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Effects of Mindfulness E-Activities on Academic Resilience in ADD/ADHD Students

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ABSTRACT

The purpose of this study is to investigate how students with attention deficit disorder (ADD)/attention-deficit hyperactivity disorder (ADHD) feel about their academic prospects after engaging in mindfulness-based online activities. The study aimed to identify the effect of e-activities based on mindfulness on the academic buoyancy of students with ADHD. The study employed a semi-experimental approach to investigate the impact of e-activities based on mindfulness on enhancing the academic buoyancy of university students diagnosed with ADHD. The participants were 50 hyperactive and distracted students. On an achievement test, they scored over 60 on the self-estimation scale for adults with ADHD. Two experimental groups were randomly assigned. Twenty-five are the electronic activity group and 25 are the control group. The study found that there were statistically significant differences between the mean scores of the experimental group and the control group in the post-measurement in academic buoyancy in favor of the experimental group. Also, the study found that there are statistically significant differences between the mean scores of the experimental group in academic buoyancy in the post and follow-up measurements in favor of the follow-up measurement. The results can help those in charge of university education to take advantage of e-activities to improve the academic buoyancy of these students. Also, providing e-activities that can be used with students with ADHD to overcome academic problems they face and improve their academic level.

KEYWORDS

e-activities, academic buoyancy, ADD/ADHD, mindfulness, students with special need, academic resilience, executive functioning

INTRODUCTION

Individuals with disabilities are regarded as an asset to any society. They play a crucial role in constructing any society and in the all-encompassing development system that drives society toward advancement. This has heightened the overall responsibility of society, especially education, to focus on and support them to enable their empowerment within society. The progress made in educational programs, care, and rehabilitation has proven that every child has the potential to thrive and perform at a higher level with early detection and the right intervention for their specific needs. It is crucial that individuals with special needs be given consideration during the educational process. Because it creates the components of the educational system with all the variables influencing the teaching and learning processes in mind, the educational technology approach is one of the most sensible methods for developing education and resolving its issues [1]. This leads to the achievement of effective learning. Therefore, it is clear how important it is to use this strategy when creating educational programs for individuals with special needs to consider their unique demands [2].

According to Wang et al. [3] and Gargiulo and Bouck [4], attention-deficit hyperactivity disorder (ADHD) is a prevalent condition among pupils from various social backgrounds. Its occurrence rate varies from 4% to 20% among children aged 4-12 years. The Saudi Health Council [5] added an increase in their numbers. While the infection rate was between 3% and 7% previously, recent studies indicate a rate of up to 9.5% in the age group 4-17 years. These students have special needs that differ from the needs of ordinary students, which necessitates the provision of programs and means different from those provided to the average student [4].

Neurodevelopmental disorders, ADD and ADHD, can have a substantial influence on the academic achievements

and general welfare of students. Attention deficits, hyperactivity, and impulsivity are frequent difficulties that students with ADD/ADHD encounter, all of which can impair their capacity to concentrate, coordinate assignments, and manage time efficiently [3]. Lower academic achievement, decreased motivation, and diminished self-confidence in academic contexts may result from these obstacles. In their study, Wiest et al. [6] found that students with attention disorder and hyperactivity do not experience a decrease in their cognitive abilities. However, they require innovative approaches that engage their interest to overcome the symptoms of attention disorder. This will enable them to sustain their focus while engaging in educational tasks and activities, ultimately enhancing their learning outcomes [7].

Mindfulness-based intervention is an approach that has garnered significance in recent years due to its promising nature. The cultivation of present-moment awareness and the acceptance of one's thoughts, emotions, and experiences without judgment constitute mindfulness practices. Mindfulness interventions have been shown to enhance cognitive functioning, affective regulation, and attention regulation in individuals with ADD/ADHD [6].

Lee et al. [8] confirmed that mental alertness consists of paying attention to feelings now without mentally addressing topics that are not important and distract the mind. Many studies [8-10] have demonstrated a highly proven mindfulness-based intervention with individuals with ADHD in increasing positive behavior and reducing symptoms of ADHD through training in thinking, contemplating the universe, and attentional control.

The positive psychology framework prioritizes the cultivation of strengths over the mere rectification of deficiencies. Mindfulness complements this technique by cultivating positive attributes such as optimism, perseverance, and emotional equilibrium—all of which are essential elements of academic resilience [11]. By positioning mindfulness e-activities as instruments for developing these abilities in ADD/ADHD students, we establish a definitive connection between intervention and outcome [12].

e-Activities are widely recognized as an effective approach recommended by educators for delivering knowledge to learners in a way that allows them to learn at their own pace, work together with others, and engage in interactive learning [13]. To enhance learner engagement and promote positive participation in the learning process, it is imperative to incorporate e-activities into educational institutions' teaching methods [14]. Pedro et al. [1] emphasized that engaging in e-activities facilitates learners in conducting research, fostering innovation, and enhancing the learning and achieving process. Students derive pleasure from engaging in activities, as these activities allow them to apply theoretical concepts to real-world situations and, furthermore, enhance the exchange and transmission of information among individuals.

Current study evidence insufficiently examines the enduring effects of mindfulness-based electronic activities on academic resilience [11]. Although mindfulness has been thoroughly examined concerning academic achievement, stress alleviation, and adaptability, a significant portion of the research emphasizes short-term therapies or conventional in-person mindfulness activities [15]. Many studies emphasize the immediate advantages of mindfulness training on students' grade point average (GPA) and emotional regulation but do not investigate the long-term impacts when administered via digital platforms [16]. Moreover, although e-activities have been popular due to their accessibility and scalability, there is insufficient research investigating their impact on academic buoyancy—the capacity of a student to adeptly manage routine academic problems such as deadlines, examinations, and setbacks [15]. Academic buoyancy is essential for ongoing educational achievement; however, its connection to digital mindfulness interventions is yet inadequately examined [17]. Moreover, current literature frequently neglects the potential moderating effects of individual characteristics, such as baseline resilience levels, on the long-term effectiveness of these therapies. This gap highlights the necessity for longitudinal research that evaluates not only immediate results but also the lasting effects of mindfulness-based e-activities on students' ability to excel academically under persistent challenges [11]. Academic buoyancy refers to the difficulties, obstacles, and academic pressures that the majority of students encounter as part of their academic lives. The concept of academic buoyancy pertains to the capacity of students to effectively navigate and resolve academic obstacles and dilemmas [18]. Furthermore, according to Eslami and Hooshmandi [18], academic buoyancy signifies students' capacity to regain emotional equilibrium and stability subsequent to enduring a sequence of adverse occurrences, such as failing to meet academic project requirements or receiving subpar grades.

Empirical evidence substantiates the correlation between academic resilience, ADD/ADHD symptoms, and participation in mindfulness e-activities, demonstrating that these digital interventions may enhance focus, emotional regulation, adaptability, and perseverance—essential elements for surmounting challenges in educational environments.

The study examines the possibility of employing e-activities based on mental alertness among students with ADHD who suffer from a decline in academic buoyancy in one or more subjects due to distraction, to improve their academic level.

Significance of the study

The problem of the study emerged while the research team monitored students throughout their learning. The team observed an issue encountered by the learning, specifically the presence of individuals exhibiting excessive and disruptive movement and an inability to maintain concentration. Furthermore, their propensity for easy distraction exacerbates their academic difficulties. This motivated the research team to undertake personal interviews with the teachers to ascertain the difficulties faced by these students. They have confirmed experiencing difficulties in maintaining concentration on a stimulus, as well as struggling to sustain attention for extended periods. As a result of their lack of concentration, they require instructions and questions to be repeated multiple times.

Additionally, they face challenges in organizing and completing assigned tasks, often requiring more time than their

peers [6, 12]. They frequently experience mental distraction and exhibit impulsivity and excessive movement. These students also encounter academic failures and obstacles that impede their progress [19]. To achieve academic achievement, a challenge arises in the academic progress of these students. The findings indicate that mindfulness e-activities can effectively enhance focus, emotional regulation, and adaptability in students with ADD/ADHD, hence promoting higher academic resilience [20, 21].

ADHD is prevalent in learning environments, and despite its prevalence, there is a lack of research on this topic. The results of Wiest et al. [6], Leung et al. [9], Pheh et al. [22], and Eslami and Hooshmandi [18] concluded that students who have a problem with mental alertness suffer from a problem in academic advancement. There is a direct relationship between them. Students with high mental alertness can confront the daily academic setbacks and challenges they face [23]. By focusing attention on the basic requirements of academic study and isolating external influences and distractions, students can improve their academic buoyancy. This is achieved by concentrating on the correct responses to academic tasks and overcoming the various obstacles that hinder their achievement of those tasks [7, 8].

Research has shown that mindfulness-based therapies (MBIs), including digital exercises offered through online platforms, significantly benefit students with ADD/ADHD [24]. These techniques mitigate symptoms of inattention and hyperactivity by enhancing self-regulation skills. Mindfulness e-activities promote awareness of the present moment and foster nonjudgmental acceptance of thoughts and feelings [24]. They enhance executive functioning skills, including working memory, impulse regulation, and sustained attention—domains commonly compromised in individuals with ADD/ADHD [25]. Research indicates that regular participation in mindfulness e-activities results in quantifiable decreases in the severity of ADHD symptoms over time [26].

Although current research validates the effectiveness of mindfulness interventions for students with ADD/ADHD in general, there is insufficient comprehension of how personalized strategies (e.g. customizing activities according to individual symptomatology) could further improve results. Considering the above and through previous studies, the problem of the study can be summarized in the following questions:

1. What is the effect of electronic activities based on mental alertness in improving the academic progress of university students with ADHD?
2. To what extent is the effectiveness of using electronic activities in improving academic progress maintained during 2 months of post-measurement?

LITERATURE REVIEW

Benefits of using e-activities in teaching students with special needs

e-Activities are defined as all the planned tasks and practices carried out by the learner, which allow active learning online under the supervision and guidance of the teacher and are implemented individually or collectively, synchronously, or asynchronously, to achieve specific educational and training goals. The utilization of e-activities in teaching individuals with special needs provides a multitude of educational benefits. Some of the benefits encompass: e-activities can be customized to accommodate the unique requirements and preferred methods of learning of individuals with special needs [10]. By utilizing interactive programs and applications, educators have the ability to tailor the material, speed, and complexity to meet the specific needs of each student [27]. e-Activities frequently includes visual, aural, and kinesthetic components, resulting in a multi-sensory learning encounter. This method can be especially advantageous for children with exceptional requirements, as it accommodates diverse learning preferences and reinforces concepts across multiple modalities [14].

In addition, technology facilitates prompt evaluation of performance, enabling students to monitor their development in real time. For persons with exceptional needs, the provision of immediate feedback can amplify motivation, elevate confidence, and facilitate a more profound comprehension of the subject matter being instructed [27]. Various electronic devices and software are equipped with accessibility features that accommodate a range of demands, including text-to-speech capabilities, screen readers, magnification tools, and customized interfaces. These characteristics enhance the inclusivity and accessibility of learning for students with special needs [28]. Moreover, with e-activities, students have the opportunity to acquire knowledge at their own rhythm, free from any sense of haste or stress. This adaptability is particularly beneficial for those with unique requirements who may need more time to comprehend ideas or finish tasks.

Moreover, e-activities that incorporates interactive simulations and virtual worlds present significant prospects for hands-on learning encounters [14]. Implementing this practical method can effectively narrow the divide between abstract knowledge and practical implementation for students with special needs [27]. The interactive nature of e-activities might ultimately enhance engagement and motivation among learners with special needs. Integrating gamified components, reward systems, and interactive challenges enhances the enjoyment of learning and promotes active engagement.

e-Activities increase learner motivation, grab attention, target many senses, and are time-bound or asynchronous [28]. The activity is repeatable, unlike traditional ones, and it has abundant and diverse information that is easy to access anytime. Students can choose learning materials and activity exercises that fit them, as the activities are adjustable to accommodate their learning styles. Figure 1 shows the patterns of e-activities and their design strategy.

Criteria for employing and developing e-activities for students with special needs

To effectively utilize and create e-activities for children with special needs, it is crucial to consider certain essential

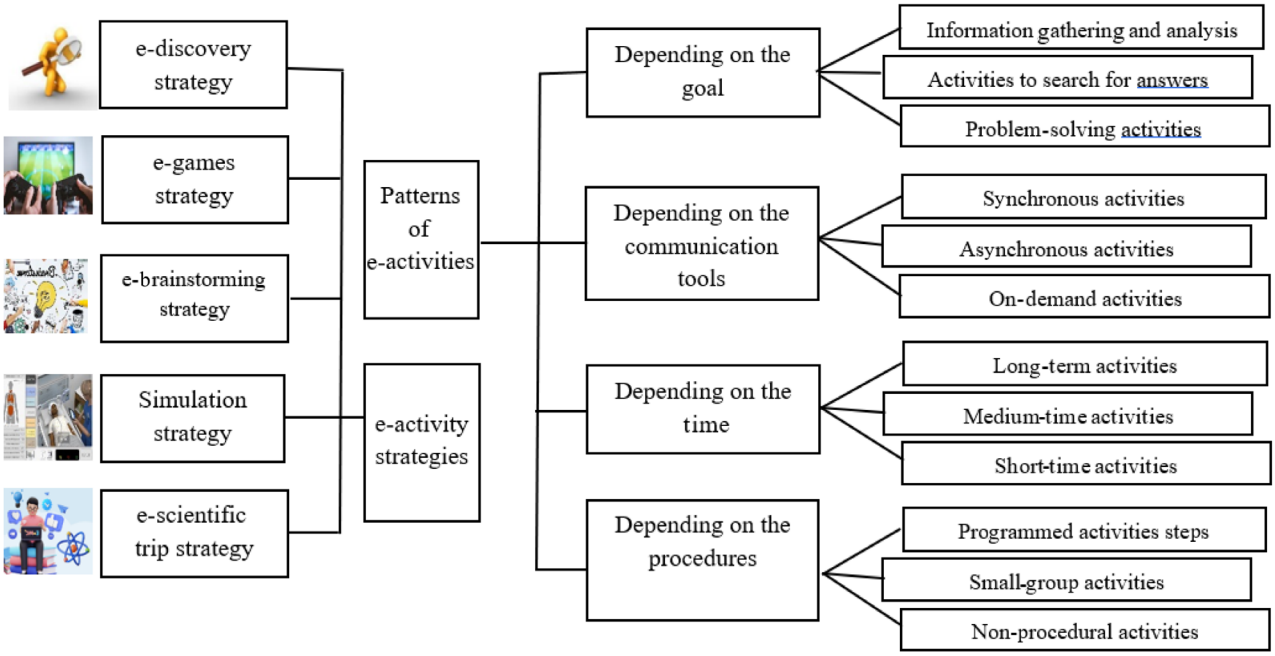

Figure 1: The patterns of e-activities and their design strategy.

prerequisites. These standards are crucial to guarantee that electronic activities are accessible, captivating, and advantageous for students with exceptional needs. These are the primary criteria:

Making sure e-activities are accessible is one of the main considerations when creating them for students with special needs. This involves ensuring that students with a range of disabilities can readily navigate and comprehend the activities [6]. For students with visual impairments or learning disabilities, for instance, offering options for audio output, text-to-speech functions, changeable font sizes, and color contrast settings might improve accessibility [7]. An additional crucial prerequisite is the capacity to tailor e-activities to cater to the specific requirements of every student [13]. This could include offering choices to alter difficulty levels, switching input methods (such as touch screen or keyboard), or integrating personalized learning aims and objectives [4]. Customization enables educators to adapt the activities to specifically target the learning difficulties and preferences of children with special needs.

An additional critical prerequisite is the capacity to tailor digital exercises to accommodate the unique requirements of every learner. This may entail offering alternatives for modifying input methods (e.g., keyboard, touch screen), incorporating personalized learning aims and objectives, or adjusting difficulty levels [13]. The process of customization enables educators to modify the activities to cater to the unique learning difficulties and preferences of students who have special requirements. Also, timely feedback is essential when utilizing e-activities for students with special needs [27]. Feedback methods should be unambiguous, informative, and encouraging to assist students in comprehending their development, pinpointing areas for enhancement, and commemorating their accomplishments [29]. This encompasses prompt feedback on quiz answers, tools for monitoring progress, and chances for self-evaluation.

It is crucial to verify that e-activities are compatible with assistive technology frequently employed by students with special needs [28]. This may require verifying the compatibility of screen readers, alternate input devices, communication aids, or other assistive technologies to guarantee smooth integration and functionality. Furthermore, educators who engage with students with special needs must have sufficient training and support to properly utilize e-activities [7]. Training programs should encompass education on the selection of suitable digital resources, the incorporation of technology into lesson plans, the customization of teaching methods through e-activities, and the provision of continuous assistance for resolving technological problems [30]. Additionally, when utilizing e-activities for students with special needs, it is essential to give priority to data protection and security precautions. It is crucial to adhere to applicable rules, such as the Family Educational Rights and Privacy Act (FERPA), to safeguard sensitive student information obtained through digital platforms [29].

The importance of mindfulness in teaching students with special needs

Mental alertness is defined as awareness arising from directing attention to subjective experience, refocusing attention, and directing thought to the present without judging the current experience [31]. Mindfulness is the deliberate practice of consciously and attentively being fully aware of one's thoughts, emotions, and immediate environment [9]. Mindfulness has been acknowledged in the field of education for its capacity to augment learning experiences and boost the general well-being of students, especially those with special needs.

The educational importance of mindfulness in educating students with special needs resides in its capacity to

facilitate emotional regulation, enhance concentration and attentiveness, improve social aptitude, diminish stress levels, cultivate self-regulation, and establish a nurturing learning environment [8]. By incorporating mindfulness techniques into the special education curriculum and offering professional development opportunities for educators, schools may enable students with special needs to excel both academically and emotionally as follows:

- Mindfulness activities can assist students with special needs in regulating their emotions, coping with stress, and diminishing anxiety levels. Mindfulness can allow these individuals to manage hard situations more effectively by teaching them to be cognizant of their emotions without passing judgment [9].
- Enhanced concentration and attention: Students with special needs may encounter difficulties in sustaining focus and attention. Practicing mindfulness practices, such as deep breathing exercises and guided imagery, can improve attention abilities, resulting in improved academic achievement and classroom engagement [8].
- Mindfulness cultivates empathy, compassion, and self-awareness, all of which are crucial elements for developing excellent social skills. Practicing mindfulness helps foster positive relationships with peers and teachers for students with special needs who may have challenges in social interactions [8].
- Stress reduction: Students with special needs may encounter elevated levels of stress because of scholastic demands or heightened sensitivity to sensory stimuli. Mindfulness activities provide techniques to efficiently manage stressors, fostering a sense of tranquility and adaptability in difficult circumstances [22].
- Self-regulation is a vital ability for academic buoyancy and personal growth. Students with special needs can acquire this capacity by practicing mindfulness. Acquiring the skill of pausing, contemplating, and responding with careful consideration will enable these children to make improved decisions in different areas of their lives.

Key principles of mindfulness programs for students with special needs

Mindfulness programs for students with special needs are grounded in fundamental ideas that seek to foster the well-being and growth of these individuals. These programs aim to assist students with special needs in developing self-awareness, regulating their emotions, controlling their attention, and building resilience. The subsequent are fundamental elements that underpin mindfulness programs designed for students with needs:

- Mindfulness programs place a strong emphasis on the practice of accepting one's thoughts, emotions, and experiences without passing judgment on them. This concept promotes the practice of attentively observing one's internal experiences with benevolence and empathy, so cultivating a state of self-acknowledgment [7].
- The essence of mindfulness practice lies in directing one's attention to the current moment. Students are advised to focus on their present thoughts, emotions, and physical sensations without being entangled in past remorse or future anxieties. This approach facilitates the cultivation of heightened consciousness and lucidity in students' everyday existence.
- Mindfulness programs aim to instruct students in the art of self-regulation, equipping them with strategies to effectively manage their emotions and behaviors. Through acquiring the ability to halt and reply with careful consideration instead of reacting impulsively, children can enhance their self-control and decision-making aptitude [9].
- Mindfulness techniques foster empathy for both oneself and others. Students acquire the ability to develop empathy, comprehension, and rapport with their peers, nurturing constructive interpersonal connections and enhancing their social aptitude.
- Mindfulness programs aid in the cultivation of resilience among students, enabling them to effectively navigate and overcome challenges or failures. By developing proficiencies in stress management, coping mechanisms, and emotional regulation, students can more effectively handle challenges and recover from adversity [22].
- Mindfulness programs acknowledge the distinctiveness of each student with special needs and offer customized help that is designed to address their personal abilities, difficulties, and preferences. This individualized approach guarantees that the program caters to the varied requirements of every participant.
- Mindfulness programs aim to establish an inclusive environment that fosters a sense of welcome, respect, and value for all pupils. These programs cultivate a feeling of belonging and community among participants by advocating for diversity and inclusivity [22].

Mindfulness programs designed for students with special needs are based on ideas that encourage self-awareness, acceptance, empathy, resilience, and personalized assistance. Through the implementation of these fundamental principles, educators can successfully improve the overall welfare and growth of students with special needs by utilizing mindfulness treatments. Consistent with the findings of Pan and Yeh [32], Scalise [33], and Kurz and Andrew [34], it has been verified that mindfulness programs have a good impact on teenagers with ADHD. These programs effectively enhance positive behavior while simultaneously reducing stress and social anxiety.

Attention deficit and hyperactivity disorder

Banaschewski et al. [35] characterized it as a persistent pattern of inadequate attention or excessive hyperactivity and impulsivity that is more prevalent, repetitive, and severe compared to what is typically observed in individuals of the same developmental level. These individuals display a range of symptoms, including a deficiency in maintaining attention. The individual's communication and organizing skills are impaired, leading to an inability to control impulsive reactions [6]. These symptoms may also be accompanied

by excessive and purposeless movements. The American Psychiatric Association [36] defines it as a developmental condition marked by excessive distractibility, inadequate self-control, and hyperactivity/impulsivity, which has detrimental effects on the individual's social, academic, and adaptive functioning [4].

ADHD is a neurodevelopmental condition that impacts individuals of all ages, including children and adults. ADHD can have a substantial influence on students, affecting their academic buoyancy, social connections, and overall well-being [4]. Educators, parents, and healthcare experts must identify the symptoms of ADHD in students to offer suitable support and solutions. Below are some common symptoms of ADHD in students:

- Students diagnosed with ADHD frequently encounter challenges in sustaining attention on tasks or activities, resulting in inadvertent errors, forgetfulness, and problems with task organization. They might encounter difficulty in comprehending instructions and accomplishing tasks [37].
- Students with ADHD exhibit hyperactive symptoms such as excessive fidgeting, restlessness, chatting excessively, or difficulties participating in quiet activities. They may exhibit perpetual restlessness and struggle to remain seated for prolonged durations [3].
- Impulsivity manifests as engaging in actions without considering the potential repercussions, frequently interrupting others during conversations or activities, experiencing difficulties in waiting for their turn, and making impulsive judgments without adequately evaluating the potential results [8].
- Students diagnosed with ADHD may have challenges in effectively managing their time, resulting in issues in determining task priorities, completing deadlines, and accurately calculating job durations [37].
- Memory lapses are a prevalent indication of ADHD in students. Individuals with this condition often experience repeated misplacement of necessary items for academic tasks, exhibit forgetfulness in completing assignments or household responsibilities, and struggle with recalling directions or specific information [10].
- Students diagnosed with ADHD may encounter difficulties in efficiently arranging their thoughts and information. This can lead to disorganized workspaces, unfinished assignments, and challenges in maintaining focus on long-term initiatives [3].
- Procrastination is a prevalent tendency observed in students with ADHD, primarily because they struggle with commencing work or sustaining focus for extended periods [37].
- Some students with ADHD may struggle with social interactions due to impulsivity or difficulty reading social cues [10].
- ADHD has also been linked to emotional dysregulation in students. They may have uncontrollable emotions that cause outbursts of anger or frustration.
- ADHD symptoms including inattention and poor time management can lead to academic underachievement [3].

Any program for ADHD students must first identify their symptoms, behavior, problems, and educational effects, then use appropriate therapeutic tools and tools to reduce distractions and improve learning stimuli.

The relation between ADD/ADHD students learning and academic buoyancy

Academic buoyancy is represented by the student's ability to maintain their self-efficacy and control daily academic challenges such as anxiety, the student's relationships with his colleagues and professors, and integration with others [4].

The connection between the learning abilities of children with ADD/ADHD and their academic buoyancy is intricate, given that students diagnosed with ADD or ADHD frequently encounter distinct obstacles in the academic setting [37]. Academic buoyancy, a word denoting the capacity to sustain excellent academic performance in the face of challenges, is vital for students' enduring educational achievements. Studies indicate that students with ADD/ADHD may demonstrate reduced academic resilience because of their learning disparities. However, a range of interventions and modifications can be employed to alleviate these difficulties.

Studies conducted by Zendarski et al. [7], Gargiulo and Bouck [4], and Wang et al. [3] found that students with ADHD exhibited noticeably lower levels of academic buoyancy compared to their peers without ADHD. Additional research has shown that academic buoyancy is associated with other aspects, such as executive functioning abilities, parental engagement, and the classroom setting. ADD/ADHD students may experience impairments in executive functioning skills, including working memory, inhibition, and cognitive flexibility [22]. These deficits can have a detrimental effect on their academic performance and make it difficult for them to handle academic obstacles and get good marks [10].

However, it is important to remember that not all ADD/ADHD students fail academically. Despite learning gaps, some people may have a high level of academic buoyancy. Research published in the *Journal of Learning Disabilities* discovered that "students with ADHD who were identified as having high academic buoyancy demonstrated better reading comprehension skills and higher-GPA than those with low academic buoyancy" [3].

Interventions and adjustments can aid with the academic performance and buoyancy of ADD/ADHD students. For example, giving them extra time on examinations or tasks can help them overcome test anxiety and display their knowledge more properly. Furthermore, multisensory instruction strategies can assist engage students with diverse learning styles and improve their comprehension of complicated concepts [7]. Additionally, parental involvement boosts academic performance in ADD/ADHD students. Parents can collaborate with teachers to ensure their child receives classroom accommodations and interventions. They can also promote learning and assist their child to develop good study habits at home [38].

Multiple theoretical frameworks, mindfulness e-activities, and ADD/ADHD students' academic resilience

The frameworks present a solid basis for comprehending the impact of mindfulness e-activities on academic resilience in students with ADD/ADHD. The following are the essential theoretical frameworks that must be incorporated:

1. Attention restoration theory (ART): It asserts that focused attention may become exhausted due to excessive usage but can be rejuvenated by activities that encourage effortless involvement and concentration. This approach is especially relevant for kids with ADD/ADHD who suffer from persistent attentional fatigue because of their illness. By integrating ART, the study posits that mindfulness e-activities function as restorative practices that replenish attentional resources, consequently enhancing focus and resilience in academic environments. Studies have shown that MBIs diminish mental tiredness and enhance sustained attention, which are essential for academic performance in students with attentional issues [11, 17].
2. Theory of self-regulation: It elucidates how humans govern their ideas, emotions, and behaviors to attain objectives. Students with ADD/ADHD frequently encounter self-regulatory deficiencies, which significantly impede their academic performance and emotional stability [12]. Mindfulness e-activities seek to improve self-regulation by cultivating present-moment awareness and diminishing impulsivity. The research posits that mindfulness e-activities augment academic resilience by bolstering self-regulatory abilities, including attention control, emotional management, and goal-directed conduct. Explicitly connecting this hypothesis would elucidate how mindfulness techniques address specific deficiencies in students with ADD/ADHD [12]. Studies indicate that mindfulness therapies enhance executive functioning (e.g., working memory, inhibitory control), which are essential elements of self-regulation [12, 39].
3. Social cognitive theory (SCT) underscores the significance of learning by observation, imitation, and modeling in a social context, while accentuating self-efficacy as a crucial factor in behavior modification [40]. SCT elucidates how guided online mindfulness exercises augment self-efficacy in students with ADD/ADHD by offering structured chances for skill development within a supportive virtual context. Research indicates that heightened self-efficacy directly correlates with enhanced persistence and performance in tough circumstances—essential elements of academic resilience [39].
4. Cognitive behavioral theory (CBT) underscores the interaction among thoughts, emotions, and behaviors. Mindfulness-based methodologies frequently integrate CBT principles by assisting individuals in identifying maladaptive thought patterns and substituting them with more constructive alternatives [11, 41]. Research demonstrates that the amalgamation of mindfulness and CBT techniques improves coping strategies and diminishes stress levels in individuals with ADHD [42]. The study could utilize CBT to elucidate how mindfulness e-activities aid students with ADD/ADHD in cultivating healthier cognitive appraisals of academic challenges, thereby promoting resilience.
5. Resilience theory: It emphasizes an individual's ability to adjust favorably in the face of adversity or pressures [43]. It establishes a direct correlation between mindfulness interventions and enhanced outcomes for adolescents encountering difficulties associated with ADD/ADHD [43]. Empirical data indicate that fostering mindfulness improves psychological resilience by diminishing stress reactivity and encouraging adaptive coping strategies [44]. By anchoring the study in resilience theory, researchers can assert that mindfulness e-activities provide students with adaptive abilities (e.g., emotional regulation, problem-solving) essential for surmounting scholastic challenges.

The study will investigate how mindfulness e-activities enhance academic resilience among ADD/ADHD students at both cognitive and behavioral levels.

THE STUDY HYPOTHESES

Considering the theoretical framework, previous studies, and the nature of the study problem, the study hypotheses are as follows:

1. E-activities based on mental alertness have an impact on improving the academic buoyancy of ADD/ADHD students at university.
2. There is continuity in the effectiveness of using e-activities in improving academic buoyancy during 2 months of post-measurement.

STUDY APPROACH

The study relied on the quasi-experimental approach to identify the effect of e-activities based on mental alertness to improve the academic progress of university students with ADHD.

EXPERIMENTAL DESIGN

The study relied on a two-group design: pre- and post-measurements were used for the experimental and control groups, as in Table 1. The participants in this study were categorized into experimental and control groups by a rigorous randomized method, specifically stratified randomization with allocation concealment. This method reduces biases while maintaining comparability among groups at baseline. Moreover, preserving blinding whenever feasible enhances the validity of the results.

Participation

The study sample consisted of 100 male and female students from the Applied College and its branches (boys section in

Table 1: Experimental design.

Group	Pre-test	Treatment	Post-test
Control group	Academic buoyancy	Teaching based on e-activities	Academic buoyancy
	Mental alertness		Mental alertness
Experimental group	Academic buoyancy	Traditional teaching	Academic buoyancy
	Mental alertness		Mental alertness

Table 2: The equality between the experimental group and the control group.

Group	Number	Control group		Experimental group		*t*-value	Significance
		Mean	Standard deviation	Mean	Standard deviation		
Academic buoyancy	50	81.96	9.74	80.80	8.77	0.442	Not significant
Mental alertness	50	124.80	12.05	121.76	15.47	0.775	Not significant

Baqaa, girls section in Aga, Ghazala, Samira, AL-haaid, and Baqaa), University of Hail, with an average age of 19.04 and a standard deviation of 1.124. Participants were students whose scores were above 60 on the the adult ADHD self-report scale (ASRS). They were divided randomly into an experimental group (n = 50), which received e-activities, and a control group (n = 50), which received traditional teaching. Table 1 shows the distribution of members in the experimental and control groups. The equality between the experimental group and the control group was verified in terms of mental alertness and academic buoyancy. It is clear from Table 2 that the two groups are equal.

Study tools

First, The Self-Rating Scale for Assessing Attention Deficit Hyperactivity Disorder (ASRS) for adults was prepared by Kessler and Üstun [45] and Arabized by Abu Al-Atta and Shuhaib [46]). It consists of 18 statements that reflect the criteria for diagnosing ADHD according to the Fifth Diagnostic Manual DSM-5. Individuals respond to these statements using a five-point grading scale, and the odd-numbered statements reflect the pattern of distraction, while the even-numbered statements reflect the pattern of hyperactivity (Appendix A1). Abu Al-Atta and Shuhaib [46] indicate that the results of the self-esteem scale for assessing ADHD for adults showed a high degree of validity and reliability on a sample of 130 male and female students, with a Cronbach's alpha reliability coefficient of 0.86. The factorial validity of the scale was also measured using the Confirmatory Factor Analysis (CFA), which resulted in the saturation of the scale's items on two factors. The saturations for the first factor ranged between 0.33 and 0.79, and the saturations for the second factor ranged between 0.47 and 0.80. A significant correlation also appeared between the two factors at a significant level of 0.001, and the correlation value was 0.615.

Secondly, The Five-Dimensional Mental Alertness Scale was prepared by Baer et al. [47] and Arabized by Al-Beheiri and Mahmoud [48] and Faraone et al. [31]. It consists of 39 statements, aiming to measure mental alertness skills distributed over five dimensions (Appendix A2). The results of the five-dimensional mental alertness scale showed a high degree of validity and reliability on a sample of 1200 male and female students, with a Cronbach's alpha coefficient values ranging between 0.75 and 0.91. The factorial validity of the scale was verified using CFA, which resulted in the saturation of all items of the scale on to their respective five factors. The value of χ^2 = 10431.45, with degrees of freedom = 741 and a significance level of ≤0.001, confirms a good match to the data.

Third, Academic Buoyancy Scale: Academic buoyancy was prepared by the research team. The purpose of the scale is to measure the academic progress of university students with ADHD (Appendix A3). Twenty-three statements were developed to measure academic progress using a Likert quintile scale. Exploratory factor analysis was conducted, using the Principal Axis Factoring (PAF) method and Direct Oblimin, on a sample of 147 participants, and the Kaiser-Meyer-Olkin criterion was 0.931, which indicates an increase in the reliability of the factors that we obtain from the factor analysis. The results also showed four factors (self-efficacy, vibration of confidence, academic participation, and the relationship between teacher and student), given that the eigenvalues (also known as latent root values) are larger than the correct or expected ones. All items are saturated on the first factor, as the latent root of the first factor is 10.980 and explains 47.740% of the total variance of the phenomenon. The confirmatory factor validity of the original construct of the Academic Progress Scale was verified. To verify this, a confirmatory factor analysis was conducted for the 23 items, in the MPLUS program (7). The chi-squared goodness of fit was 2541.968. Finally, Cronbach's alpha coefficient was used to calculate the reliability of the scale on a sample of 147 participants, where the alpha value reached a high value of 947.0, which indicates confidence in the results that could be reached from the scale.

All study tools were selected or prepared to have a high degree of validity and reliability, are compatible with the Arab environment, and achieve the research objectives.

Study procedures

1. An analytical study of scientific literature, studies, and related research, with the aim of preparing the theoretical framework for the study and using it as guidance in

directing its hypotheses, designing its tools, and discussing its results.
2. Building electronic activities based on mindfulness to improve academic progress among university students with ADHD in light of the following steps:
   A. Consulting experts and specialists in the fields of psychology, educational technology, and special education.
   B. Preparing electronic activities based on mindfulness, and the preparation process includes the following:
      – Determining the general objectives of electronic activities and creating content.
      – Determining the educational means used from text only, text and images, text and sound, still images, and moving images to be appropriate for the sample.
      – Determining the programming language needed to build electronic activities.
      – Presenting the electronic activities in their initial form to a group of specialized arbitrators and listening to their opinions.
      – Making modifications to the electronic activities in light of the arbitrators' opinions.
3. Applying the attention deficit and hyperactivity scale.
4. Pre-application of the academic advancement scale on the sample.
5. Application of electronic activities based on mindfulness on the experimental group of university students with ADHD.
6. Post-measurement of the academic advancement scale on the experimental and control sample.
7. Data collection, statistical processing, interpretation of results, and answering the study questions.

Statistical methods

The statistical methods were as follows:
1. Descriptive statistics:
   – arithmetic means
   – standard deviations
   – skewness and kurtosis coefficient.
2. Inferential statistics:
   – independent samples *t*-test
   – related samples *t*-test to determine the significance of the differences between the two groups.

Study limitations

It should be taken into consideration that the results and outputs of the research are related to the limits of the research, as it was applied to students of the Applied College at Hail University and its branches, and the rest of the regions of the Kingdom were not taken into consideration. Also, the generalization of the results is determined by the relatively small sample size and potential cultural biases, which would enhance the credibility of the study. Variations in the degree of ADHD symptoms and concomitant disorders among participants can influence outcomes. Although enhancements in academic resilience may be evident immediately following the completion of mindfulness e-activities, it remains uncertain whether these advantages endure over time in the absence of ongoing practice or support.

Results and interpretation

To achieve the objectives of the study, means, standard deviations, *skewness and kurtosis coefficients* were calculated as shown in Table 3 in the post-measurement.

It is clear from Table 3 that the mean of the total score for mental alertness is 125.24, the mean value of the total score for academic advancement is 100.04, the skewness coefficients are between 0.795 and –0.966), and the *kurtosis* is between –0.101 and 1.768. However, the variables of mental alertness and academic progress are distributed moderately across the study sample. Considering the problem of the study and the findings of previous studies, the statistical hypotheses of the study were verified as follows:

To verify the validity of the first hypothesis, "There are statistically significant differences between the average scores of the experimental group and the control group in Academic Buoyancy in favor of the experimental group." The *t-test* for independent samples was performed, as well as the η^2 calculation was used to calculate the effect size, and the result is shown in Table 4.

It is clear from Table 4 and Figure 2 that there are significant differences between the average scores of the experimental group and the control group. The experimental group exhibited higher academic buoyancy scores, where the value of "*t*" was 8.290, which is a significant value at the level of significance of 0.01, and the effect size was, $\eta^2 = 0.767$, large.

This result can be interpreted considering the e-activities that incorporating mindfulness practices with e-activities provides a distinct benefit for adolescents with ADHD. E-platforms could offer interactive and captivating experiences that grab the attention of students while offering a curriculum focused on mindfulness. The fluid and adaptable character of e-activities can accommodate various learning methods and preferences, thus enhancing accessibility and attractiveness for students with ADHD.

Students with ADHD experience enhanced academic success when they participate in e-activities that incorporate mindfulness principles. This improvement can be attributed to various variables. Mindfulness activities boost students' attention regulation by improving their capacity to maintain

Table 3: Means, standard deviations, skewness, and kurtosis coefficients for the study variables for the experimental group in the post-measurement.

Total marks	Mean	Median	Standard deviation	Coefficient of skewness	Kurtosis
Mental alertness	125.24	124.00	10.81	0.795	–0.101
Academic buoyancy	100.04	101.00	6.28	–0.966	1.768

Table 4: The "*t*" value for the significance of the differences between the average scores of experimental and control in the post-measurement of the Academic Buoyancy Scale.

Variable	Group	*n*	Mean	Standard deviation	"*t*" value	Significance level at 0.01	Degrees of freedom	effect size η^2
Academic buoyancy measure	Control	25	81.20	9.46	8.290	Significant	41.695	0.767
	Experimental	25	100.04	6.28				

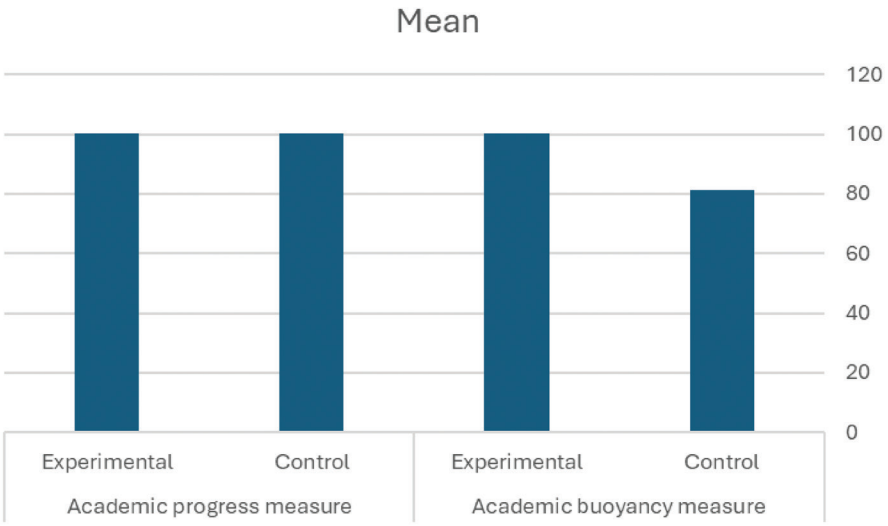

Figure 2: Comparison of the means of the academic buoyancy measure and the academic progress measure for the training and control groups.

concentration on tasks, avoid distractions, and shift attention when necessary. Enhanced attention management can result in increased concentration during academic tasks, such as reading, studying, or completing assignments. Improved self-regulation [7, 8]: through the utilization of mindfulness techniques in e-activities, students acquire the ability to regulate their emotions and impulses with more effectiveness. This heightened self-regulation empowers individuals to effectively handle stressors, frustrations, and obstacles that are frequently experienced in academic environments. Mindfulness-based e-activities can enhance cognitive abilities, including working memory, cognitive flexibility, and decision-making [9]. These improved cognitive abilities enable students with ADHD to approach learning assignments in a more effective and adaptable manner [3].

The previous results are also consistent with what was indicated by Hadwin et al. [23] and Ramasubramanian [21] that university students with high mental alertness could deal with the academic difficulties and challenges they face in university life, which works to increase focus on new experiences. Mental alertness also helps to combat negative thoughts associated with academic life [6]. By practicing mindfulness, university students increase their level of achievement and are able to overcome academic obstacles and difficulties by searching for new strategic methods [26]. This is confirmed by Charest and Grandner [49] that mental alertness has a role in improving academic advancement.

Studies of Lee et al. [8] and Leung et al. [9] have indicated that engaging in mindfulness techniques can result in both anatomical and functional alterations within the brain. It has been demonstrated that mindfulness training improves the brain networks linked to attention, executive functioning, and self-regulation in people with ADHD. Students with ADHD may benefit from mindfulness exercises by improving their working memory, impulse control, and cognitive flexibility—all of which are critical for success in the classroom.

Additionally, the findings of studies conducted by Wiest et al. [6] and Gargiulo and Bouck [4] were elucidated. Eslami and Hooshmandi [18] hold the view that academic progress facilitates student engagement in classroom discussions, thereby augmenting academic achievement. This phenomenon enhances the student's self-assurance and alleviates emotions of anxiety and discontentment that might influence them when confronted with academic challenges and demands, motivating students to improve their grades. This finding is consistent with the results reported by Lee et al. [8] and Vorontsova-Wenger et al. [26], which suggest that academic progress is correlated with mental acuity.

To verify the validity of the second hypothesis, "There are statistically significant differences between the average scores of the experimental group in academic progress in the post- and follow-up measurements in favor of the follow-up measurement." To verify the validity of this hypothesis, a *t*-test was used for linked samples as shown in Table 5.

It is clear from Table 5 and Figure 2 that there are significant differences between the average scores of the experimental group in academic progress in the post and follow-up measurements, where the "*t*" value reached a value of 3.098, which is a significant value at the significance level of 0.01.

This result can be explained in that the students of the experimental group mastered e-activities based on mental alertness. Which led to their proficiency in applying all tasks

Table 5: The "*t*" value of linked samples for the significance of the differences between the average scores of the experimental group in the post and follow-up measurements of the Academic Advancement Scale.

Variable	Group	*n*	Mean	Standard deviation	"*t*" value	Significance level at 0.01	Degrees of freedom	Effect size η^2
Academic progress measure	Control	25	100.04	6.28	3.098	Significant	24	0.286
	Experimental	25	100.44	6.24				

in e-activities, and this result is consistent with the results that confirmed the continuity of the effectiveness of the training program beyond the follow-up period [7, 50].

The search team confirmed that one effective method of improving the focus and attention of ADD/ADHD learners is through the implementation of one-way e-activities that are centered around mindfulness. Mindfulness activities encourage individuals to cultivate present-moment awareness, thereby aiding students with ADD/ADHD in mitigating distractions and maintaining concentration on their academic assignments [37]. By participating in e-activities that foster mindfulness, these students can cultivate enhanced concentration skills, resulting in increased educational achievements [8, 31]. Another significant benefit of mindfulness-based e-activities for adolescents with ADD/ADHD is the reduction of stress. These students may encounter elevated levels of stress because of academic issues or difficulties in maintaining focus [4]. Research has demonstrated that engaging in mindfulness techniques can effectively lower stress levels by fostering relaxation, enhancing emotional awareness, and developing effective coping strategies [7]. By participating in e-activities that encourage mindfulness, students with ADD/ADHD can acquire skills to better cope with stress, thereby fostering an optimal setting for ongoing academic progress.

This is the same as what was confirmed by Sedgwick et al. [25] and Lovett and Nelson [50] that the effectiveness of mental alertness training in alleviating attention deficit disorder accompanied by hyperactivity, and that this type of program helps these students recognize and overcome the wrong behaviors that control their thoughts [20, 51].

Also, students diagnosed with ADD or ADHD sometimes encounter difficulties with self-regulation, which encompasses the ability to control impulses and manage emotions [3, 31]. Engaging in mindfulness-based activities can assist these children in improving their ability to self-regulate by instructing them to pause, contemplate, and respond deliberately rather than impulsively [4]. E-programs that integrate mindfulness techniques offer a systematic approach for students to develop self-regulation strategies, ultimately enhancing their academic progress by promoting improved decision-making and behavior control [13].

The research team further posits that mindfulness has enhanced the students' academic proficiency and bolstered their capacity to confront academic obstacles and stressors. Furthermore, mindfulness has afforded the students enriched encounters that positively influence their academic performance. It resulted in improved concentration and goal-oriented behavior, leading to significant academic buoyancy. This was achieved by utilizing learning outcomes and employing a scientific approach to analyze various factors and establish connections, ultimately leading to a better understanding of this environment and effective problem-solving. This is the curriculum on which the students received training during the program.

This is in line with what Palalas [52] and Young et al. [20] indicated that mindfulness helps in controlling the attention process by focusing the student on the basic requirements and not focusing on external stimuli. It also enables university students to benefit from the mistakes they make and to be able to learn from these mistakes in their academic lives.

The findings of the second hypothesis align with the research conducted by Pheh et al. [22], which demonstrated that training programs can enhance mental alertness. This is because mental alertness can be developed through engagement with the environment, leading to positive outcomes and the cultivation of a well-rounded personality. Consequently, students are better equipped to choose external stimuli and are less prone to distraction. Students exhibit diminished cognitive vigilance. Furthermore, Lee et al. [8] corroborated that numerous students can acquire mental alertness skills. Training in mental alertness plays a significant role in enhancing attention levels, which aligns with the findings of Nwafor [2] who concluded that engaging in activities can yield similar results. During training, maintaining a high level of mental alertness enables individuals to focus their attention on the present moment. Additionally, there is evidence suggesting that mental alertness is inversely related to distraction.

The previous findings align with the research conducted by Nwafor [2], which concluded that numerous students can acquire mental alertness skills. Training in mental alertness has been shown to have a substantial impact on enhancing attention levels, and a negative correlation has been observed between mental alertness and distraction. Lee et al. [8] search supports the idea that engaging in activities during mindfulness training aids in shifting attention toward the current moment.

DISCUSSION

Based on the theoretical framework and previous studies, the analysis of the results suggests that electronic activities support learners in their training by providing assistance and resources to help them achieve mastery. These activities also help identify the learner's strengths, weaknesses, and capabilities, allowing for targeted interventions. This, in turn, enhances their ability to engage in self-directed learning and encourages them to explore and ask questions. The inclusion of problems that require interpretation or clarification further promotes critical thinking and problem-solving skills. Research has demonstrated that engaging in electronic activities that require mental attentiveness can assist students in

developing the ability to observe and focus on both internal and exterior experiences. Furthermore, it aids in the development of skills related to describing internal sensations and expressing them without the presence of ADD/ADHD. A student's attention may become diverted or busy, causing them to lose their concentration on the current moment and refrain from making evaluative assessments of their internal thoughts and emotions. The program of electronic activities based on mindfulness enhanced the comprehension of the training material among ADD/ADHD students, enabling them to effectively apply their knowledge in various educational contexts. e-Activities that enhance mental acuity aim to cultivate the student's ability to concentrate on essential tasks while disregarding irrelevant external distractions, which enhanced the academic progress of individuals with ADD/ADHD.

It effectively catered to the educational needs of ADD/ADHD students by monitoring their online activities, assessing their performance, offering feedback, addressing areas of weakness, and finding solutions to ensure continued learning progress. This demonstrates the ongoing influence of the program on them.

Recommendation

The study suggests the inclusion of mindfulness-based e-activities can have a beneficial effect on the academic optimism of students with ADD/ADHD. Engaging in these activities can enhance concentration, attentiveness, and emotional control, all of which are vital for achieving academic excellence. Furthermore, it is crucial to establish a nurturing atmosphere for students with ADD/ADHD. This encompasses providing support, empathy, and customized resources to address their individual need. Incorporating mindfulness-based electronic activities can be included as a component of this nurturing setting.

It is crucial to adopt a personalized strategy while dealing with ADD/ADHD students, as each student has their own distinct characteristics and needs. Customizing mindfulness-based electronic activities to align with the individual requirements and inclinations of each learner can optimize the advantages. Regularly evaluating the success of ADD/ADHD pupils engaging in mindfulness-based e-activities is essential. This facilitates the implementation of necessary modifications and guarantees the efficacy of the interventions in enhancing academic optimism.

Furthermore, educators have a crucial responsibility in providing support to students with ADD/ADHD. Delivering instruction to teachers on mindfulness techniques and ways to assist these students can improve their academic optimism and overall well-being. Urging and educating faculty members about the importance of including electronic activities based on mindfulness within their teaching activities, to help students confront academic frustrations and pressures, and to increase their ability to confront problems and find multiple alternatives to them. Furthermore, engaging parents or guardians in the process can provide additional support for students with ADD/ADHD. Engaging in partnerships with families to strengthen mindfulness practices at home helps establish a comprehensive strategy for improving academic optimism.

To proficiently incorporate mindfulness practices into their instruction of students with special needs, educators might find it advantageous to partake in professional development initiatives that specifically target mindfulness training. These programs have the capacity to furnish educators with the requisite knowledge and abilities to effortlessly integrate mindfulness into their pedagogical approaches also. The establishment of partnerships between mental health professionals and educators is critical to guarantee that mindfulness interventions are tailored to the unique requirements of students who have learning differences or disabilities. A collaborative effort between mental health specialists and educators can enable the customization of mindfulness strategies to effectively tackle unique challenges faced by individuals.

FUTURE SEARCH

To go deeper into the investigation of the influence of mindfulness-based e-activities on the academic optimism of students with ADD/ADHD, numerous significant future studies can be considered. Performing a long-term study to evaluate the enduring impacts of mindfulness-based electronic activities on academic optimism among students with ADD/ADHD would be highly beneficial. These supplementary investigations can offer further perspectives and enhance our overall comprehension of how mindfulness therapies can be advantageous for children with ADD/ADHD in an academic environment.

This study aims to monitor participants over a prolonged duration to ascertain whether the favorable benefits persist over time or whether there are any alterations in outcomes. Additionally, doing a comparative analysis to evaluate the efficacy of mindfulness-based e-activities in comparison to other interventions typically employed for ADD/ADHD students, such as medication or traditional therapy, could yield significant insights. Gaining insight into the comparative effectiveness of mindfulness practices in relation to current treatments might assist educators and healthcare professionals in making well-informed choices on the most efficacious interventions. Another promising study may examine how teacher training affects classroom awareness. This study could examine how teacher-led interventions affect student outcomes by educating educators on how to include mindfulness activities.

A qualitative study on ADD/ADHD students' mindfulness-based e-activities may also provide significant data. Researchers can better understand how these treatments affect students' academic optimism, well-being, and performance by studying their subjective experiences. Further research might examine how parents promote mindfulness practices for ADD/ADHD students. Understanding how parents may practice mindfulness at home and work with schools to establish a holistic support structure for students could improve these interventions.

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ETHICAL APPROVAL

All procedures performed in the study followed the ethical standards of the institutional research committee of the Deanship of Scientific Research at the University of Hail (RG-21016) and with the 1964 Helsinki Declaration and its later amendments.

Informed consent to participate was obtained from all of the participants in the study. The ethics committee (the Institutional Research Committee of the University of Hail) approved this procedure.

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DATA AVAILABILITY STATEMENT

The raw data supporting the conclusion of this article will be available upon request to the corresponding author.

COMPETING INTERESTS

The authors declare that they have competing interests.

AUTHORS' CONTRIBUTION

Prof. Usama M. Ibrahem: originator of the concept, assumptions, problem, methods, editing, Methodology, and Conclusion. Prof. Abdulaziz R. Alamro: procedure and prepare tools, statistics, research motivation, discussion, conclusion. Dr. Hanan M. Diab: literature review, originator of the concept, statistics, delimitations. Prof. Talal M. Alsaif: literature review, originator of the concept, statistics, delimitations.

REFERENCES

1. Pedro F., Subosa M., Rivas A. and Valverde P. (2019). *Artificial Intelligence in Education: Challenges and Opportunities for Sustainable Development*, UNESDOC Digital Library.
2. Nwafor C.K. (2023). Teaching children with special needs: the unique and cross-cutting strategies. In: *Special. Needs Education from the Lens of Interdisciplinary. Dialogue: A Festschrift in Honour of Prof. Emeka D. Ozoji*, vol 2, no 1, pp. 298-313. Gender Studies Association of Nigeria (GSAN).
3. Wang T., Liu K., Li Z., Xu Y., Liu Y., Shi W. and Chen L. (2017). Prevalence of attention deficit/hyperactivity disorder among children and adolescents in China: a systematic review and meta-analysis. *BMC Psychiatry*, 17, 32. 10.1186/s12888-016-1187-9.
4. Gargiulo R.M. and Bouck E.C. (2019). *Special Education in Contemporary Society: An Introduction to Exceptionality*, 7th, SAGE Publications, Inc.
5. Asmri M.A., Almalki M.J., Fitzgerald G. and Clark M. (2020). The public health care system and primary care services in Saudi Arabia: a system in transition. *East. Mediterr. Health J.*, 26(4), 468-476. 10.26719/emhj.19.049.
6. Wiest G.M., Rosales K.P., Looney L., Wong E.H. and Wiest D.J. (2022). Utilizing cognitive training to improve working memory, attention, and impulsivity in school-aged children with ADHD and SLD. *Brain Sci.*, 12(2), 141. 10.3390/brainsci12020141.
7. Zendarski N., Sciberras E., Mensah F. and Hiscock H. (2017). Early high school engagement in students with attention/deficit hyperactivity disorder. *Br. J. Educ. Psychol.*, 87(2), 127-145. 10.1111/bjep.12140.
8. Lee J.H., Moon Y.K., Lee K.S. and Beehr T.A. (2024). The negative effect of solving the 'white bear' problem with mindfulness: expansion and reconfirmation of mindfulness profiles based on ironic process theory. *Pers. Individ. Differ.*, 217, 112447. 10.1016/j.paid.2023.112447.
9. Leung M.Y., Ahmed K. and Famakin I.O. (2024). Impact of mindfulness-based stress reduction intervention on the performance of construction professionals. *Eng. Constr. Archit. Manag.*, 31(2), 662-680. 10.1108/ECAM-01-2022-0005.
10. Barranco-Ruiz Y., Esturo Etxabe B., Ramírez-Vélez R. and Villa-González E. (2019). Interventions based on mind-body therapies for the improvement of attention-deficit/hyperactivity disorder symptoms in youth: a systematic review. *Medicina*, 55(7), 325. MDPI. 10.3390/medicina55070325.
11. Singha, R. (2024). Fostering resilience and well-being: integrating mindfulness practices in educational settings amidst crisis. In: *Building Resilient Education Models Post Crisis* pp. 102-132, IGI Global Scientific Publishing. 10.4018/979-8-3693-8125-0.ch006.
12. Aune E. (2014). *The Validity of Self-versus Other Reports of ADHD Symptoms in College Students: Cognitive and Academic Achievement Outcomes*, University of Montana.
13. Javed Y. and Odhabi H. (2018). Active learning in classrooms using online tools: evaluating Pear-Deck for students' engagement. In: *2018 Fifth HCT Information Technology Trends (ITT)* pp. 126-131, IEEE Xplore. 10.1109/CTIT.2018.8649515.
14. Barkley E.F. and Major C.H. (2020). *Student Engagement Techniques: A Handbook for College Faculty*, John Wiley & Sons.
15. Maynard B.R., Solis M.R., Miller V.L. and Brendel K.E. (2017). Mindfulness-based interventions for improving cognition, academic achievement, behavior, and socioemotional functioning of primary and secondary school students. *Campbell Syst. Rev.*, 13(1), 1-144. 10.4073/CSR.2017.5.
16. Campbell A. (2024). *A Short Meditation Intervention and the Impact on Generation Z College Students' Anxiety and Academic Resilience*, Doctoral Dissertations and Projects.
17. Brandel M. (2024). *An Examination of Perceived Undergraduate Student Social Support at a Two-Year Institution in the United States Southwest: A Quantitative Study*, Doctoral Dissertation, Baylor University.
18. Eslami F. and Hooshmandi R. (2023). The Dynamics of Academic Buoyancy in Contemporary Education. *KMAN Couns. Psychol. Nexus*, 1(1), 102-108. 10.61838/kman.psynexus.1.1.12.
19. Gregory G. and Kaufeldt M. (2015). *The Motivated Brain: Improving Student Attention, Engagement, and Perseverance*. ASCD.

20. Young S., Adamo N., Ásgeirsdóttir B.B., Branney P., Beckett M., Colley W., et al. (2020). Females with ADHD: an expert consensus statement taking a lifespan approach providing guidance for the identification and treatment of attention-deficit/hyperactivity disorder in girls and women. *BMC Psychiatry*, 20, 1-27. 10.1186/s12888-020-02707-9.
21. Ramasubramanian S. (2017). Mindfulness, stress coping and everyday resilience among emerging youth in a university setting: a mixed methods approach. *Int. J. Adolesc. Youth*, 22(3), 308-321. 10.1080/02673843.2016.1175361.
22. Pheh K.S., Tan K.A., Ibrahim N. and Sidik S.M. (2021). Effectiveness of online mindfulness-based intervention (iMBI) on inattention, hyperactivity-impulsivity, and executive functioning in college emerging adults with attention-deficit/hyperactivity disorder: a study protocol. *Int. J. Environ. Res. Public Health*, 18(3), 1257. 10.3390/ijerph18031257.
23. Hadwin A.F., Sukhawathanakul P., Rostampour R. and Bahena-Olivares L.M. (2022). Do self-regulated learning practices and intervention mitigate the impact of academic challenges and COVID-19 distress on academic performance during online learning? *Front. Psychol.*, 13, 813529. 10.3389/fpsyg.2022.813529.
24. Singer B.J., Coulibaly J.T, Park H.J., Andrews J.R., Bogoch I.I. and Lo N.C. (2024). Development of prediction models to identify hotspots of schistosomiasis in endemic regions to guide mass drug administration. *Proc. Natl. Acad. Sci. U S A.*, 121(2), e2315463120. 10.1073/pnas.2315463120.
25. Sedgwick-Müller J.A., Müller-Sedgwick U., Adamou M., Catani M., Champ R., Gudjónsson G., et al. (2022). University students with attention deficit hyperactivity disorder (ADHD): a consensus statement from the UK Adult ADHD Network (UKAAN). *BMC Psychiatry*, 22(1), 292. 10.1186/s12888-022-03898-z.
26. Vorontsova-Wenger O., Ghisletta P., Ababkov V., Bondolfi G. and Barisnikov K. (2022). Short mindfulness-based intervention for psychological and academic outcomes among university students. *Anxiety Stress Coping*, 35(2), 141-157. 10.1080/10615806.2021.1931143.
27. Darling-Hammond L., Zielezinski M. B. and Goldman S. (2014). *Using Technology to Support At-risk Students' Learning*, Alliance for Excellent Education, Washington, DC.
28. Zafra A., Romero C. and Ventura S. (2013). DRAL: a tool for discovering relevant e-activities for learners. *Knowl. Inf. Syst.*, 36, 211-250. 10.1007/s10115-012-0531-8.
29. Cadag C.E. (2024). The effectiveness of individual performance commitment review form as an evaluation tool to improve teachers' performance: basis for technical assistance. *Int. J. Multidiscip. Appl. Business Educ. Res.*, 5(2), 724-747. 10.11594/ijmaber.05.02.30.
30. Haleem A., Javaid M., Qadri M. A. and Suman R. (2022). Understanding the role of digital technologies in education: a review. *Sustain. Oper. Comput.*, 3, 275-285. 10.1016/j.susoc.2022.05.004.
31. Faraone S.V., Rostain A.L., Blader J., Busch B., Childress A.C., Connor D.F., et al. (2019). Practitioner Review: emotional dysregulation in attention-deficit/hyperactivity disorder – implications for clinical recognition and intervention. *J. Child Psychol. Psychiatry*, 60(2), 133-150. 10.1111/jcpp.12899.
32. Pan P.Y. and Yeh C.B. (2017). Impact of depressive/anxiety symptoms on the quality of life of adolescents with ADHD: a community-based 1-year prospective follow-up study. *Eur. Child. Adolesc. Psychiatry*, 26(6), 659-667. 10.1007/s00787-016-0929-z.
33. Scalise G. (2017). *Mindfulness Meditation Techniques Intervention for Adolescents with ADHD*. Saint Mary's College of California, Proquest Dissertations Publishing. 10283655. – Shapero, B.G., Gibb, B.E.
34. Kurz and Andrew J. (2018). *Mindfulness Meditation in the Lives of College Students Diagnosed with ADHD. Does Emotion Regulation Moderate the Association between Impairment and Depression in Adolescents with ADHD?* The University Of Mississippi, Pro Quest Dissertations Publishing.
35. Banaschewski T., Becker K., Döpfner M., Holtmann M., Rösler M. and Romanos, M. (2017). Attention-deficit/hyperactivity disorder: a current overview. *Deutsch. Arztebl. Int.*, 114(9), 149-159. 10.3238/arztebl.2017.0149.
36. American Psychiatric Association. (2013). *Diagnostic And Statistical Manual Of Mental Disorders: DSM-5* (Vol. 5, No. 5). American Psychiatric Association, Washington, DC.
37. White M. (2022). *Examining the Influence of a Neuroeducational Buoyancy Program on Student Buoyancy: An Action Research Approach*, Doctoral Dissertation, CQ University.
38. Schultz T.R., Able H., Sreckovic M.A. and White T. (2016). Parent-teacher collaboration: teacher perceptions of what is needed to support students with ASD in the inclusive classroom. *Educ. Train. Autism Dev. Disabil.*, 51(4), 344-354.
39. Shengyao Y., Salarzadeh Jenatabadi H., Mengshi Y., Minqin C., Xuefen L. and Mustafa Z. (2024). Academic resilience, self-efficacy, and motivation: the role of parenting style. *Sci. Rep.*, 14(1), 5571. 10.1038/s41598-024-55530-7.
40. Bentil J. (2023). *Public Senior High School Social Studies Teachers' Self-efficacy Beliefs and Job Performance in the Central Region of Ghana the Mediating Role of Emotional Intelligence*, Doctoral Dissertation, University of Education, Winneba.
41. Oberoi T. (2024). *Common Mechanisms of Change in Mindfulness-Based Cognitive Therapy (MBCT) and Traditional Cognitive Behavioral Therapy (CBT): Implications for Therapeutic Effectiveness*, The National High School Journal of Science.
42. Haydicky J. (2014). *Evaluating a Mindfulness-based Intervention for Adolescents with ADHD and Their Parents: A Mixed Methods Approach*, University of Toronto, Canada.
43. Greene R.R. (2017). Risk and resilience theory: a social work perspective. In: *Human Behavior Theory and Social Work Practice* pp. 315-342, Routledge.
44. Skinner E. and Beers J. (2016). Mindfulness and teachers' coping in the classroom: a developmental model of teacher stress, coping, and everyday resilience. In: *Handbook of Mindfulness in Education: Integrating Theory and Research into Practice* pp. 99-118, Springer, New York, NY. 10.1007/978-1-4939-3506-2_7.
45. Kessler R.C. and Ustün T.B. (2004). The World Mental Health (WMH) survey initiative version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). *Int. J. Methods Psychiatr. Res.*, 13(2), 93-121. 10.1002/mpr.168.
46. Abu Al-Atta M. and Shuhaib Y. (2019). The Alternative Model of Personality Disorders as predictors of attention-deficit/hyperactivity disorder in adolescents. *J. Arab Stud.*, 18(4), 741-790.
47. Baer R.A., Smith G.T., Hopkins J., Krietemeyer J. and Toney L. (2006). Using self-report assessment methods to explore facets of mindfulness. *Assessment*, 13(1), 27-45. 10.1177/1073191105283504.
48. Al-Beheiri A. and Mahmoud A. (2014). The Arabic version of the five-factor scale for mental alertness – a field study on a sample of university students considering the impact of culture and gender variables. *J. Psychol. Couns.*, 39(73), 119-166.
49. Charest J. and Grandner M.A. (2022). Sleep and athletic performance: impacts on physical performance, mental performance, injury risk and recovery, and mental health: an update. *Sleep Med. Clin.*, 17(2), 263-282. 10.1016/j.jsmc.2022.03.006.
50. Lovett B.J. and Nelson J.M. (2021). Systematic review: educational accommodations for children and adolescents with attention-deficit/hyperactivity disorder. *J. Am. Acad. Child Adolesc. Psychiatry*, 60(4), 448-457. 10.1016/j.jaac.2020.07.891.
51. Fabiano G.A. and Pyle K. (2019). Best practices in school mental health for attention-deficit/hyperactivity disorder: a framework for intervention. *School Mental Health*, *11*, 72-91. 10.1007/s12310-018-9267-2.
52. Palalas A. (2018). Mindfulness in mobile and ubiquitous learning: harnessing the power of attention. In: *Mobile and Ubiquitous Learning: An International Handbook* pp. 19-44, Springer, Singapore. 10.1007/978-981-10-6144-8_2.

APPENDIX A

Appendix A1: Cronbach's alpha reliability coefficients for the items of the Adult Attention Deficit Hyperactivity Disorder Rating Scale (ASRS).

No.	Phrase	Corrected correlation coefficient	Cronbach's alpha coefficient when an item is deleted
1	I can't complete my work without mistakes because I don't pay attention to small details.	0.472	0.874
2	I have difficulty organizing and organizing my things.	0.500	0.873
3	I forget my appointments and commitments.	0.506	0.873
4	I don't like tasks or work that require mental effort and deep thinking.	0.514	0.873
5	I lose things at home or work and find them with difficulty.	0.419	0.876
6	I get distracted and lose focus at the slightest sound or movement around me.	0.477	0.874
7	Because I'm careless and inattentive, I make mistakes when doing work that requires concentration.	0.596	0.870
8	Routine and repetitive tasks make me lose focus and unable to complete them.	0.507	0.873
9	I find it difficult to concentrate on what others are saying to me, even when they are speaking directly to me.	0.579	0.871
10	When I must sit in one place for a long time, I can't stop moving my hands and feet and changing my position repeatedly.	0.440	0.876
11	I move around a lot and can't stop doing something, as if I'm powered by a motor.	0.533	0.872
12	I can't stay seated for long, even if I'm in a meeting or in another situation where I'm supposed to remain seated.	0.490	0.874
13	I feel tense, nervous, and uncomfortable.	0.560	0.871
14	I can't relax and unwind even during my free time or breaks.	0.560	0.871
15	I find myself compelled to speak in social situations.	0.396	0.877
16	I interrupt others while they are talking and don't wait for them to finish what they have to say.	0.535	0.872
17	I can't wait in line; this bothers me greatly.	0.491	0.874
18	I interrupt others while they are engaged in work or conversation.	0.506	0.873

Appendix A2: Dimensions of the Five-Dimensional Mindfulness Scale.

Dimension	Description	Paragraphs
1. Observe	It consists of 8 paragraphs that measure observation and attention to internal and external experiences, such as emotions, sensations, etc.	(1, 6, 11, 15, 20, 26, 31, 36)
2. Describe	It consists of 8 paragraphs that measure description of internal experiences and their expression through words.	(2, 7, 12, 16, 22, 27, 32, 37)
3. Act consciously	It consists of 8 items that measure a person's activities at a given moment.	(5, 8, 13, 18, 23, 28, 34, 38)
4. Not judge internal experiences	It consists of 8 items that measure the lack of judgment about internal thoughts and feelings.	(3, 10, 14, 17, 25, 30, 35, 39)
5. Not react	It consists of 7 items that measure the tendency to allow thoughts and feelings to come and go, without distracting the individual's mind, becoming preoccupied with them, or losing focus in the present moment.	(4, 9, 19, 21, 24, 29, 33)

The underlined paragraphs are negative paragraphs. Individuals answer them according to a five-point scale (never, rarely, sometimes, often, always). Scores are given (never = 1, rarely = 2, sometimes = 3, often = 4, always = 5) if the statement is positive, and vice versa if the statement is negative (never = 5, rarely = 4, sometimes = 3, often = 2, always = 1). A high score indicates a high degree of mental alertness or the degree of the trait measured by the dimension. The lowest score a student obtains on the scale is 39, and the highest score is 195.

Appendix A3: Cronbach's alpha reliability coefficients for the items of the Five-Dimensional Mindfulness Scale.

No.	Phrase	Alpha reliability coefficient when a single item is deleted	Corrected correlation coefficient
1	While walking, I deliberately observe the sensations of my body as it moves.	0.839	0.437
2	I am good at choosing words to describe my feelings or emotions.	0.824	0.304
3	I criticize myself for having irrational or inappropriate emotions or feelings.	0.841	0.362
4	I recognize my feelings and emotions without having to react to them.	0.841	0.365
5	I get distracted and lose focus easily when doing something.	0.842	0.314
6	When I shower or bathe, I remain aware of the sensations the water creates on my body.	0.839	0.444
7	I can easily put my thoughts, opinions, and expectations into words.	0.845	0.195
8	I don't pay attention to what I'm doing because I feel anxious, daydream, or otherwise distracted.	0.839	0.414
9	I observe my feelings without getting involved in them (i.e. I don't react to them).	0.841	0.359
10	I tell myself that I don't have to feel the way I do.	0.840	0.375
11	I notice how foods and drinks affect my thoughts, physical sensations, and emotions.	0.842	0.317
12	I find it difficult to find the words to describe what I'm thinking.	0.841	0.363
13	I get distracted easily.	0.841	0.362
14	I think some of my thoughts are unusual or bad and I shouldn't think that way.	0.841	0.347
15	I pay attention to my sensations, like the wind moving through my hair or the sunlight hitting my face.	0.841	0.342
16	I have difficulty thinking of appropriate words to express my feelings about things.	0.841	0.350
17	I can judge whether my thoughts are right or wrong (bad).	0.844	0.228
18	I find it difficult to stay focused on what's happening in the moment.	0.840	0.404
19	When I have sad (or painful) fantasies and thoughts, I step back and remain aware of these fantasies and thoughts without letting them take over.	0.844	0.215
20	I pay attention to sounds, such as the ticking of a clock, the chirping of birds, and the sounds of passing cars.	0.844	0.248
21	In difficult situations, I can stop without reacting immediately.	0.841	0.362
22	When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.	0.842	0.310
23	I seem to operate automatically, without a clear awareness of what I'm doing.	0.841	0.368
24	When I have distressing thoughts and images, I feel calm shortly after they subside.	0.841	0.352
25	I tell myself that I shouldn't be thinking the way I am.	0.840	0.401
26	I pay attention to the scents and smells of things.	0.845	0.176
27	When I'm extremely upset, I can certainly describe my state with appropriate words.	0.844	0.222
28	I rush into certain activities without actually being aware of them.	0.843	0.255
29	When I have distressing thoughts or images, I can simply observe them and not react to them.	0.842	0.324
30	I believe some of my emotions are bad or inappropriate, and I shouldn't feel that way.	0.839	0.445
31	I notice visual elements in art or nature, such as colors, shapes, texture, or the intensity of light or shadow.	0.840	0.401
32	It is my natural tendency or inclination to express my experiences.	0.841	0.375
33	When I have distressing thoughts or fantasies, I simply notice them but don't think about them.	0.842	0.317
34	I perform actions or tasks automatically without being conscious of what I'm doing.	0.843	0.289
35	When I have distressing thoughts or fantasies, I judge myself as good or bad based on the content of these thoughts or fantasies.	0.844	0.233
36	I pay attention to how my emotions affect my thoughts and behavior.	0.841	0.354
37	I can usually describe how I'm feeling in the moment in clear detail.	0.847	0.111
38	I find myself doing things without noticing or paying attention to them.	0.844	0.238
39	I feel unsatisfied with myself when I have irrational (false) thoughts.	0.844	0.253

Appendix A4: Adult Attention-Deficit/Hyperactivity Disorder Self-Rating Scale (ASRS).

No.	The phrase	Strongly agree	Agree	Not neutral	Disagree	Strongly disagree
1	I can't complete my work without mistakes because I don't pay attention to small details.					
2	I find it difficult to organize and organize my things.					
3	I forget appointments and commitments.					
4	I don't like tasks or work that require mental effort and deep thinking.					
5	I lose things at home or work and find them only with difficulty.					
6	I get distracted and lose focus at the slightest sound or movement around me. When I must sit in one place for a long time,					
7	Because I'm careless and inattentive, I make mistakes when doing something that requires concentration.					
8	Routine and repetitive tasks make me lose focus and I can't complete them.					
9	I find it difficult to concentrate on what others are saying to me, even when they're speaking directly to me.					
10	I can't stop moving my hands and feet and changing my sitting position repeatedly.					
11	I move around a lot and can't stop doing something, as if I'm powered by a motor.					
12	I can't stay seated for long, even if I'm in a meeting or other situation where I'm supposed to remain seated.					
13	I feel tense, nervous, and uneasy.					
14	I can't relax and unwind, even during my free time or breaks.					
15	I find myself compelled to talk in social situations.					
16	I interrupt others while they are talking and don't wait for them to finish what they want to say.					
17	I can't wait in line; it bothers me a lot.					
18	I interrupt others while they are busy doing something or talking.					

Appendix A5: Five-Dimensional Mindfulness Scale.

No.	The phrase	Strongly agree	Agree	Not neutral	Disagree	Strongly disagree
1	While walking, I deliberately observe the sensations of my body as it moves.					
2	I am good at choosing words to describe my feelings or emotions.					
3	I criticize myself for having irrational or inappropriate emotions or feelings.					
4	I recognize my feelings and emotions without having to react to them.					
5	I get distracted and lose focus easily when doing something.					
6	When I shower or bathe, I remain aware of the sensations the water creates on my body.					
7	I can easily put my thoughts, opinions, and expectations into words.					
8	I don't pay attention to what I'm doing because I feel anxious, daydream, or otherwise distracted.					
9	I observe my feelings without getting involved in them (i.e., I don't react to them).					
10	I tell myself that I don't have to feel the way I do.					
11	I notice how foods and drinks affect my thoughts, physical sensations, and emotions.					
12	I find it difficult to find the words to describe what I'm thinking.					
13	I get distracted easily.					
14	I think some of my thoughts are unusual or bad and I shouldn't think that way.					
15	I pay attention to my sensations, like the wind moving through my hair or the sunlight hitting my face.					
16	I have difficulty thinking of appropriate words to express my feelings about things.					
17	I can judge whether my thoughts are right or wrong (bad).					
18	I find it difficult to stay focused on what's happening in the moment.					
19	When I have sad (or painful) fantasies and thoughts, I step back and remain aware of these fantasies and thoughts without letting them take over.					
20	I pay attention to sounds, such as the ticking of a clock, the chirping of birds, and the sounds of passing cars.					
21	In difficult situations, I can stop without reacting immediately.					
22	When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.					
23	I seem to operate automatically, without a clear awareness of what I'm doing.					
24	When I have distressing thoughts and images, I feel calm shortly after they subside.					
25	I tell myself that I shouldn't be thinking the way I am.					
26	I pay attention to the scents and smells of things.					
27	When I'm extremely upset, I can certainly describe my state with appropriate words.					
28	I rush into certain activities without actually being aware of them.					
29	When I have distressing thoughts or images, I can simply observe them and not react to them.					
30	I believe some of my emotions are bad or inappropriate, and I shouldn't feel that way.					
31	I notice visual elements in art or nature, such as colors, shapes, texture, or the intensity of light or shadow.					
32	It is my natural tendency or inclination to express my experiences.					
33	When I have distressing thoughts or fantasies, I simply notice them but don't think about them.					
34	I perform actions or tasks automatically without being conscious of what I'm doing.					
35	When I have distressing thoughts or fantasies, I judge myself as good or bad based on the content of these thoughts or fantasies.					
36	I pay attention to how my emotions affect my thoughts and behavior.					
37	I can usually describe how I'm feeling in the moment in clear detail.					
38	I find myself doing things without noticing or paying attention to them.					
39	I feel unsatisfied with myself when I have irrational (false) thoughts.					