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Examining the effectiveness of mindfulness training On reducing internet addiction Among female students in the first high school of Ardakan city

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ABSTRACT

Given the increase in Internet use and its related problems, the present study investigated the effect of mindfulness training on Internet addiction among female junior high school students in Ardakan city. This study is a quasi-experimental study with a pre-test and post-test design, including a control group. The statistical population consisted of female junior high school students in Ardakan city during the 2024–2025 academic year, who were selected using a non-random sampling method, with 30 individuals randomly assigned to two groups: experimental and control. The experimental group underwent mindfulness training for 8 sessions over 4 weeks, while the control group was placed on a waiting list. The tools used included Young's Internet Addiction Questionnaire (IAT). Data were analyzed using SPSS version 26 software. The results of the covariance analysis showed that mindfulness training significantly reduced Internet addiction in the experimental group compared to the control group (significance level *p* < 0.05). Therefore, it can be concluded that mindfulness training can be used as an effective method to reduce Internet addiction in adolescents. These findings can be useful for designing educational programs and psychological interventions in schools and counseling centers.

Introduction

Internet addiction It is one of the issues that has become increasingly common amongStudents, especially with the rise of social media and online games (Nosrat Nahoki et al., 2023), increasingly rely on the internet. Today, most people use the internet to perform daily tasks, obtain information, entertain themselves, and communicate with others (Alzahrani et al., 2024). However, when internet use exceeds normal limits and becomes continuous and excessive, it may lead to internet addiction (Andersson et al., 2023). Various factors can contribute to this problem, including an imbalance in time spent online, a lack of alternative activities, increased stress and anxiety, and easy, unlimited access to the internet (Nosrat Nahoki et al., 2023). To prevent this issue, people must maintain a balanced approach to internet use, engage in healthy and diverse daily activities, and learn stress and anxiety management strategies (Kim et al., 2024). Additionally, they should nurture social relationships and allocate sufficient time for education, exercise, and recreation (Kim et al., 2024; Bait et al., 2025).

Although mindfulness training has the potential to combat internet addiction among students, significant challenges must be overcome to implement these programs effectively in schools (Zare et al., 2024). It is essential for schools to provide comprehensive and coherent mindfulness training integrated into daily routines (Gruber et al., 2024). Furthermore, teachers and students need ongoing support and guidance from trained professionals to ensure the program's success (Gruber et al., 2024; Mardanizadeh et al., 2019). By addressing these challenges, schools can help students develop the skills and awareness needed to guide their online behaviors in healthy, balanced ways (Zare et al., 2024).

One major challenge in mindfulness training is the lack of consistency in its teaching and practice (Baelen et al., 2023; Mitsea et al., 2023). Many schools offer mindfulness programs as isolated workshops or as part of broader well-being initiatives rather than integrating them into daily routines (Baelen et al., 2023). This makes it difficult for students to practice mindfulness regularly and experience its long-term benefits (Baelen et al., 2023; Kazemi Nasab, 1400). Another challenge is resistance from some students toward mindfulness exercises (Zenner et al., 2014). Additionally, some may struggle to sit still or quiet their minds, hindering their engagement in mindfulness meditation (Zenner et al., 2014; Hajialiani et al., 2021). Teachers, too, may lack the training or resources to teach mindfulness effectively, leading to inconsistent or ineffective implementation (Baelen et al., 2023).

On the other hand, constant internet access makes it difficult for students to disconnect and focus on mindfulness exercises. The temptation to check phones or social media leads to distraction and disengagement (Allakay, 2022). Moreover, the immediate gratification of online activities can make students prioritize internet use over mindfulness practice. Another challenge is the lack of awareness about the negative effects of excessive internet use. Many students may not recognize how constant screen time impacts their mental health, making it harder for them to value mindfulness training as a solution to internet addiction (Theory et al., 2022).

It should be noted that mindfulness has gained popularity in recent years as a technique for reducing stress, increasing focus, and improving overall well-being (Hajialiani et al., 2020). In education, mindfulness training has been integrated into school curricula. However, challenges remain in its implementation. The effectiveness of mindfulness training on internet addiction is a promising area of research with potential to significantly impact mental health and well-being (Hajialiani et al., 2020). By teaching individuals to be more present, aware, and accepting of their thoughts and feelings,

mindfulness training may help prevent or reduce internet addiction and promote healthier coping strategies. Further research is needed to examine its long-term effects on internet addiction and to develop effective interventions for at-risk individuals. Ultimately, integrating mindfulness into educational and therapeutic settings could empower individuals to develop greater emotional intelligence, resilience, and self-control.

Given the importance of mindfulness in preventing addiction, this research aims to investigate its effectiveness on internet addiction. The primary question is:
Is mindfulness training effective in reducing internet addiction among students?

Research Hypothesis:
Mindfulness training is effective in reducing internet addiction among students.

Research Method:

This research is applied in terms of purpose and, from the perspective of method, it has a quasi-experimental design with a pre-test-post-test design and a control group. After selection, the subjects were randomly assigned to two groups: experimental and control. The experimental group received the independent variable, namely the mindfulness intervention, while the control group was placed on a waiting list. Both groups completed the pre-test and post-test before and after the intervention.
The statistical population of this study consisted of all female first-grade high school students in Ardakan city during the academic year 2024–2025. The research sampling method was non-random convenience sampling. The sample size was 15 people per group. The inclusion criteria for the study sample were obtaining a higher score on the Internet addiction scale based on Young's (1998) questionnaire and consent to participate in the study. The exclusion criteria were missing more than two intervention sessions or withdrawing consent to continue participation.

Information Collection Methods and Tools:

The data required for the research were collected using field and library methods. Research data were gathered using Young's (1998) Internet Addiction Questionnaire.
Young's Internet Addiction Test (IAT):
The IAT questionnaire measures the level of Internet addiction in individuals. The questions in this questionnaire are based on the DSM-IV-TR criteria for pathological gambling disorder. This questionnaire consists of 20 questions, and each question is answered on a five-point Likert scale ranging from "always" to "rarely." Developed in 1998 by Kimberly Young, the Internet Addiction Test (IAT) is one of the most reliable tools for measuring Internet addiction. The test questions are based on the DSM criteria for pathological gambling disorder due to the perceived similarities between the two.
Internet addiction is defined here as compulsive online behavior that disrupts normal social interactions and increases daily stress, feelings of loneliness, anxiety, and depression. This test measures the level of involvement in online activities using a five-point Likert scale and categorizes addictive behavior into four levels:

Non-addiction (0–20)
Mild symptoms of addiction (21–40)
Moderate signs of addiction (41–60)
Addictive behavior (61–80)

This is a standard questionnaire, and its validity and reliability have been confirmed with a Cronbach's alpha of 0.90. The Persian version of this scale has also been used in Iran, with Nastizayi confirming its reliability (Cronbach's alpha = 0.81) and Ghasemzadeh reporting a Cronbach's alpha of 0.88 (Bahri et al., 2012). In the present study, the Cronbach's alpha coefficient was 0.818.

Research Implementation Method:
The research was conducted as follows:

Selection of the Statistical Population: The statistical population included all female first-grade high school students in Ardakan city during the academic year 2024–2025.

Sampling Method: Using convenience sampling, the Internet Addiction Test (IAT) was administered to students who volunteered to participate in the research. Students who scored above average on this scale were deemed eligible. Subsequently, the education department was contacted to obtain a list of students from various regions.

Determining Sample Size and Grouping: Thirty eligible individuals were selected and randomly assigned to two groups of 15 people each: the experimental group (mindfulness) and the control group.

Pre-test: Before the intervention, both groups completed the Internet Addiction Questionnaire.

Intervention Implementation: The experimental group participated in an 8-session mindfulness training program based on Gilbert's protocol (2007). Each session lasted 90 minutes and was held in the school setting over four weeks (two sessions per week). The control group was placed on a waiting list during this period.

Post-test: Immediately after the intervention, both groups were re-administered the Internet Addiction Test.

Table 1. Content of Mindfulness Training Sessions Based on Gilbert's Protocol (2007)

Training Session Content	Meeting Objectives	Session
Introducing mindfulness; teaching attention to the present moment	Increasing awareness of thoughts and feelings	1
Practicing conscious breathing and body scanning	Enhancing concentration and presence of mind	2
Understanding intrusive and judgmental thoughts	Reducing automatic emotional reactions	3
Non-judgmental acceptance; self-observation	Increasing mental endurance and resilience	4
Mindfulness practices in everyday activities	Integrating mindfulness into daily life	5
Dealing with difficult emotions	Reducing emotional avoidance	6
Practicing compassion for oneself and others	Improving self-relationship	7
Reviewing sessions; consolidating skills; presenting future exercises	Maintaining and sustaining mindfulness	8

Findings:

Description of research variables

It is clear that basic information cannot be obtained from raw data alone and must be summarized as much as possible by means of indicators. In this part of the research, the research variables are described before the statistical data analysis.

Table 2- Descriptive findings of Internet addiction							
Highest score	Lowest score	Standard deviation	Average	Number of samples	Status	Statistical groups	Variables
78	60	48/4	67/66	15	Pre-test	Experiment	Internet addiction
59	49	3/07	54/00	15	Post-test		
80	59	6/57	67/13	15	Pre-test	Control	
80	60	26/5	67/46	15	Post-test		

The research findings show that in the experimental group and in the pre-test condition, the average scores for Internet addiction were calculated to be 67.66 and 54.00 in the post-test phase. In the control group and in the pre-test condition, the average scores were calculated to be 67.13 and 67.46 in the post-test phase. The results of this section are graphically depicted in the chart below.

Research hypothesis: Teaching mindfulness skills has a positive effect on reducing Internet addiction in students.

The results of the research regarding the research hypothesis are given below.

Table 3 - Regression slope homogeneity results					
Source of changes	Sum of squares	Degree of freedom	Mean squares	F	Significance level
Corrected model	5/114	3	1/705	050/0	0/985
Fixed value	461/386	1	461/386	13/569	001/0
Statistical group	003/0	1	003/0	000/0	0/992
Internet addiction pre-test	2/544	1	2/544	075/0	0/787
Statistical group * Internet addiction pre-test	044/0	1	044/0	001/0	0/972
Error	884/086	26	34/003		
Total	137172/000	30			
Corrected Total	889/200	29			

According to Table 3, it can be seen that the significance level of the variable research group * Internet addiction pre-test is 0.972 and more than 0.05. This indicates that the assumption of regression homogeneity is met.

Table 4 - Homogeneity of variances			
F	Degree of freedom 1	Degree of freedom 2	Significance level
3/047	1	28	092/0

According to the level of significance, the above table shows 0.092 for the null hypothesis based on homogeneity of variance. I see that in the two groups, Control and Test, the null hypothesis is not rejected at the 5% level. As a result, the hypothesis of equal variances is rejected. I see it is confirmed.

Table 5-Test of between-subjects effects						
Source of changes	Sum of squares	Degree of freedom	Mean squares	F	Significance level	Effect size
Corrected model	1361/854	2	680/927	35/491	000/0	0/724
Fixed value	647/364	1	647/364	33/742	000/0	0/555
Internet addiction pre-test	1/721	1	1/721	090/0	0/767	003/0
Research group	1361/608	1	1361/608	70/970	000/0	0/724
Error	518/013	27	19/186			
Total	112536/000	30				
Corrected Total	1879/867	29				

Can be seen in the table above, there is a significant difference in the post-test Internet addiction scores of the entire experiment (the group that received mindfulness training) compared to the Internet addiction scores in the control group (the significance level is less than 0.05). As a result, according to the descriptive table and the tables above, the ability to perceive that female students of the first secondary school in Ardakan city who received mindfulness training have done so, towards students who did not receive mindfulness training, had lower Internet addiction scores compared to pre-test scores, and Internet addiction scores decreased. Overall, the observations show that mindfulness training has a significant effect on reducing Internet addiction in female first-year high school students in Ardakan city (72.4%).

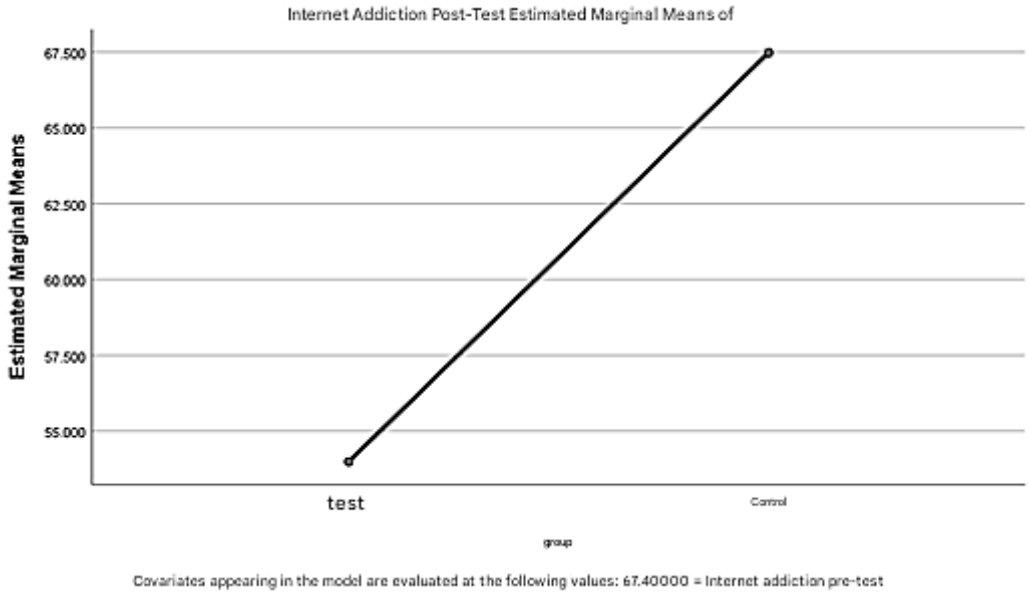

Figure 1- Difference in Internet addiction post-test scores in the experimental and control groups

Research and Conclusion

The present study aimed to investigate the effectiveness of mindfulness training on reducing Internet addiction among female junior high school students in Ardakan city. The findings of this study showed that mindfulness training can significantly improve the mental health of this age group. The results of statistical analyses indicated that students assigned to the experimental (mindfulness training) group experienced a significant reduction in their Internet addiction after the intervention period. These findings are consistent with previous research emphasizing the role of mindfulness in reducing Internet addiction.

The main finding of this study confirms that mindfulness skills training positively affects the reduction of Internet addiction levels in students. An independent t-test showed a significant difference between the mean post-test scores of Internet addiction in the experimental group (training recipients) and the control group. This demonstrates that mindfulness training significantly reduced Internet addiction in students.

Based on the results, it can be concluded that mindfulness skills training can serve as an effective intervention to reduce Internet addiction among students. These findings align with prior research in this field. Additionally, studies by Parvizi (2023) and Soltanmoradi and Samdeliriya (2023) have demonstrated the effectiveness of mindfulness training in reducing Internet addiction and increasing distress tolerance in students. These results further highlight that mindfulness reduces dependence on virtual spaces by strengthening self-monitoring and reducing avoidance behaviors.

The study by Tori et al. (2021) also indicates that mindfulness improves cognitive processing. Moreover, other studies, such as those by Ahmadi and Razavi (2022) and Norouzi et al. (2020), have noted the positive effects of mindfulness on reducing anxiety and enhancing concentration in adolescents. This evidence suggests that mindfulness training is effective not only in reducing Internet addiction but also in improving students' mental health and academic performance.

Finally, implementing mindfulness-based educational programs in schools could be considered by policymakers as a preventive and therapeutic strategy to address adolescents' psychosocial challenges, including virtual space addiction. Future studies should investigate the long-term effects of this training and compare its efficacy with other intervention methods.

Given the present study's results and the importance of students' mental health, schools can play a pivotal role in reducing Internet addiction and promoting psychological well-being. To this end, the following research recommendations are presented across seven key areas:

Integrating mindfulness training into curricula through short-term courses, embedding exercises in subjects, and teacher training via specialized workshops.

Creating suitable physical spaces, such as relaxation rooms and green areas, alongside leveraging educational technologies.

Raising awareness among stakeholders through parent workshops, support groups, and school media.

Collaborating systematically with mental health professionals, including expanding counseling services, implementing preventive programs, and partnering with treatment centers.

Managing Internet access intelligently by setting usage hours, content filtering, and promoting alternative activities.

Developing students' socio-cognitive skills through life skills workshops and safe spaces for emotional expression.

Establishing a continuous monitoring and evaluation system based on objective indicators, systematic data collection, and program revisions guided by findings.

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