The Effect of Mindfulness Meditation on Academic Burnout and Perceived Stress among Muslim Students: A Quasi-experimental Approach

Aamer Aldbyani1,3*, Mohammed Hasan Ali Al-Abyadh2,3
1 Shandong Normal University, China
2 Prince Sattam bin Abdulaziz University, Saudi Arabia
3 Thamar University, Yemen
Email: aamer.albyani@tu.edu.ye*

Abstract
Mindfulness occurs in different populations, regardless of their religions, ages, and cultures, but the studies on Muslim backgrounds are insufficient. This study aims to empirically investigate mindfulness's benefits on academic outcomes among Yemeni students. A total of 160 Yemeni students were recruited to complete the Maslach Burnout Inventory (MBI-SS) and the Perceived Stress Scale (PSS) and divided into two groups (experimental group = 80, control group = 80). The experimental group received mindfulness training, while the control group did not receive any training. After the experiment, both groups completed the questionnaires again. The results revealed that the experimental group's emotional exhaustion, cynicism, lack of academic efficacy, and perceived stress were decreased compared to the control group. We concluded that mindfulness meditation training decreased academic burnout and stress among Yemeni students. We suggest mindfulness meditation training could be a good program for decreasing academic problems among Muslim students.

INTRODUCTION
Mindfulness has gained considerable attention in recent years, not only as a therapeutic tool but also as a way of life. Mindfulness is a practice that involves bringing attention to the present moment without judgment and with an attitude of curiosity and acceptance. Mindfulness-based interventions effectively treat various mental health problems such as depression, anxiety, and stress. The benefits of mindfulness are not limited to mental health, as research suggests that mindfulness can improve physical health, social relationships, and overall well-being. Muslims are a significant population group worldwide, comprising over 1.8 billion people or approximately 24% of the world's population. In recent years, mindfulness has gained popularity among Muslims, who have embraced it to improve their spiritual practice and overall well-being.

On the other hand, several studies have emphasized that mindfulness positively correlated to academic performance (Lin & Mai, 2018; McCloskey, 2015; Miralles-Armenteros et al., 2021). Mindfulness helps outstanding students reconcile with themselves, especially those who suffer from stress, reflected in the soundness of their thinking by following specific patterns of thinking, such as reflective or analytical thinking (Grow et al., 2015). Research on Mindfulness among Muslims is limited, but existing studies suggest that mindfulness can positively affect Muslims' mental health, spiritual well-being, and religious practice. Therefore, his study...
investigates the effect of Mindfulness meditation on decreasing academic burnout and perceived stress among Muslim students.

**The Concept of Mindfulness in Islam**

Mindfulness is a practice that has gained widespread popularity in recent years. It is the ability to be present at the moment and fully engaged in whatever activity one is doing. Mindfulness can be applied in all aspects of life, including work, relationships, and even religious practices. This essay will explore the concept of Mindfulness among Muslims and how it can be incorporated into their daily lives.

Mindfulness in Islam is known as "Muraqabah," which means "to watch over" or "to observe." (Isgandarova, 2019). It is a concept deeply rooted in Islamic tradition and has been practised by Muslims for centuries. Muraqabah is the practice of being mindful of Allah (SWT) at all times, whether in prayer or everyday life (Harianti et al., 2022). It involves being aware of one's thoughts, actions, and intentions and being conscious of the consequences of one's actions. One of the main ways that Muslims practice mindfulness is through prayer. Prayer is one of Islam's five pillars and a mandatory practice for all Muslims. Muslims must pray five times a day, allowing them to connect with Allah (SWT) and be mindful of their thoughts and actions. During prayer, Muslims recite verses from the Quran and engage in physical movements, such as prostration and bowing, which help them be present and focus on their relationship with Allah (Parrott, 2017; Thomas et al., 2016).

Another way mindfulness is practised in Islam is through the remembrance of Allah (SWT). Muslims are encouraged to remember Allah (SWT) throughout the day, whether by reciting the Quran or by saying "SubhanAllah" (glory be to Allah), "Alhamdulillah" (praise be to Allah), or "Allahu Akbar" (Allah is the greatest). This helps Muslims to stay connected to Allah (SWT) and be mindful of their thoughts and actions (Haque & Keshavarzi, 2014). In recent years, there has been an increase in the popularity of mindfulness meditation among Muslims. Mindfulness meditation involves focusing on the breath and being aware of one's thoughts and emotions without judgment. It is a secular practice adopted by people of all faiths.

**Mindfulness and Muslim Cultural Background**

Mindfulness practice has been secularized to be religion-neutral (Palitsky & Kaplan, 2021). Buddhist teachings are set aside so as not to conflict with the religious beliefs of the practitioners. Evidence suggests that the effects of mindfulness practice are biologically based and independent of cultural context. Specifically, whether participants are Muslims or Buddhists, they can reap the benefits of mindfulness. In addition, the Islamic tradition may be an advantage rather than a hindrance to mindfulness practice. For example, in the Islamic tradition, the capacity for the presence of the mind is strongly advised. During prayer, Muslims are encouraged to be aware of the present moment and to stop performing procedures automatically and thoughtlessly (Mitha, 2019). Eliminating distractions and mental digression is necessary for developing effective emotion regulation strategies. Followers of Islam are also encouraged to be mindful during routine daily activities (e.g., eating, dressing, going to the toilet, etc.). They should keep a gentle, curious, and kind eye on what is happening internally and externally without taking action to change these experiences (Hepburn et al., 2021).

Islamic mindful prayers can be a complementing, culturally sensitive strategy for preventing mental health relapses, much like how Christian prayer is used as a meditation connected with a higher level of wellness (Knaab, 2012; Callender et al., 2022). A recent study by Abdulkerim & Li, (2022) found that mindfulness-based interventions can be applied to Muslims and effectively improve their mental health. The study found mindfulness strategies apply to Muslims, especially Mindful Observation, Conscious Action, Intent, Acceptance, Positive Re-framing, and Cognitive Thinking. Additionally, a person with a higher level of
awareness can better retain concentration during prayers, form a close bond with Allah, and become more conscious that he alone is to blame for all of life's difficulties. Positive mental processes arise as a result, which raises one's feeling of well-being (Saleem et al., 2022). In the same context, our results showed that mindfulness practice is in no way inconsistent with Islamic culture, and Muslim students are aware of meditation, which Muslims practice daily in the form of prayers, supplications, recitations, and praises. These findings are partially consistent with previous studies (Doufesh et al., 2014; Thomas et al., 2017; Alkusayer, 2019; Duric et al., 2020).

The Benefits of Mindfulness Meditation to Muslims

Practising mindfulness has many benefits for Muslims, including reducing stress and anxiety, improving mental and emotional well-being, enhancing focus and concentration during prayer, and increasing self-awareness and self-control. Mindfulness can be integrated into various Islamic practices, such as salah, dua, and dhikr (Saniotis, 2018; Irawati et al., 2023), allowing Muslims to deepen their connection with Allah and their faith. By being fully present at the moment, Muslims can also cultivate a greater appreciation for the blessings in their lives, leading to increased feelings of gratitude and contentment. Additionally, mindfulness can help individuals develop greater empathy and compassion towards others, leading to improved relationships and social connections. Incorporating Mindfulness into Muslim daily life can bring numerous physical, emotional, and spiritual benefits.

Mindfulness is a practice that involves paying attention to the present moment and becoming more aware of one's thoughts, feelings, and bodily sensations. This mindfulness practice can be a valuable tool for Muslims seeking to deepen their spiritual practice, improve their mental health, and cultivate greater peace and compassion. Mindfulness is a practice that can offer numerous benefits for Muslims. One of its advantages is that it can help individuals increase their focus during prayer (Badri, 2018). By staying present and mindful during prayer, Muslims can enhance their spiritual experience and strengthen their connection with God. Additionally, mindfulness can promote improved self-awareness, allowing Muslims to become more aware of their thoughts, emotions, and behaviours. This can help them identify negative patterns and develop healthier coping strategies (Rassouli et al., 2015; Bensaid, 2021).

Furthermore, mindfulness has been shown to reduce stress and anxiety levels by promoting relaxation and helping individuals cope with difficult emotions. By cultivating mindfulness, Muslims can also learn to regulate their emotions and respond to challenging situations more constructively and compassionately, enhancing their emotional regulation skills. Finally, mindfulness can help Muslims cultivate greater empathy and compassion for themselves and others, improving relationships and promoting a peaceful society. Overall, mindfulness can be a precious practice for Muslims, providing numerous benefits for their physical, emotional, and spiritual well-being.

Mindfulness and Academic outcomes among Muslim Students

A mindful individual is more likely to be open to novelty, focused in the present, aware of differences, sensitive to context, and aware of diverse points of view. As a result, given the many opportunities it presents for increasing students' competencies in education for sustainable development, the function of mindfulness in educational environments is gaining support because it leads to better academic performance (Vidal-Meliá et al., 2022). From this point, modern studies proved mindfulness's effects on university students' academic outcomes. For example, a study by (Vorontsova-Wenger et al., 2021) found that mindfulness intervention decreased anxiety, stress, and depression symptoms and improved academic performance among university students. A recent systematic review and meta-analysis assessed the effectiveness of mindfulness-based interventions on students' academic performance. In their
review, Ostermann et al., (2022) found the effectiveness of mindfulness-based interventions on students' academic performance. Therefore, we assumed that mindfulness meditation training might decrease the three dimensions of academic burnout and perceived stress among Muslim students. The results found that mindfulness meditation training positively influenced emotional exhaustion, cynicism, reduced academic efficacy, and perceived stress. These results are partially consistent with previous studies, for example, a survey conducted by Wietmarschen et al., (2018), which found that mindfulness training reduced stress and improved self-compassion and self-reflection. These findings are also consistent with studies examining these variables separately from college students in a general context (Parto & Besharat, 2011; Harrington et al., 2014; Dillard & Meier, 2021).

Furthermore, the university education stage is the first step to adulthood, where the student begins to rely on himself and bear his personal and fateful decisions. University student faces many difficulties and psychological pressures, which they must deal with properly. These pressures include many aspects of his interests and duties that require focus and attention. Therefore, mindfulness is more helpful in facing these various pressures. Students are considered to most need mindfulness because their pedagogical tasks depend primarily on their mental activity. They must focus, pay attention, and be open to experiences and observations and description of dealing consciously with daily experiences. Wang et al., (2023) noted that many famous colleges in the United States had adopted the study materials of mindfulness within their educational curricula due to the agreement of many scientific studies on its usefulness. Mindfulness increases attention, focus and orientation towards the present, enabling the individual to use available information about the situation effectively. It also works to stop automatic responses, consider the general context in which the situation occurred, and focus attention and control on the situation.

Mindfulness has been shown to have numerous benefits for individuals of all backgrounds, including students. In particular, research has indicated that mindfulness can have positive academic and well-being benefits for Muslim students. Several studies have been conducted to investigate the benefits of mindfulness meditation on academic burnout among Muslim students.

A systematic review and meta-analysis of 11 studies found that mindfulness-based interventions effectively reduced academic burnout among university students, including Muslim students (Zhang et al., 2020). Another study found that a mindfulness-based stress reduction program significantly reduced academic stress and improved psychological well-being among Muslim university students (Hassan et al., 2023). Additionally, a randomized controlled trial showed that a mindfulness intervention effectively reduced academic burnout and improved academic performance among Muslim medical students (Alzahrani et al., 2020).

Furthermore, another study found that Muslim students who participated in a mindfulness-based intervention significantly improved academic self-efficacy, academic achievement, and emotional well-being (Phang et al., 2015). The last study by Thomas et al., (2016) found that mindfulness was associated with increased academic performance and reduced academic stress among Muslim college students. In addition to educational benefits, mindfulness has been shown to have numerous well-being benefits for Muslim students, including reducing symptoms of anxiety and depression, increasing resilience, and promoting a sense of calmness and inner peace.

The research suggests mindfulness can be a valuable tool for Muslim students to improve their academic performance and overall well-being. Mindfulness-based interventions may benefit Muslim students who face unique stressors related to their identity and experiences. However, there is a shortage of studies on Muslim backgrounds about mindfulness benefits. Therefore, this dissertation attempts to provide theoretical and empirical investigations on the
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The Current Study

In modern life's noise, distraction, and information, we can order our thoughts to deal with the current situation by practising mindfulness or observation. You can handle stressful situations and manage your daily life with mindfulness. It is a type of metacognition in which we can engage with our ideas and emotions in novel ways, allowing us to follow or ignore them as we see fit. Numerous scientific papers, studies, and books on mindfulness are published yearly due to this phenomenon's attention from psychologists and health professionals. Over the past three decades, researchers have explored mindfulness training because it can benefit all aspects of life, including health, education, and other areas. Especially in education, mindfulness helps students recognize their reality, understand themselves clearly, and improve their social behaviour, both on the physical and psycho-social levels. On the social level, it improves the social climate within the educational institution. On the academic level, mindfulness contributes to higher academic achievement among students and increases their interest in Mindfulness (Roberts & Danoff-Burg, 2011).

The basic principles of mindfulness appear to be very similar to Islamic rituals and values (Thomas et al., 2017). However, Islamic spiritual mindfulness is an adaptive coping strategy used to mitigate various negative psychological reactions to respond to stressors experienced by the individual. For example, a study by Aldahadha, (2013) examined the effects of Muslim Praying Meditation and Transcendental Meditation Programs on Mindfulness among Muslim students and found a relationship between the two types of meditation. Mindfulness reduces stress among Muslim students (Munif et al., 2019). However, the effect of mindfulness on academic burnout when perceived stress plays a role as a mediator still needs to be proven. However, no study has been conducted on any Muslim background to confirm the positive effects of mindfulness among these two critical variables. Therefore, this study investigates the impact of mindfulness meditation on academic burnout and perceived stress among Yemeni students. Mindfulness meditation might decrease both burnout dimensions and perceived stress.

Aims and Hypotheses

This study aims to investigate the effects of mindfulness training on academic outcomes among Muslim students, through test empirically whether mindfulness training reduces academic burnout and perceived stress among Yemeni students. Therefore, our hypotheses. The experimental group that received mindfulness training will have lower levels of emotional exhaustion, cynicism, lack of academic efficacy, and perceived stress than the control group. Mindfulness training will be an effective program for decreasing academic burnout and stress among Muslim students.

METHODS

Research Design

The current study is designed as a quasi-experimental non-randomized research design with a control group, pre-test and post-test.

Participants

This study involved 160 Yemeni students from the Sana'a University Education School, including 48 female and 112 male participants. The experimental group (80 students) and the control group were randomly assigned to each group (80 students). Some criteria for choosing the participants have been considered for more conditions like the participant is ready to...
participate in this experiment. Moreover, they have not done meditation or yoga before. See the figure 1 below for more details.

![Study sample](image)

**Figure 1. Study sample**

**Ethical considerations**
We obtained written approval from the Vice Deanship of Graduate Studies and the Council of the College of Education at Sana'a University to conduct this study.

**Procedures**
First, both groups (experimental and control groups) completed the questionnaire, which took 15–30 minutes to complete. Second, the experimental meditation program was designed for the experimental group and divided into 16 sessions. Third, the experimental group received mindfulness strategies lectures, meditation exercises, and homework meditation. During this period, the control group did not receive any training or intervention in mindfulness. Finally, after the experimental group finished the 16th session, we asked both groups to complete the online questionnaires again.

**The program**
The mindfulness training program was prepared in light of Mindfulness-Based Stress Reduction (MSBR) techniques and Mindfulness-Based Cognitive Therapy (MBCT). The program was presented to five professors specializing in psychology to review before implementation, and what they suggested was modified. The program aims to develop mindfulness skills among Yemeni students as a preventive goal to face the psychological problems that students may face in the future to alleviate the symptoms of academic burnout and stress. The program is also implemented through group counselling sessions due to the many students in the experimental group. The program relied on several techniques, including training in meditation, modelling, feedback, dialogue, discussion, lectures, and homework. These sessions were held in one of the halls of the College of Education for eight weeks, two sessions per week. They were carried out by a doctoral student specializing in mental health and received training in meditation and cognitive-behavioral therapy. The trainer collected the data from the participants before and after the training. In addition, he guaranteed that no one in the control group participated or knew about the activity.

**Measurements**
*Academic Burnout.* The Arabic version of the Maslach Burnout Inventory-Student Survey (MBI-SS; *Schaufeli et al.,* 2002) was used, which contains three subscales and 15 items, each using a scale ranging from 0 (never) to 6 (always). This measure has been proven to be reliable and valid in Arabic populations. Example items are: "feel emotionally drained in studies
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(Emotional exhaustion), "become cynical about the usefulness of study (cynicism)", and "do not feel like a good student (reduced academic efficacy)". Cronbach alphas for MBI–SS and its subscales were .87, .71, 67, and .68, respectively.

Perceived Stress. The Perceived Stress Scale (PSS) contains ten 5-point Likert-type items (Zimet et al., 1988), each using a scale ranging from 0 (never) to 4 (very often). Its Arabic translation has been verified to be an accurate and reliable test (see, for example, Memarpour et al., 2015). Cronbach's alpha was 0.82 in this study.

Data Analysis

SPSS (version 23) were used to calculate means and standard deviations, and t-tests (independent and paired samples) were conducted to examine the differences between the groups before and after the training.

RESULTS AND DISCUSSION

Results

The differences between the groups before the training

The results (Table 1) revealed no statistically significant differences between the scores of emotional exhaustion, cynicism, academic efficacy, and perceived stress in the control and experimental groups before the training.

The differences between the groups after the training

The results (Table 2) revealed statistically significant differences between the scores of each emotional exhaustion, cynicism, academic efficacy, and perceived stress in both the control and experimental group after the training.

The differences between experimental groups

The results (Table 3) revealed statistically significant differences between the scores of each emotional exhaustion, cynicism, academic efficacy, and perceived stress in the experimental groups before and after the training.

Discussion

This study's hypotheses investigate mindfulness training's impact on academic burnout and perceived stress among Muslim students. The study is significant in shedding light on the potential benefits of mindfulness training in addressing the challenges Muslim students face in academic settings. The study was conducted on a sample of 160 Muslim students, with half of the participants receiving mindfulness training while the other half served as the control group. The mindfulness training consisted of a twelve-week program that included mindfulness meditation, breathing exercises, and body scan practices. The participants were assessed using the academic burnout and perceived stress scales before and after the mindfulness training. The results of the study indicate that mindfulness training had a significant effect on reducing academic burnout and perceived stress among the participants. The participants who underwent mindfulness training reported lower levels of emotional exhaustion, denationalization, and reduced personal accomplishment than the control group.

Additionally, the participants who received mindfulness training reported reduced perceived stress levels compared to the control group. These findings are consistent with
previous research that has highlighted the potential benefits of mindfulness training in reducing stress and burnout among individuals in different settings such as (Roeser et al., 2013; Ireland et al., 2017; Green & Kinchen, 2021; Hathaisaard et al., 2022). Mindfulness training has improved emotional regulation, attention, and cognitive flexibility, which may contribute to its positive effects on stress and burnout. Our study is different because we focused on Muslim students. The study's focus on Muslim students is particularly relevant given this population's unique challenges in academic settings. Muslim students may experience discrimination, isolation, and identity-related stress, contributing to academic burnout and perceived stress. The findings of this study suggest that mindfulness training may be an effective intervention to address these challenges. The study highlights the potential benefits of mindfulness training in reducing academic burnout and perceived stress among Muslim students. The study's findings have important implications for educators and policymakers, who can incorporate mindfulness training into academic settings to support Muslim students’ well-being and academic success. Further research is needed to explore the generalization of these findings to other populations and settings.

**Implications**

Studies indicate the importance of mindfulness in the educational system and the effect of the mindfulness program on increasing levels of academic performance, an improvement in all dimensions of self-concept, and a significant decrease in anxiety among students. There is also an indication of the importance of behavioral intervention programs based on mental alertness training in improving students’ psychological and physical health. Hence, the results of this study are of paramount importance to provide an understanding of the mechanism by which mental alertness works among Muslim students and the relationships and roles between it and several variables that improve students’ cognitive and emotional performance. This study
is beneficial for Muslim university students to introduce them to the concept of mental alertness, its characteristics and its effects on their academic life. Mindfully, students accept new ideas and can benefit from all the experiences they experience. This study's results may help students ensure they spend their university life away from negative psychological pressures, enjoying their lives and psychological well-being.

In addition, the interaction of the students in the program also reflects the importance of the study results, as the students expressed themselves in the current moment, which led to increased awareness and attention, and focus on emotions in the present moment. Based on the preceding, this can be explained by the program's effectiveness because it contained training on mindfulness and improved the psychological state of these students. The skills of the program met their needs, which reduced their psychological stress. The results of this research can direct the attention of educators and specialists in psychology and mental health to psychological stress and its prevalence among students, knowing its sources and ways to confront it. In addition, the results will help to how to work to improve academic achievement and the quality of life of the university student by addressing topics of great importance to this category.

Limitations and Suggestions for Further Research

As with all studies, there are limitations; therefore, the first limitation of this research lies in the sample. The sample of the study consisted of students of Sana'a University. To what extent the results are generalized to other students from other universities needs to be clarified. The second limitation is that this study adopted self-report measures that require participants to report on themselves for data collection, which implies that there may be a bias towards the desired response that may inflate the results. The last limitation is the potential effect of meditation training, as the sessions were only held once a week, which limits the frequency of meditation training. However, it could have been exploited to see what intervention might have had a more significant effect if the study had been conducted over a more extended or shortened study period.

Although the current research results provide new evidence of mindfulness's effectiveness among Muslim students, more research is needed to explore further the empirical links between standing meditation and other student aspects, such as personality and academic performance. Future research should seek a more representative sample of undergraduates, including more ethnic diversity and students at all levels. Future research should also be conducted in other educational institutions to determine whether the results of this research apply to different settings and ensure community representation and the generalization of the results. In addition, future research should adopt new data collection tools that do not include self-reporting, making bias towards the desired response almost nonexistent.

CONCLUSION

The findings of the quasi-experimental study suggest that mindfulness training can be an effective intervention in reducing academic burnout and perceived stress among Muslim students. The study demonstrated that participants who received mindfulness meditation training showed significant improvements in their levels of burnout and stress compared to the control group who did not receive the intervention. These results are consistent with previous research that has shown the beneficial effects of mindfulness training on various aspects of mental health and well-being. Therefore, mindfulness meditation is viable for promoting university students' psychological well-being, particularly those experiencing academic burnout and stress. Further research is needed to confirm these findings and to explore the potential benefits of mindfulness training in other populations and settings.
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AUTHOR CONTRIBUTION STATEMENT
The authors contributed equally to the completion of this research.

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