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ASSESSING THE ROLE OF MINDFULNESS MEDITATION FOR ACADEMIC STRESS AMONG MEDICAL STUDENTS

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Abstract

Stress is a subjective experience that hinders individuals from reaching their goals and has negative effects on the population. The extensive and demanding nature of medical education contributes to this stress. This study used a pre-test and post-test design to explore how mindfulness meditation decrease academic stress among students. The students were randomly assigned to two groups experimental group (N=13) and control group (N=13). The experimental group received 4-week mindfulness meditation intervention, while the control group did not receive any intervention. The participants selected only from the Punjab Medical Colleges (Lahore). Therapeutic interventions were used in group sessions. The Academic Stress Scale (ASS) utilized to evaluate the academic stress of the participants. SPSS was used to figure out the outcome of the study. Participants in experimental group reported marked improvement in response to stressors relative to participants in the control group. There was a notable reduction in academic stress. It was concluded that by having this knowledge individual can manage stress in various areas and promote better mental health.

INTRODUCTION

Life has grown increasingly complicated and stressful today. People live in an era marked by speed, rapid changes and endless desires, which can often lead to stress, anxiety, helplessness, and depression. Academic stress can define as the product of the affectation of various stressors, which produces a systemic imbalance with worrisome symptoms in university students (Valdivieso et al., 2020). It typically occurs when the demands of a situation exceed a person's resources (Chowdhury et al., 2017). Stress can be temporary and long-lasting, each leading to various symptoms.

Becoming a medical student demands unwavering commitment and responsibility toward academic obligations. Research has shown that stress levels among medical students can vary widely, ranging from about 20.9% to 94.5% (Fares et al., 2016). These students face numerous stressors, including rigorous academic schedules, clinical duties, long emergency shifts and separation from family, exams, financial pressures and administrative challenges (Karyotaki et al., 2020). Stress has been linked to reduced sustained attention, impaired decision-making abilities due to chronic fatigue and drowsiness, and compromised judgment, significantly impacting academic performance (Freligh & Debb, 2019).

The pressure to succeed academically can overwhelm students, leading to a decline in enthusiasm for

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learning and potentially causing them to abandon their studies altogether (Pascoe et al., 2020). This transitional phase from late adolescence to early adulthood is marked by considerable physical and mental developments, often leading to increased stress (Matud et al., 2020). A 2015 study by the American College Health Association and National College Health Assessment found that a significant portion of college students experience stress, with a concerning number reporting suicidal ideation (American Psychological Association, 2020).

Mindfulness meditation can create a more peaceful and less stressful academic atmosphere by encouraging individuals to focus on the present moment and improving their ability to manage stress (Ramasubramanian, 2017). Mindfulness cultivates a healthier relationship with negative emotions by fostering present-moment awareness. Through observation, description, and conscious action, individuals learn to acknowledge and accept their feelings without judgment or reactivity. This approach empowers them to respond to negativity more constructively (Crane et al., 2017).

Research shows that mindfulness practices can significantly improve mental well-being by reducing symptoms of depression, anxiety, and stress. These benefits extend to people with diagnosed conditions and those looking to improve their overall mental health. (Gotink et al., 2015). Mindfulness can be broken down into five key aspects: noticing internal and external stimuli, labeling one's experiences, focusing on the present moment, maintaining a non-judgmental attitude towards one's thoughts and emotions, and allowing them to arise and pass without getting caught up in them (Baer et al., 2008). Additionally, mindfulness techniques can be integrated into other therapeutic modalities (Olivine, 2024). Furthermore, nasal breathing has been found to regulate brain signals and enhance emotional and memory processing. Engaging in slow and steady breathing stimulates our nervous system's calming aspect, lowering heart rate and alleviating feelings of anxiety and stress. While breathing itself directly impacts our emotional state, engaging in slow, deep breaths, whether inhaling or exhaling, is advantageous for our nervous system in promoting calmness.

Mindful breathing not only emphasizes the physical act of breathing but also the mental aspect of paying attention and cultivating awareness of the mind, body, and breathe as a unified experience. By observing nonjudgmentally, without imposing expectations to achieve a specific state, an individual can enhance his/her ability to perceive his /her thoughts and sensations more clearly (Olivine, 2024). The literature on mindfulness cannot overlook the profound influence of Buddhist teachings in shaping its concepts. Originating around 25 centuries ago within ancient Buddhism, mindfulness is emphasized as "right mindfulness," not merely mindfulness (Bodhi, 1999). Buddhist teachings offer a framework of attitudes and practices designed to help individuals manage suffering and attain inner peace. Central to this perspective is the recognition that craving, stemming from ignorance and the pursuit of favorable conditions, is a fundamental source of suffering (Huang, 2020).

In Javaid and colleagues (2023), the study aims to investigate the impact of mindfulness on the relationship between quality of life and workplace stress in women across various sectors. The results also indicated that government school teachers reported higher quality of life than other groups, while government university professors exhibited higher levels of mindfulness (Javaid et al., 2023). The study was aimed to assess a comprehensive assessment to determine the academic stress experienced by medical students. This study investigated the effectiveness of mindfulness meditation in reducing academic stress levels among medical students. There would be a significant difference in academic stress among medical students before and after participating in the mindfulness meditation intervention. There would be a significant improvement in an interventional group's; academic stress compared to the control group. There would be a significant difference between males and females in academic stress among medical students

The study was aimed to choose medical students due to the evidence from the research, consistently indicating substantial stress encountered by medical students throughout their program, which can negatively impact their cognitive function and learning ability (Rosal et al., 1997). The medical school environment frequently fosters a highly competitive and rigid culture that can exacerbate stress. In severe cases, stress can evolve into burnout

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(Dahlin et al., 2006). Students face numerous stressors and challenges related to their studies, such as exams, peer competition, timely assignments, social solitude and progress reports. When an individual experiences stress, it can hinder their ability to perform tasks effectively. Excessive stress can hinder various functions of the human brain. Coping with stress is crucial for students to fulfill their potential and positively contribute to society. Creativity and productivity thrive in a calm and relaxed mind making mental health essential for youth who are integral to societal development. The purpose to choose this intervention Mindfulness meditation is known to lessen stress by encouraging relaxation, improving how emotions are managed and boosting students' ability to cope with challenges. Mindfulness meditation can create a more peaceful and less stressful academic atmosphere by encouraging individuals to focus on the present moment and improving their ability to manage stress (Ramasubramanian, 2017). Implementing mindfulness sessions tailored for students experiencing academic stress can help them find purpose and meaning in their lives, fostering mental resilience and well-being.

Methods

The experimental research design with controlled and experimental group was used in this study. Pre-test and post-test assessment research design used to evaluate the effectiveness of mindfulness meditation in managing academic stress among medical students.

Participants

This study included 26 participants, divided into an experimental group (N=13), consisting of (eight females and five males) and a control group (N=13), comprising (seven females and six males) between 18 to 25 years. The sample was recruited from different medical universities in Lahore (Punjab). Participants aged 18 to 25 years were included in this study. Participants constituted both genders.

Only medical students having score higher than (80) on academic stress scale were included in this study. Those students who had good imagination and who never took part in yoga exercises were included. Participants with any psychological disorder and undergoing any psychological interventions or therapies were excluded from this research.

Measure

Academic Stress Scale (Kim, 1970), consisting of 40 items developed by Kim (1970) and adapted by Rajendran and Kaliappan (1990) and Rao (2012), was used. While for the informal assessment the demographic questionnaire was utilized.

Demographic Questionnaire

The researcher had the opportunity to gather basic information regarding the participant's courtesy to the demographic questionnaire. Such as the participant's gender, age, level of education, family system, birth order, number of siblings and also a question regarding their previous psychological and psychiatric history.

Academic Stress Scale (Kim, 1970)

Academic Stress Scale (Kim, 1970), consist of 40 items developed by Kim (1970) and adapted by Rajendran and Kaliappan (1990) and Rao (2012) was used. Each one item has five response options ranging from 'No Stress' to 'Extreme Stress', with equal scoring weight. The reliability of the scale found to be .82. Scores on the scale are grouped into categories: slight stress (1-40), moderate stress (41-80), high stress (81-120) and extreme stress (121-160).

Procedure

Participants who fulfilled the inclusion criteria were divided into two groups: one group underwent mindfulness meditation therapy as an experimental intervention. In contrast, the other group (control group) did not receive any treatment. Firstly, prior to data collection, permission and approval was taken from the institute review board for conducting the research from the Lahore School of Behavioral Sciences, The University of Lahore. A signed permission letter was taken from the department. After getting permission from the Head of the Department of the participating university, participants were selected using a purposive sampling technique. Academic stress scale administered by obtaining the consent from the participants. Those participants who scored above 80 were approved for the therapeutic session.

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The clients were asked to fill out a demographic sheet for the research study. The next step was to psychoeducate the participants about mindfulness meditation, and they were informed about the whole process that was undertaken. There were total 4 sessions, one session per week, each session consists of 45 minutes to 60 minutes. The therapeutic sessions comprised of three main components, therapeutic interventions, counseling and strategies. The sessions included a Portion of therapeutic intervention, where the client used therapeutic technique and coping strategies especially derived according to the participant's need to cope with stressful events that may have happened in the future. Counseling was conducted to improve the participants' mental health.

Statistical Procedures

Relevant statistical techniques were employed to analyze the collected data. Demographic details and initial measurements (mean, standard deviation) were collected employing descriptive statistics. The data was analyzed using the Statistical Package for Social Sciences (SPSS).

Results

Table 1

Paired Sample t-test of pre-post Academic Stress (N=26)

Variables	M	SD	t	*P*	*95%CI*	
					LL	*UL*
Academic Stress (Pre-Post)	21.76	12.13	6.47	.00	14.43	29.10

***Note. SD*= Standard Deviation; *CI* = Confidence Interval; *LL* = Lower Limit; *UL* = Upper Limit, M=Mean, t=difference between the mean, p=Significant**

Table 1 presents the results of a paired sample t-test assessing the difference in academic stress levels before and after an intervention involving 26 participants. This significant result implies that the intervention effectively reduced academic stress among the participants (p = .00; t = 6.47).

Independent Sample T-test

Table 2

Experimental and Control Group Difference of pre-post Academic Stress among Students (N=26)

Variables	Experimental Group (n=13)		Control Group (n=13)				
	Mean	*SD*	Mean	*SD*	T	*p*	Cohen's d
Academic Stress (Pre-test)	91.23	19.87	89.53	18.59	.22	.82	0.08
Academic Stress (Posttest)	69.46	12.91	89.69	18.70	-.32	.00	1.25

***Note. SD* =standard deviation, M=Mean, t=difference between the mean, p=Significant**

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Table 2 compares pre-test and post-test academic stress levels between an experimental group and a control group, each consisting of 13 participants (N=26), using independent sample t-tests. Table 2 compares pre-test and post-test academic stress levels between an experimental group and a control group, each consisting of 13 participants (N=26), using independent sample t-tests. There is no significant difference between the groups' pre-test stress levels for the pre-test academic stress, with a Cohen's d of 0.08 suggesting a negligible effect size. In contrast, the post-test results indicated a significant difference: the experimental group's mean score decreases to 69.46 (SD = 12.91), while the control group's mean remains similar to the pre-test at 89.69 (SD = 18.70). The t-value -0.32 and p-value 0.00 highlight a statistically significant difference in post-test stress levels, with a large effect size (Cohen's d = 1.25). This substantial reduction in the experimental group's stress levels compared to the control group indicates that intervention was effective in significantly reducing academic stress among the students in the experimental group.

Discussion

This study aims to assess mindfulness meditation's role in academic stress among medical students. It was chosen because there is evidence suggesting that mindfulness meditation can enhance cognitive skills necessary for academic performance and reduce stress. In this research, female participants (N=15) showed greater motivation to engage in the intervention than male participants (N=11). Despite both genders acknowledging the effectiveness of meditation in stress reduction, a higher proportion of females reached out for intervention. Recent studies, such as Upchurch et al. (2019), indicate that women tend to participate more in specific meditation practices than men. This trend may stem from women's generally higher health consciousness. Additionally, research suggests that women consistently report higher stress levels than men and employ different strategies for managing stress (American Psychological Association, 2018).

The significant result indicates that the intervention effectively reduced academic stress among the participants. The significant decrease in academic stress is thought to be due to an intervention that likely involved techniques such as mindfulness meditation. The results indicate no significant difference in the levels of academic stress before and after therapy between males and females. This indicates that gender does not significantly affect the therapy's effectiveness in reducing academic stress. The lack of a noticeable gender gap in stress reduction could be attributed to the universal benefits of the intervention, such as mindfulness meditation. Mindfulness meditation helps people manage stress by promoting relaxation, improving emotional control, and enhancing coping strategies, regardless of gender. Research has shown that mindfulness-based interventions can effectively reduce stress and improve mental well-being across various demographic groups. Therefore, male and female students will likely experience similar benefits from mindfulness practices, resulting in comparable reductions in academic stress (Kang et al., 2018).

The comparison between an experimental group and a control group of participants using independent sample t-tests revealed no significant difference in pre-test academic stress levels, indicating similar baseline stress levels between the groups. However, the experimental group showed substantially reduced academic stress levels after the intervention, whereas the control groups remained relatively unchanged. This difference was statistically significant, highlighting the effectiveness of the intervention in reducing academic stress among the experimental group. The significant reduction in academic stress in the experimental group can be attributed the intervention, which likely included mindfulness meditation techniques. Mindfulness meditation has been shown to mitigate stress by fostering relaxation, improving emotional regulation, and enhancing student coping mechanisms. Research supports mindfulness-based interventions as practical tools for reducing academic stress and enhancing overall mental well-being (Hölzel et al., 2011; Creswell, 2017; Fazia et al., 2023).

Conclusion

This study aimed to assess the impact of mindfulness meditation on stress among medical students. The results indicated that mindful meditation therapy techniques; like body scanning, which involves systematically directing attention from head to feet,

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aiming to increase awareness of physical sensations and promote relaxation. It fosters a stronger connection between the mind and body. Alternate nostril breathing, a relaxing technique that helps balance hormones, soothe the nervous system, and quiet the mind. Research has shown it can also lower heart rates and blood pressure. It can be helpful during stressful situations at work or as part of individual bedtime routine. Mindfulness meditation therapy, is a quick and easy way to deal with many psychological issues, e.g., insomnia, anxieties, chronic illness, obsessions, etc. In conclusion, mindfulness meditation proved to be effective in managing and minimizing academic stress and improved concentration during studies after the implementation of therapy**.**

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