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AN EXPERIMENTAL INVESTIGATION INTO THE EFFECTIVENESS OF MINDFULNESS MEDITATION ON ANXIETY, DEPRESSION, AND BURNOUT AMONG PHYSICIANS WORKING IN EMERGENCY DEPARTMENTS

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Abstract

Background

Emergency physicians routinely encounter high-acuity clinical situations, prolonged working hours, shift rotations, ethical dilemmas, and emotionally demanding patient care. These occupational demands substantially increase their susceptibility to anxiety, depression, emotional exhaustion, depersonalization, and professional burnout. Mindfulness meditation has emerged as a promising non-pharmacological intervention to enhance emotional regulation, resilience, and psychological well-being among healthcare professionals.

Objective

To evaluate the effectiveness of a structured mindfulness meditation program in reducing anxiety, depression, and burnout among physicians working in emergency departments.

Materials and Methods

A pre-experimental one-group pretest-posttest design was adopted. Fifty emergency physicians were recruited through purposive sampling from selected tertiary care hospitals. Baseline assessments were conducted using the Generalized Anxiety Disorder-7 (GAD-7), Patient Health Questionnaire-9 (PHQ-9), and Maslach Burnout Inventory-Human Services Survey (MBI-HSS). Participants underwent an eight-week

structured mindfulness meditation program consisting of guided breathing exercises, body-scan meditation, mindful awareness, and loving-kindness meditation. Sessions were conducted five days per week for 30 minutes. Post-intervention assessments were completed immediately after the intervention. Descriptive statistics, paired t-tests, and Pearson correlation analysis were used for data analysis.

Results

The mean anxiety score decreased from 12.18 ± 3.42 to 6.64 ± 2.81 ($p < 0.001$). Depression scores improved from 13.06 ± 3.76 to 7.18 ± 3.04 ($p < 0.001$). Burnout scores also showed significant reductions in emotional exhaustion and depersonalization, with a corresponding increase in personal accomplishment ($p < 0.001$). The intervention demonstrated statistically significant improvements across all outcome variables.

Conclusion

Mindfulness meditation significantly reduced anxiety, depression, and burnout among emergency physicians. Incorporating structured mindfulness training into hospital wellness initiatives may contribute to improved physician mental health, enhanced resilience, and better quality of patient care.

Introduction

Emergency departments represent one of the most demanding clinical environments within modern healthcare systems. Physicians working in these departments are expected to make rapid clinical decisions under conditions of uncertainty while simultaneously managing critically ill patients, traumatic injuries, overcrowding, resource limitations, and emotionally charged interactions with patients and families. Such occupational demands expose physicians to persistent psychological stress that can adversely affect their emotional well-being, professional performance, and quality of life.

The prevalence of anxiety, depression, and burnout among physicians has increased considerably over the past decade. Burnout is recognized as a work-related syndrome characterized by emotional exhaustion, depersonalization, and diminished personal accomplishment. Emergency physicians experience particularly high rates of burnout

due to irregular schedules, night shifts, excessive workload, medico-legal concerns, sleep deprivation, and repeated exposure to traumatic events. Psychological distress not only affects physicians themselves but may also contribute to reduced job satisfaction, increased medical errors, absenteeism, and compromised patient safety.

Anxiety among physicians often manifests as persistent worry, irritability, impaired concentration, and physiological symptoms such as tachycardia and insomnia. Depression may present with low mood, fatigue, reduced motivation, emotional withdrawal, and decreased occupational functioning. If left unaddressed, these conditions can progress to severe mental health problems and negatively influence both personal and professional outcomes.

Mindfulness meditation has gained increasing attention as an evidence-based psychological intervention capable of improving emotional regulation and reducing occupational stress. Mindfulness refers to intentionally paying attention to present-moment experiences with openness, curiosity, and non-judgmental awareness. Through regular practice, individuals develop greater cognitive flexibility, emotional stability, and resilience when responding to stressful situations.

The therapeutic mechanisms underlying mindfulness include enhanced attentional control, reduced emotional reactivity, improved self-awareness, increased parasympathetic nervous system activity, and modulation of stress-related neuroendocrine responses. Neuroimaging studies have demonstrated that mindfulness practice influences brain regions involved in emotion regulation, executive functioning, and self-referential processing, including the prefrontal cortex, anterior cingulate cortex, insula, and amygdala.

Several randomized controlled trials have reported that mindfulness-based interventions reduce symptoms of anxiety, depression, perceived stress, and burnout among healthcare professionals. However, evidence specifically focusing on physicians working in emergency departments remains relatively limited, particularly in developing healthcare settings where workload and resource constraints may be more pronounced.

Emergency physicians frequently prioritize patient care over their own psychological health, leading to delayed recognition and treatment of emotional distress.

Consequently, accessible, low-cost, and sustainable interventions that can be integrated into hospital wellness programs are urgently needed. Mindfulness meditation offers several practical advantages, including ease of implementation, minimal equipment requirements, adaptability to shift schedules, and applicability across diverse healthcare settings.

The present study was undertaken to evaluate the effectiveness of an eight-week structured mindfulness meditation program in reducing anxiety, depression, and burnout among physicians employed in emergency departments. It was hypothesized that participation in the mindfulness program would lead to significant improvements in psychological health outcomes compared with baseline measurements.

Objectives

1. To assess baseline anxiety among emergency physicians.
2. To assess baseline depression among emergency physicians.
3. To assess baseline burnout among emergency physicians.
4. To evaluate the effectiveness of mindfulness meditation in reducing anxiety.
5. To evaluate the effectiveness of mindfulness meditation in reducing depression.
6. To evaluate the effectiveness of mindfulness meditation in reducing burnout.
7. To determine the association between selected demographic variables and psychological outcomes.

Research Hypotheses

H1: Mindfulness meditation significantly reduces anxiety scores among emergency physicians.

H2: Mindfulness meditation significantly reduces depression scores among emergency physicians.

H3: Mindfulness meditation significantly reduces burnout scores among emergency physicians.

H4: There is a significant association between selected demographic variables and post-intervention psychological outcomes.

Materials and Methods

Research Design

A quantitative pre-experimental one-group pretest-posttest design was adopted.

Setting

The study was conducted among physicians working in the emergency departments of selected hospitals in Ujjain, Madhya Pradesh.

Sample Size

A total of **50 emergency physicians** participated in the study.

Sampling Technique

Purposive sampling.

Inclusion Criteria

- Licensed physicians working in emergency departments.
- Minimum of six months of emergency department experience.
- Age 25–60 years.
- Willing to participate and provide written informed consent.

Exclusion Criteria

- Current psychiatric treatment.
- Regular mindfulness or meditation practice during the previous six months.
- Leave of absence during the intervention period.

Intervention

Participants attended an eight-week mindfulness meditation program, five sessions per week, each lasting approximately 30 minutes. The intervention included:

- Mindful breathing
- Body scan meditation
- Sitting mindfulness meditation

- Loving-kindness meditation
- Mindful awareness during clinical activities
- Brief reflective journaling

Attendance was monitored throughout the intervention.

Outcome Measures

- Generalized Anxiety Disorder-7 (GAD-7) for anxiety.
- Patient Health Questionnaire-9 (PHQ-9) for depression.
- Maslach Burnout Inventory-Human Services Survey (MBI-HSS) for burnout.

Data Collection Procedure

Baseline data were collected before the intervention. Participants then completed the eight-week mindfulness meditation program. Post-test assessments were conducted immediately following the final session using the same standardized instruments.

Statistical Analysis

Data were analyzed using descriptive statistics (frequency, percentage, mean, and standard deviation) and inferential statistics including paired t-tests, Pearson correlation, and chi-square tests. A p-value of <0.05 was considered statistically significant.

Results

The study demonstrated that emergency physicians experienced considerable levels of anxiety, depression, and burnout before the intervention. Following the eight-week mindfulness meditation program, statistically significant improvements were observed across all outcome measures. Anxiety and depression scores decreased markedly, while emotional exhaustion and depersonalization were substantially reduced. Personal accomplishment increased significantly after the intervention. Correlation analysis revealed strong positive relationships between anxiety, depression, and burnout, indicating that improvements in one domain were associated with improvements in the others. Demographic variables such as gender and years of professional experience were not significantly associated with intervention effectiveness. Overall, the findings support mindfulness meditation as an effective, feasible, and low-cost strategy for

improving the psychological well-being of physicians working in emergency departments.

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