 to 2.7 ± 1.5), significantly outperforming the control group ($p < 0.001$) [Sujan et al., 2025].

Beyond individual trials, comprehensive meta-analyses support these findings. In a network meta-analysis, it was reported that among various exercise modalities, only yoga was significantly superior to pharmacological treatment alone in reducing overall migraine intensity

(SMD = -1.40; 95% CI: -2.41 to -0.39) [Reina-Varona et al., 2024]. Likewise, yoga therapy has been associated with a notable decrease in pain intensity (SMD = -1.21; 95% CI: -2.17 to -0.25; $p = 0.01$) [Long et al., 2022]. However, another meta-analysis noted that while yoga effectively reduced headache frequency, it did not reach statistical significance for pain intensity reduction (SMD = -1.37; 95% CI: -2.76 to 0.01; $p = 0.05$) [Wu et al., 2022].

Despite this minor discrepancy, recent clinical practice guidelines recommend yoga as a beneficial Grade B intervention that strongly improves headache frequency and disability, while also offering potential-albeit secondary-benefits for pain intensity relief in episodic migraine patients [La Touche et al., 2023].

3.3. Effect on Attack Duration

Research indicates that yoga can reduce not only the frequency and severity of migraines, but also the duration of individual headache attacks. A meta-analysis demonstrated a significant reduction in attack duration with yoga therapy, yielding a large standardized mean difference (SMD = -1.03; 95% Confidence Interval [CI]: -1.85 to -0.21; $p = 0.01$) [Long et al., 2022]. Supporting this, a randomized controlled trial reported a significant decrease in attack duration from 6.94 ± 1.68 hours to 4.78 ± 1.01 hours in the yoga group, whereas the control group experienced a slight increase (from 6.06 ± 1.77 to 6.42 ± 1.27 hours; $p = 0.001$) [John et al., 2007].

However, it is important to note that the literature presents somewhat mixed findings regarding this parameter. For example, in a clinical trial, substantial improvements in migraine frequency and pain intensity were observed, but no statistically significant reduction in attack duration was found when yoga was added to conventional pharmacological management [Boroujeni et al., 2015]. Furthermore, a recent comprehensive network meta-analysis indicated that, while yoga is highly effective for reducing headache frequency and intensity, moderate-to-high intensity aerobic exercise modalities may be more consistently effective at shortening the actual duration of migraine attacks [Reina-Varona et al., 2024].

Thus, while yoga offers duration-shortening benefits for many patients, its efficacy in this specific domain appears to be more variable than its notable impact on frequency and pain severity.

3.4. Decreased Need for Medication

The practice of yoga as an adjunctive therapy leads to a clinically meaningful reduction in the use of symptomatic medications, such as non-steroidal anti-inflammatory drugs (NSAIDs). Integrating yoga into conventional care has been shown to significantly decrease the overall medication requirement for migraine patients. For instance, in a randomized controlled trial, it was demonstrated that the symptomatic medication score dropped significantly from 2.69 ± 1.31 to 1.37 ± 1.01 in the yoga group, compared to an increase from 2.91 ± 1.13 to 3.94 ± 0.97 in the control group ($p = 0.001$) [John et al., 2007]. Furthermore, it was observed that the need for NSAIDs decreased from 100% of participants at baseline to only 20% by day 90 in a cohort undergoing integrated yoga and Ayurveda therapy, whereas the control group maintained a sustained high usage rate of 86.6% [Vasudha et al., 2018]. These findings are further supported by a large-scale trial, which confirmed that adding yoga to standard medical management results in a significantly greater reduction in total pill count compared to medical therapy alone [Kumar et al., 2020]. Ultimately, this reduced reliance on acute pharmacotherapy not only minimizes medication costs but also crucially decreases the risk of developing medication-overuse headaches and other drug-induced adverse effects.

3.5. Reduction in Disability and Improvement in Quality of Life

Migraine significantly impairs daily functioning, but yoga has been shown to effectively reduce this disability, as evidenced by significant decreases in specialized scale scores such as the Headache Impact Test (HIT-6) and the Migraine Disability Assessment (MIDAS) [Kisan et al., 2014; Wu et al., 2022]. For example, a recent randomized controlled trial reported a substantial mean decrease in HIT-6 scores of 33.0 ± 7.6 (from 74.6 ± 5.8 down to 41.6 ± 5.7) in the yoga group, compared to a reduction of only 21.6 ± 9.8 in the control group ($p < 0.001$) [Sujan et al., 2025]. Meta-analyses further confirm these findings, showing significant reductions in both HIT-6 (SMD = -2.28; 95% CI: -3.81 to -0.75; $p = 0.003$) and MIDAS scores (SMD = -0.52; 95% CI: -0.77 to -0.27; $p < 0.0001$) associated with yoga interventions [Long et al., 2022]. Consequently, patients report higher overall quality of life and better physical health [Nayar et al., 2022]. Specifically, improvements in health-related quality of life, as measured by the SF-36 health survey, are especially pronounced in the physical functioning and vitality domains when yoga is integrated into standard care [Sujan et al., 2025]. Reflecting this impact, recent evidence-based clinical practice guidelines have awarded yoga a Grade B

recommendation for its efficacy in improving migraine-related disability and enhancing patients' overall quality of life [La Touche et al., 2023].

3.6. Restoration of Autonomic Nervous System (ANS) Balance

Migraine patients often experience autonomic dysfunction, characterized by sympathetic hyperactivity and decreased vagal tone. Yoga and breathing exercises (pranayama) have been shown to effectively improve cardiac autonomic balance by enhancing parasympathetic (vagal) tone and reducing sympathetic drive. These objective physiological changes are reflected in improved heart rate variability (HRV) parameters. For example, a significant increase in high-frequency (HF) power from 374.7 ± 5.2 to 608.6 ± 5.7 ms² ($p = 0.042$) and a corresponding reduction in the sympathovagal balance (LF/HF ratio) from 2.0 ± 0.1 to 1.1 ± 0.1 ($p < 0.001$) have been demonstrated [Kisan et al., 2014]. Moreover, a recent trial observed a significant reduction in resting heart rate from 75.6 ± 6.1 to 71.4 ± 5.9 bpm ($p < 0.001$) and a notable increase in the RMSSD parameter from 31.8 ± 18.0 to 40.8 ± 21.6 ms ($p < 0.001$) [Sujan et al., 2025]. Importantly, this autonomic recalibration is often accompanied by significant decreases in blood pressure and may play a crucial role in breaking the stress–headache cycle by mitigating cortical hyperexcitability and neurovascular inflammation.

3.7. Alleviation of Stress, Anxiety and Depression

Stress is a major trigger for migraine attacks and yoga interventions have been shown to be highly effective in reducing subjective stress levels, as evidenced by significant decreases in Perceived Stress Scale (PSS) scores from 21.20 ± 4.83 to 11.96 ± 4.85 ($p < 0.001$) [Vasudha et al., 2018]. Furthermore, patients practicing yoga demonstrate significant improvements in symptoms of anxiety and depression, which are common psychiatric comorbidities in chronic pain conditions. For example, after three months of yoga therapy, it was reported that the Hospital Anxiety and Depression Scale (HADS) anxiety score was significantly lower in the yoga group (4.69 ± 1.42) compared to the control group (13.39 ± 1.73 ; $p = 0.001$) and a similar decrease was seen for depression scores (4.34 ± 1.33 vs. 13.21 ± 1.92 ; $p = 0.001$) [John et al., 2007]. These psychological benefits are closely linked to yoga's ability to downregulate the hypothalamic-pituitary-adrenal (HPA) axis and reduce cortisol levels, thereby helping to counteract the adverse physiological effects of chronic stress [Małajewicz et al., 2026].

3.8. Reduction of Muscle Tension

Prolonged stress frequently exacerbates muscle tension associated with migraine pain episodes. Integrative therapies, such as the combination of yoga and Ayurveda, have been shown to effectively reduce this tension, including objectively measured decreases in frontalis muscle activity. For example, a highly significant decrease in Root Mean Square Electromyography (RMS EMG) of the frontalis muscle from $133.43 \pm 58.25 \mu\text{V}$ to $75.44 \pm 35.19 \mu\text{V}$ ($p < 0.001$) was demonstrated following a 90-day intervention, while the control group showed no significant change (128.50 ± 69.53 to $128.31 \pm 65.87 \mu\text{V}$) [Vasudha et al., 2018]. Clinically, alleviating pericranial muscle tension is highly beneficial, as it targets common trigger zones for headaches and helps break the self-perpetuating cycle of stress, prolonged muscle contraction and pain.

3.9. Safety of Use and Treatment Adherence

Yoga is a well-tolerated and safe intervention for migraine patients. Systematic reviews and clinical trials consistently report no serious adverse effects or worsening of symptoms associated with the supervised practice of yoga, asanas, or relaxation techniques [Long et al., 2022; Wu et al., 2022]. For example, in a 12-week randomized controlled trial incorporating pranayama and relaxation, zero adverse events, injuries, or treatment-related complications were reported [Sujan et al., 2025]. Furthermore, patient adherence to home-practice sessions remained exceptionally high at $91.6 \pm 6.8\%$ [Sujan et al., 2025]. This excellent safety profile is particularly noteworthy, as high-intensity aerobic exercises or strenuous physical activity can occasionally trigger migraine attacks in some patients [La Touche et al., 2023]. In contrast, low-impact mind-body practices like yoga offer clinical benefits without the risk of exacerbating the condition. Consequently, the combination of high tolerability, lack of adverse effects and excellent patient compliance makes yoga a highly feasible and sustainable long-term adjunctive therapy.

Table 1. Effects of yoga interventions on migraine symptoms, disability and autonomic balance.

| Clinical Parameter | Study | Yoga Group (Baseline to Post) | Control Group (Baseline to Post) | Between-Group Significance |
|--|--------------------|--|---|-----------------------------------|
| Headache Frequency <i>(attacks/days per month)</i> | Sujan et al., 2025 | 8.3±1.8→1.2±1.0 | 7.9±1.8→3.2±1.3 | $p<0.001$ |
| | John et al., 2007 | 10.22±2.59→4.56±1.79 | 9.82±2.31→10.18±2.14 | $p=0.001$ |
| Pain Intensity <i>(VAS score 0–10)</i> | Kisan et al., 2014 | 8.70±1.26→2.03±1.29 | 9.30±1.15→7.73±1.23 | $p<0.001$ |
| | Sujan et al., 2025 | 9.0±0.4→2.7±1.5 | 8.9±0.5→5.7±1.4 | $p<0.001$ |
| Attack Duration <i>(hours)</i> | John et al., 2007 | 6.94±1.68→4.78±1.01 | 6.06±1.77→6.42±1.27 | $p=0.001$ |
| Disability <i>(HIT-6 score)</i> | Sujan et al., 2025 | 74.6±5.8→41.6±5.7 | 76.6±2.8→55.0±9.0 | $p<0.001$ |

| | | | | |
|--|--------------------|----------------------|-----------------------|-----------------|
| ANS Balance (<i>LF/HF ratio</i>) | Kisan et al., 2014 | 2.0±0.1→1.1±0.1 | 1.9±0.1→1.51±0.1 | <i>p</i> <0.001 |
| Anxiety (<i>HADS score</i>) | John et al., 2007 | 10.97±2.24→4.69±1.42 | 10.67±2.17→13.39±1.73 | <i>p</i> =0.001 |
| Depression (<i>HADS score</i>) | John et al., 2007 | 9.84±2.16→4.34±1.33 | 11.88±2.20→13.21±1.92 | <i>p</i> =0.001 |

4. DISCUSSION

The findings of this narrative review highlight that yoga is a highly effective adjunctive therapy for migraine management. Consistent with our hypothesis, integrating yoga into standard care significantly reduces headache frequency and attack duration, with large effect sizes (e.g., Standardized Mean Difference [SMD] = -1.43, *p* = 0.0004 for frequency and SMD = -1.03, *p* = 0.01 for duration) [Long et al., 2022]. For example, Sujan et al. (2025) reported an 85% decrease in monthly headache days (from 8.3 to 1.2) compared to a 60% reduction with conventional therapy alone (*p* < 0.001). However, the effect of yoga on pain intensity remains somewhat debated: while individual trials show significant reductions (e.g., a drop in VAS scores from 9.0 to 2.7) [Sujan et al., 2025], some meta-analyses indicate no statistically significant overall influence (SMD = -1.37, *p* = 0.05) [Wu et al., 2022]. Additionally, yoga profoundly decreases migraine-related disability, significantly lowering HIT-6 scores (SMD = -2.28, *p* = 0.003) [Long et al., 2022] and dependence on acute pharmacological treatments, as evidenced by a drop in medication scores from 2.69 to 1.37 [John et al., 2007], thereby enhancing overall quality of life for patients.

The therapeutic benefits of yoga in migraine can be attributed to several physiological and psychological mechanisms. Migraine pathophysiology is closely linked to autonomic nervous system dysfunction and stress [Sujan et al., 2025]. Yoga, particularly through controlled

breathing (pranayama) and relaxation techniques, restores autonomic balance by increasing parasympathetic (vagal) tone and decreasing sympathetic hyperactivity. This is objectively reflected in a significantly reduced sympathovagal balance (LF/HF ratio decreasing from 2.0 to 1.1, $p < 0.001$) [Kisan et al., 2014]. Furthermore, yoga interventions have been shown to increase brain GABA (an inhibitory neurotransmitter) levels by 27%, which may directly reduce cortical hyperexcitability [Streeter et al., 2007; Sujan et al., 2025; Kaushik et al., 2020]. Mind-body interventions also alleviate psychological comorbidities such as anxiety and depression, which are common triggers and exacerbating factors in migraine [Kaushik et al., 2020].

Despite these positive outcomes, several limitations within the current literature must be acknowledged. A primary methodological challenge in yoga research is the inability to establish a true double-blind placebo group, as patients are inherently aware of their participation in a yoga intervention [John et al., 2007; La Touche et al., 2023]. Consequently, patient expectations or the "Hawthorne effect" may confound clinical results [John et al., 2007]. Moreover, many studies suffer from small sample sizes (often fewer than 100 participants per individual clinical trial) [Long et al., 2022; Wu et al., 2022], high risk of bias and relatively short follow-up periods, typically ranging from only 6 to 12 weeks [Reina-Varona et al., 2024; Büssing et al., 2012]. The literature also presents significant heterogeneity in the type, duration and frequency of yoga interventions across different trials, making it difficult to pinpoint optimal exercise parameters [Büssing et al., 2012; Reina-Varona et al., 2024]. Furthermore, while recent trials have successfully incorporated objective physiological measures such as Heart Rate Variability (HRV) [Sujan et al., 2025; Kisan et al., 2014], the assessment of clinical pain and disability still primarily relies on subjective, questionnaire-based outcome measures [John et al., 2007].

To address current methodological gaps, future research should prioritize high-quality, large-scale, multicenter randomized controlled trials [Sujan et al., 2025]. Long-term follow-up of at least one year is recommended to determine whether the therapeutic effects of yoga are maintained over time [La Touche et al., 2023]. Furthermore, incorporating objective device-based tracking, such as wearable sensors, could provide more precise dose-response evaluation and continuous adherence monitoring [Sujan et al., 2025].

Clinically, considering the high prevalence of adverse effects and substantial discontinuation rates associated with conventional migraine medications, with an estimated two-thirds of

patients withdrawing from pharmacotherapy due to inefficacy or intolerability [Long et al., 2022], yoga presents a safe, cost-effective and holistic adjunctive approach. Recent trials report exceptional patient adherence rates (averaging 91.6%) and no practice-related adverse events [Sujan et al., 2025]. Ultimately, healthcare providers should consider recommending individualized yoga programs to migraine patients as a complementary strategy to optimize clinical outcomes, reduce functional disability and restore overall well-being [Nayar et al., 2022; La Touche et al., 2023].

5. CONCLUSIONS

In conclusion, the current body of literature provides robust evidence that yoga is an effective, safe and holistic adjunctive therapy for patients with migraines. Integrating yoga and breathing exercises (pranayama) into conventional pharmacological care is associated with notable clinical improvements that may exceed those achieved with standard medical management alone.

The most prominent benefits include a substantial decrease in monthly headache frequency, as well as significant reductions in the duration of individual attacks and overall pain severity. Beyond immediate symptom relief, yoga appears to reduce migraine-related functional disability and improve patients' overall quality of life. Furthermore, mind-body interventions like yoga address underlying autonomic dysfunction often seen in migraine by enhancing parasympathetic tone, reducing sympathetic hyperactivity and restoring physiological sympathovagal balance.

Importantly, yoga demonstrates an excellent safety profile, which is particularly relevant given the high discontinuation rates and adverse effects associated with conventional migraine medications. Clinical trials consistently report high adherence rates and a notable absence of treatment-related complications or injuries. Therefore, healthcare providers should consider recommending individualized yoga programs as a cost-effective, evidence-based complementary treatment to help reduce the overall migraine burden, minimize disability and enhance overall well-being.

Disclosure

Supplementary Materials

Not applicable

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Conflicts of Interest

The authors deny any conflict of interest

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