BRIEF MEDITATION TRAINING FOR MIGRAINEURS AFFECTS EMOTIONAL AND PHYSIOLOGICAL STRESS REACTIVITY

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Acknowledgment

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Introduction

- Migraines headaches create a significant burden of pain, impaired work productivity, and reduced quality of life for 13.2% of the US population.¹
- Migraine frequency, severity, and duration may be related to emotional and physiological stress.
- The vascular component of migraines suggests a significant role for HPA activity which could be influenced by emotional and physiological stress.²
- In turn, effectively reducing multi-dimensional stress reactivity may lead to fewer headaches.
Hypothesis

A meditation intervention designed to reduce physiological and emotional reactivity to stressors will result in fewer migraine headaches.
Participants

88 Community recruited meditation naïve frequent migraineurs

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td>Migraines/month</td>
<td>9.3</td>
<td>6.65</td>
</tr>
</tbody>
</table>

Female 80.7%

Education
- < Bachelors 57.9%
- > Bachelors 42.1%

Relationship Status
- Single 26.1%
- Married/LAM 60.2%
- Divorced 13.6%

Employment
- Full-time 70.1%
- Part-time 6.9%
- Unemployed 16.1%
- Retired/Student 6.9%

Ethnicity
- Europe Origin 86.2%
- Asia Origin 6.9%
- Africa Origin 1.1%
- Latino/a 3.4%
- Multi Racial 2.2%
Method: Procedure

- Approved by the UMass Medical School IRB
- Individuals were screened for migraines using Migraine ID³
- Participants were consented and randomly assigned to Meditation Training or Education-Control
- Completed daily migraine/meditation logs
- Assessments were completed pre-, post-, and 4-week follow up
Sessions

- 4 weekly, 90-minute, group sessions

- Meditation training
  - Role of inter and intra personal stress on migraines
  - Loving-Kindness meditation (practiced 20 min/day)
  - Reducing reactivity to stress

- Education-control
  - Migraine demographics
  - Migraine assessment
  - Treatment options
Method: Assessments

- **State Anxiety Inventory (SAI)** is a 20-question survey measuring State Anxiety.

- **Galvanic Skin Response (GSR)** was measured using Physiolab and J&J Engineering C+6 biofeedback equipment.

- Participants were physiologically (GSR) monitored:
  - 5 minute - Baseline
  - 5 minute - Mental arithmetic stress test (Base-Stress = Reactivity)
  - 5 minute – Recovery
  - Participants completed SAI in response to the stressor.
Method: Data Analysis

- Pearson R’s
- 3x2 (time x group) repeated measures ANOVAs
- SPSS v20
- Intent to treat analyses
Headache x Group

(F(2, 82)=5.9; p < .01; η² = .17)
Meditation Frequency x Headaches

(R = -.33; p < .05)
Physiological Stress Reactivity x Time

(F (2,74) = 6.4 p < .01; η² = .27)
State Anxiety x Time

(F (2,82) = 3.0 p < .05; η² = .08)

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
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<tbody>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre</td>
<td>48.667</td>
<td>2.383</td>
</tr>
<tr>
<td>Post</td>
<td>51.000</td>
<td>2.405</td>
</tr>
<tr>
<td>4 week</td>
<td>48.933</td>
<td>1.557</td>
</tr>
<tr>
<td><strong>Meditation</strong></td>
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<td></td>
</tr>
<tr>
<td>Pre</td>
<td>48.857</td>
<td>1.744</td>
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<tr>
<td>Post</td>
<td>46.429</td>
<td>2.760</td>
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<tr>
<td>4 week</td>
<td>44.179</td>
<td>1.872</td>
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Conclusions

- Brief meditation training can be effective in treating patients with frequent migraine headaches.

- Reduces:
  - Emotional stress reactivity by 10%
  - Physiological stress reactivity by 40%
  - Migraine headaches by 50%
Implications

- Informs of the length of time needed to train patients before treatment is effective for patients with chronic and intermittent pain

- Supports further investigation into brief pain management psychological interventions to reduce stress response in disease processes that include a stress-related component
References


Thank you

Questions?

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