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Effectiveness of Group-Based Mindfulness-Based Stress Reduction on Pain Anxiety and Pain Catastrophizing in Adolescents with Migraine in Isfahan



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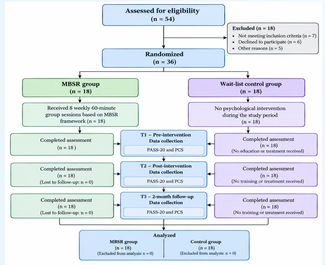
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Study at a Glance



Background

- Migraine is a common and disabling neurological disorder, with substantial burden during adolescence.
- Recurrent migraine attacks may interfere with daily functioning, academic performance, social relationships, and quality of life.
- Pain anxiety: Fear and anxiety related to pain or its anticipation, potentially leading to hypervigilance and avoidance.

  Pain catastrophizing: A tendency to magnify pain threats, feel helpless, and anticipate the worst possible outcomes
- Pain anxiety and pain catastrophizing may reinforce vigilance, fear, avoidance, and perceived disability.
- MBSR promotes present-moment awareness and less judgmental responses to thoughts, emotions, and bodily sensations.
- Evidence specific to adolescents with migraine remains limited, supporting the need for randomized controlled studies.

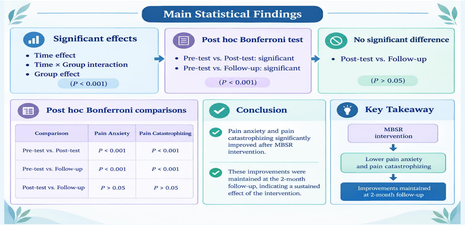
Methods

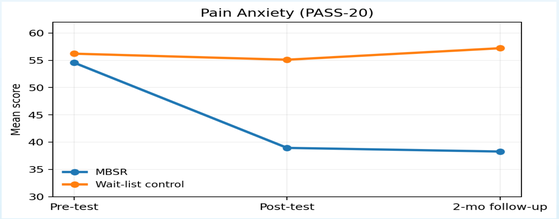
- Design: randomized controlled trial with a pretest-posttest and 2-month follow-up.
- Participants: A total of 54 adolescent girls with migraine were assessed for eligibility; 36 met the inclusion criteria and were enrolled using convenience sampling.
- Intervention: eight weekly 60-minute group MBSR sessions at Didar Psychological Services Center, Isfahan.
- Control: wait-list; no psychological or mindfulness training during the study period.
- Assessments: pre-test, post-test, and 2-month follow-up using PASS-20 and PCS.
- Analysis: repeated-measures ANOVA with assumption testing; SPSS Statistics 28; two-sided $p < 0.05$.

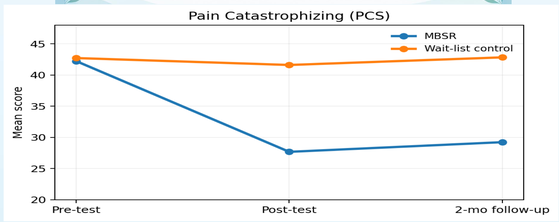
Ethics: IR.IAU.NAJAFABAD.REC.1403.007

Findings

- 36 participants were randomized equally to MBSR (n=18) and wait-list control (n=18).
- Pain anxiety decreased from 54.55 ± 14.54 at pre-test to 38.94 ± 13.38 post-test and 38.27 ± 12.21 at follow-up in the MBSR group.
- Pain catastrophizing decreased from 42.22 ± 15.09 to 27.67 ± 10.68 post-test and 29.22 ± 10.95 at follow-up.
- No significant post-test-to-follow-up difference was observed, indicating maintenance over two months.







Inferential results: Pain anxiety - time $F=69.889$, $p<0.001$, $\eta p^2=0.673$; time×group $F=70.073$, $p<0.001$, $\eta p^2=0.673$. Pain catastrophizing - time $F=48.792$, $p<0.001$, $\eta p^2=0.589$; time×group $F=41.051$, $p<0.001$, $\eta p^2=0.547$. Group effects: pain anxiety $p=0.007$; pain catastrophizing $p=0.034$.

Conclusion

Group-based Mindfulness-Based Stress Reduction (MBSR) was associated with significant reductions in pain anxiety and pain catastrophizing among adolescent girls with migraine. Improvements were observed immediately after the 8-week intervention and were maintained at the 2-month follow-up, suggesting potential benefits beyond the intervention period. MBSR may help adolescents develop a more mindful and less reactive response to pain-related thoughts, emotions, and bodily sensations. Group-based MBSR may be considered a complementary non-pharmacological intervention alongside standard migraine care, under appropriate specialist supervision, rather than a replacement for medical treatment. Collaboration between schools, psychologists, neurologists, and other healthcare providers may facilitate access to psychological interventions and support adolescents in managing the impact of migraine on daily functioning and quality of life. Future randomized controlled trials with larger and more diverse samples, active control groups, objective or multi-method outcome assessments, and longer follow-up periods are needed to confirm these findings and evaluate the long-term effectiveness of MBSR. The findings should be interpreted in light of the small sample size, single-site recruitment, inclusion of female participants only, use of a wait-list control group, reliance on self-reported measures, and relatively short follow-up period

References

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