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Effect of Mindfulness Training on Happiness, Emotion Regulation, and Psychological Capital in Students

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ABSTRACT

Objective: University students are increasingly at risk for emotional and psychological challenges that affect academic performance and personal well-being. Mindfulness-based interventions have shown promise in enhancing adaptive coping, emotional stability, and positive psychological traits. This study aimed to evaluate the effectiveness of mindfulness training on happiness, cognitive emotion regulation, and psychological capital in university students.

Methods and Materials: A quasi-experimental design with pre-test, post-test, and two-month follow-up was used. Thirty undergraduate psychology students from Islamic Azad University, Tehran South Branch, were selected via purposive sampling and randomly assigned to experimental (n = 15) and control (n = 15) groups. The experimental group received eight weekly 90-minute mindfulness sessions. Measures included the Oxford Happiness Questionnaire, the Cognitive Emotion Regulation Questionnaire (CERQ), and the Psychological Capital Questionnaire (PCQ-12). Data were analyzed using repeated measures ANOVA via SPSS v26.

Findings: The intervention group showed significant improvements in happiness, adaptive emotion regulation strategies, and psychological capital from pre-test to post-test and follow-up (p< 0.001). Additionally, maladaptive cognitive emotion regulation strategies significantly decreased in the experimental group. No significant changes were observed in the control group.

Conclusion: Mindfulness training effectively enhances emotional well-being and psychological resilience in university students. These findings support the integration of mindfulness-based practices into higher education settings to promote student mental health and academic success.

Keywords: Mindfulness, Cognitive Emotion Regulation, Happiness, Psychological Capital, University Students.

Introduction

Happiness is a concept that has significant and beneficial impacts on both individual and social aspects of human life. It enables individuals to focus on the positive dimensions of their lives, which in turn positively influences their mental health. Happiness is considered a vital part of life quality and ranks even higher than wealth (Choi, 2024). The feeling of happiness, as a positive emotional phenomenon, is essential for human beings and gives meaning to their lives. Positive emotions expand the scope of attention, thereby increasing mindfulness toward bodily and environmental conditions (Zhu et al., 2024).

According to studies in positive psychology, another factor affecting quality of life is cognitive emotion regulation (Ghaemi et al., 2018). Cognitive emotion regulation refers to the cognitive management and manipulation of emotionally evocative information. When confronted with stressful events, individuals employ various strategies to regulate or modify their emotional experiences (Zitzmann et al., 2024). These strategies have been extensively studied in theoretical and applied research and are categorized as either adaptive or maladaptive (Messina et al., 2024). Cognitive emotion regulation helps individuals manage their emotions effectively and avoid being overwhelmed by their intensity (Aldrup et al., 2024).

In this context, Garnefski et al., (2009) identified nine distinct cognitive emotion regulation strategies: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other-blame. Among these, other-blame, rumination, and catastrophizing are considered maladaptive strategies, while acceptance, refocus on planning, positive refocusing, positive reappraisal, and putting into perspective are seen as adaptive strategies as cited in (Tan et al., 2024).

Another construct in the realm of positive psychology is psychological capital, which concerns individuals' adaptability to life's demands and threats. Psychological capital has gained particular importance in developmental psychology, family psychology, and mental health (Ren et al., 2024). Enhancing psychological capital is one way to prevent the emergence of psychological and behavioral problems. A high level of psychological capital allows individuals to maintain optimal mental well-being and to manifest this capacity through adaptive and effective behaviors. The greater the psychological capital, the better the individual can preserve their mental and behavioral health and resolve problems in a positive, adaptive, and efficient manner (Gupta et al., 2025). Psychological capital plays a critical role in promoting well-being across physical, psychological, and social dimensions (Song & Song, 2024). Moreover, psychological capital, as a form of mindfulness-related capacity, can help students develop positive learning behaviors and achieve academic success (Wang, 2024).

One of the most important predictors of student success or failure in academic adjustment is psychological capital. In fact, students who are more hopeful, optimistic, resilient, and possess higher self-efficacy and well-being tend to show greater flexibility in adapting to university life (Iqbal et al., 2024). Since psychological capital is regarded as a positive psychological state of growth—defined by one's belief in their ability to succeed, perseverance in pursuing goals, creating positive attributions about the self, and the ability to endure difficulties—it can be used as an effective perspective for addressing students' everyday problems. Individuals with high psychological capital are more resilient to stress and better able to maintain psychological and physical well-being and happiness under pressure. Hope, self-efficacy, resilience, and optimism—when integrated within the central construct of psychological capital—form a stable combination of resources and mechanisms that promote psychological well-being (Iqbal et al., 2024).

Among the techniques promoted by modern positive psychology is mindfulness training. This approach emphasizes present-moment awareness—without ruminating on the past or worrying about the future—and offers a constructive way to address life stressors that may lead to anxiety and depression (Tseng et al., 2023). Through combining well-being with the acceptance of experiences and events, mindfulness contributes to happiness and mental well-being by inducing positive emotional states (Zia, 2022).

Methods and Materials

Research Design

This study is applied in terms of purpose and experimental in nature. The research design was quasi-experimental with a pre-test, post-test, and follow-up. The statistical population of the present study included all first-semester undergraduate psychology students at Islamic Azad University, Tehran South Branch, in the 2024-25 academic year, which was reported to be 700 students. To calculate the sample size in this study, GPower software version 3.1 was used. This software is a practical and simple statistical tool suitable for calculating sample size, effect size, and power in research. It is free and easily estimates the required sample size using Cohen's method. Cohen's method is a statistical approach for calculating sample size, which increases the test's power for estimating the necessary sample size depending on the test's nature. This method has high estimation accuracy, resulting in more precise and reliable data analysis.

In this method, the effect size index is used to determine the impact power of independent variables. According to Cohen, (1988), this index varies based on the type of test and is defined as small, medium, and large effect sizes. To determine test power, values between 0.80 and 0.95 can be selected, with 0.80 being the minimum recommended level. The higher the power, the stronger the test. In addition to power, the confidence level is also important and should be set between 0.95 and 0.99, which corresponds to a Type I error (alpha) between 0.05 and 0.01. It should be noted that alpha error is usually less than or equal to beta error. Ultimately, the required sample size was calculated as 30 participants.

Thirty participants were selected using purposive non-random sampling and then randomly assigned to two groups (15 participants in each group): experimental group (mindfulness training) and control group.

The inclusion criteria were: (1) age between 18 to 25 years, (2) undergraduate psychology students, (3) not receiving psychological treatment in the past three months, and (4) no serious physical illness. The exclusion criteria included unwillingness to continue participation and absence from more than two intervention sessions.

Instruments

Oxford Happiness Questionnaire: To assess the level of happiness, the Oxford Happiness Questionnaire was used. Argyle & Crossland, (1987) defined happiness operationally in three main components: frequency and intensity of positive affect or pleasure, average satisfaction level over a period, and absence of negative emotions such as depression and anxiety. Argyle & Crossland, (1987) reversed 21 items from the Beck Depression Inventory and added 11 new items to cover other aspects of subjective well-being. The final version included 29 multiple-choice items rated on a four-point scale, allowing respondents to evaluate themselves from a state of unhappiness to great happiness. The components of the Oxford Happiness Questionnaire include: Self-esteem (Items: 1, 6, 10, 13, 14, 19, 23, 24), Life satisfaction (Items: 3, 9, 12), Joy (Items: 11, 15), Peace (Items: 18, 20, 21, 25), Control (Items: 2, 4, 7, 16, 27) and Efficiency (Items: 8, 17, 22, 26, 28, 29). High correlations have been reported between this tool and friend evaluations, personality dimensions, social support, and stress. Cronbach's alpha for this scale in a cross-cultural study involving students from Australia, the USA, Canada, and the UK was between 0.89 and 0.90 Francis et al., (1998) cited in Najafi & Jafari, (2015). Argyle et al., (1989) reported a test-retest reliability of 0.78 after six weeks and 0.67 after five months. Alipour & Nourbala, (1999) reported Cronbach's alpha at 0.98, split-half reliability at 0.92, and test-retest reliability after three weeks at 0.79. In a study by Abedi, (2006), the correlation with the Fordyce Happiness Questionnaire in a sample of 727 was 0.73. Factor analysis identified six factors—life satisfaction, joy, self-esteem, peace, control, and efficiency—explaining 74.36% of the total variance. The Cronbach's alpha in the present study was 0.874.

Cognitive Emotion Regulation Questionnaire (CERQ): Developed by Garnefski et al., (2002), this multidimensional questionnaire is used to identify individuals' cognitive coping strategies after experiencing negative events or situations. Unlike other coping questionnaires that do not distinguish between individuals and their real actions, this questionnaire evaluates the thoughts of a person after experiencing negative or traumatic events. It is a self-report tool with 36 items rated on a five-point Likert scale. The questionnaire includes nine subscales: Self-blame, Acceptance, Rumination, Positive refocusing, Refocus on

planning, Positive reappraisal, Putting into perspective, Catastrophizing, and Other-blame. Adaptive strategies include: Putting into perspective, Positive refocusing, Positive reappraisal, Acceptance, and Refocus on planning. Maladaptive strategies include: Self-blame, Other-blame, Rumination, and Catastrophizing. The Persian version was developed by (Hasani & Miraghaie, 2012). Internal consistency of subscales ranged from 0.76 to 0.92, test-retest reliability from 0.51 to 0.77, and criterion validity through correlation with Beck's Depression Inventory ranged from 0.25 to 0.48. Construct validity using principal component analysis and Varimax rotation explained 74% of the total variance. In studies by Besharat et al., (2015), psychometric properties including internal consistency, reliability, and content, convergent, and discriminant validity were acceptable. Cronbach's alpha coefficients in the present study ranged from 0.88 to 0.91.

Psychological Capital Questionnaire (PCQ-12): To measure psychological capital, the 12-item questionnaire by Lorenz et al., (2016) was used. It consists of four subscales: Hope (Items 1–3), Optimism (Items 4–6), Resilience (Items 7–9) and Self-efficacy (Items 10–12). Each subscale has three items rated on a 6-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (6). Subscale scores range from 3 to 18, with the total score ranging from 12 to 72. The final score is calculated by summing the four subscales. Lorenz et al., (2016) confirmed the questionnaire's construct validity via factor analysis with fit indices of CFI = 0.96 and RMSEA = 0.04. Convergent validity with Luthans et al., (2015) 24-item PCQ was significant. Reliability estimates in Iranian studies by Mansouri & Lorenz, (2025), Shaban et al., (2025) showed acceptable Cronbach's alphas ranging from 0.62 to 0.75 for subscales and 0.87 for the total scale. In the present study, the Cronbach's alpha was 0.901.

Mindfulness Training

The mindfulness intervention was held over eight weekly sessions, each lasting 90 minutes, and included topics such as introduction, meditation, mindfulness techniques for behavior, thoughts, and emotions. Each session involved in-class exercises and home practices.

Procedure

From among the first-semester psychology students, 30 participants were selected based on inclusion criteria and randomly assigned to two groups of 15. In the next step, participants completed the research questionnaires, and pre-test scores were recorded. Then, the experimental group received mindfulness training over eight 90-minute sessions. The control group received no intervention and remained on a waiting list. After the training sessions concluded, post-tests were administered using the same instruments. Two months later, follow-up assessments were conducted, and all participants completed the same questionnaires. Interventions were conducted by the researcher under the supervision of the academic advisor. After the post-test and follow-up stages, the control group was provided with two consultation sessions for debriefing purposes.

Data Analysis

Descriptive statistics (frequency, percentage, mean, standard deviation) were used to analyze demographic data and describe predictor variables. Cronbach's alpha and construct validity methods were used to assess reliability and validity of the instruments. Repeated measures ANOVA was used to test the study hypotheses using SPSS version 26.

Findings and Results

The mean ± standard deviation of the participants' age in the mindfulness training group was 22.2 ± 1.79; and in the control group, it was 21.06 ± 1.70. In terms of gender, the mindfulness group included 8 males (53%) and 7 females (47%). In the control group, 6 participants (40%) were male and 9 (60%) were female. As shown in the table above, statistical tests revealed that there were no significant differences between the groups regarding demographic variables.

Table 1

Comparison of Mean and Standard Deviation of research variables in the Three Groups at Three Time Points (Pre-test, Post-test, and Follow-up)

Variable	Group	Pre-test M (SD)	Post-test M (SD)	Follow-up M (SD)
Happiness	Mindfulness Training	36.4 ± 3.46	45.6 ± 3.75	45.5 ± 3.79
	Control	37.3 ± 5.13	37.6 ± 4.82	37.4 ± 4.71
Adaptive Strategies	Mindfulness Training	16.7 ± 2.31	26.7 ± 4.39	26 ± 4.08
	Control	17.4 ± 3.20	18.8 ± 2.59	18.1 ± 2.38
Maladaptive Strategies	Mindfulness Training	28.2 ± 2.68	17.9 ± 2.71	18.6 ± 3.17
	Control	29.09 ± 2.38	28.4 ± 1.94	29.2 ± 1.86
Psychological Capital	Mindfulness Training	37.9 ± 6.85	53.5 ± 6.03	52.4 ± 6.12
	Control	38.9 ± 6.90	39.5 ± 7.24	38.8 ± 6.76

To assess the normality of variables for appropriate test application, the Shapiro-Wilk test was used. As shown in the table, the significance levels for most subcomponents were greater than 0.05, confirming normal distribution.

Table 2

MANOVA Significance Test Results for the Study Groups

Test Name	Value	F	df1	df2	Sig.	Eta Squared
Pillai's Trace	0.866	87.3	2	27	0.001	0.866
Wilks' Lambda	0.134	87.3	2	27	0.001	0.866
Hotelling's Trace	6.46	87.3	2	27	0.001	0.866
Roy's Largest Root	6.46	87.3	2	27	0.001	0.866

As the information in Table 2 shows, after controlling for pre-test effects, Wilks' Lambda was significant at the 0.01 level (Wilks' Lambda = 0.134, F = 87.3, p = 0.001, Eta^2 = 0.866). In other words, it can be claimed that there was a significant difference between the experimental and control groups in the variables under study. The large effect size (Eta squared = 0.866) suggests that 86.6% of the simultaneous variance in the dependent variables was related to group membership.

Table 3

Summary of One-Way ANOVA for Within-Group and Between-Group Effects

Variables	Source of Variation	SS	df	MS	F	Sig.	Effect Size
Happiness	Group	577.6	1	577.6	10.7	0.003	0.27
	Time	432.6	1.07	401.3	159.3	0.001	0.85
	Time × Group	396.06	1.07	367.4	149.9	0.001	0.83
Adaptive and	Group	372.1	1	372.1	6.06	0.020	0.17
Maladaptive Strategies	Time	2684.3	1.92	1395.8	94.7	0.001	0.77
	Time × Group	958.5	1.92	498.4	33.8	0.001	0.54
	Group	1777.7	1	1777.7	13.6	0.001	0.32
Psychological Capital	Time	1128.6	1.63	725.4	402.9	0.001	0.93
	Time × Group	1100.5	1.63	675.1	374.9	0.001	0.93

Repeated measures ANOVA using the Greenhouse-Geisser correction showed that the main effect of time was significant (p<0.001). This means that the scores for happiness, adaptive and maladaptive strategies and psychological capital across time points (pre-test, post-test, and follow-up) differed significantly regardless of group. The interaction between group and time was also significant (p = 0.001), indicating that the change in happiness, adaptive and maladaptive strategies and psychological capital scores over time was different across groups.

According to the results of the Bonferroni test, there was no significant difference between the intervention and control groups in the pre-test for happiness (p>0.05); however, in the post-test, a significant difference was observed between the intervention and

control groups across all variables (p<0.05). Similarly, the Bonferroni test results for the pre-test showed no significant differences between the groups in the components of cognitive emotion regulation (p>0.05); however, in the post-test, significant differences were reported between the intervention and control groups in all variables (p<0.05). Furthermore, based on the Bonferroni test results, no significant difference was observed between the groups in the pre-test for psychological capital (p > 0.05); however, in the post-test, significant differences were reported between the mindfulness group and the control group in all variables (p < 0.05).

Discussion and Conclusion

The results indicated that mindfulness training was effective in enhancing students' happiness. This finding aligns with the results of previous studies conducted by (Zia, 2022; Bagheri & Gharehbaghi, 2019; Moghaddam et al., 2025; Zandi et al., 2021; Hoseininezhad et al., 2025; Mahmoudi et al., 2024; Sarkeshikiyan & sadat Sarkeshikiyan, 2024; Alipour et al., 2021; Terikani et al., 2025; Demir et al., 2024; Bajaj et al., 2019; Harnkijroong, 2024; Khoury, 2023; Peixoto & Gondim, 2020), and (Malinowski & Lim, 2015).

To explain the effectiveness of mindfulness on happiness, it can be said that mindfulness, at a fundamental level, is described as a quality of consciousness rooted in intentional attention. Mindfulness refers to therapeutic approaches based on behavioral shaping techniques and procedures aimed at changing maladaptive beliefs. The main goal of mindfulness is to raise awareness of the effects of recurring automatic mental processes through self-monitoring and to remain in a mindful state of being. Through repeated exercises that purposefully direct attention to a neutral object (such as the flow of breath), individuals learn to observe their thoughts, feelings, or bodily sensations. Mindfulness enables individuals to perceive internal and external realities freely and without distortion, allowing them to effectively engage with a wide range of pleasant and unpleasant thoughts, emotions, and experiences (Fresco & Mennin, 2019).

Mindfulness, as part of psychotherapy methods such as cognitive therapy, helps individuals identify and change their thoughts. Training attention flexibility,

mental enrichment, stopping rumination, correcting false positive and negative beliefs, and challenging negative beliefs related to emotions reduce self-incongruence. This treatment method, by focusing on the present moment and attending to positive events, helps individuals pay less attention to negative thoughts, reduce rumination, overcome anxiety, and increase their happiness (Hensley, 2020).

Furthermore, mindfulness helps individuals focus not on the distressing possibilities of the future but on the here and now, encouraging them to experience the present without prejudice. As a result, participants begin to release themselves from a future-oriented mindset and allow themselves to observe the living, sensory world around them (Pinhas-Hamiel et al., 2015). Mindfulness enables individuals to distance themselves from the contents of their minds and feelings. They learn not to identify with their thoughts and realize that thoughts are just thoughts—not facts. As thoughts lose their power, anxiety and worry also diminish. Any attempt to stop worrying only increases it. Becoming more mindful allows individuals to change their relationship with their thoughts, become more compassionate and accepting rather than rejecting them (Bosse, 2021). In mindfulness-based therapy, during practices such as breathing meditation, body scan meditation, and conflict meditation, negative thoughts may arise, but individuals are trained to face these thoughts without judgment and continue their practice. Over time, this process helps the mind become less occupied with negative thoughts, which in turn enhances happiness (Lewis et al., 2023).

The findings also indicated that mindfulness training significantly improved cognitive emotion regulation among students. This result is consistent with studies by (Zia, 2022; Bagheri & Gharehbaghi, 2019; Moghaddam et al., 2025; Zandi et al., 2021; Hoseininezhad et al., 2025; Mahmoudi et al., 2024; Sarkeshikiyan & sadat Sarkeshikiyan, 2024; Alipour et al., 2021; Terikani et al., 2025; Demir et al., 2024; Bajaj et al., 2019; Harnkijroong, 2024; Khoury, 2023; Peixoto & Gondim, 2020), and (Malinowski & Lim, 2015).

This may be explained by the fact that individuals familiar with mindfulness therapy techniques gain greater control over situations and become more capable of accepting and letting go of events beyond their control while also increasing their cognitive flexibility. The

mechanism of mindfulness, by utilizing focused breathing, positively influences emotion regulation. The unique feature of mindfulness is that it raises awareness about the roots of psychological disorders and their neural mechanisms, preventing anxiety by focusing attention on thoughts and impulses during wakeful awareness. It enables individuals to avoid compulsively repeating behaviors or thoughts as a way of reducing anxiety.

In people with physical symptoms, mindfulness training leads to cognitive changes in thinking patterns and behavior and benefits from principles of operant conditioning. Individuals are encouraged to progress step by step and envision themselves at a higher level, thereby continuously striving toward gradual self-improvement. Through calm and awareness, they engage in self-healing and resolve personal issues during face-to-face sessions (Bagheri & Gharehbaghi, 2019). Mindfulness, through step-by-step, nonjudgmental moment-to-moment awareness, enhances self-regulation, self-control, and self-monitoring of behavior, guiding individuals toward recovery. Mindfulness-based cognitive therapy allows individuals to observe their bodily sensations, thoughts, perceptions, and emotions without judgment, helping them understand that thoughts do not necessarily reflect reality (Demir et al., 2024).

The results also indicated that mindfulness training positively influenced students' psychological capital. This finding is consistent with previous research conducted by (Zia, 2022; Bagheri & Gharehbaghi, 2019; Moghaddam et al., 2025; Zandi et al., 2021; Hoseininezhad et al., 2025; Mahmoudi et al., 2024; Sarkeshikiyan & sadat Sarkeshikiyan, 2024; Alipour et al., 2021; Terikani et al., 2025; Demir et al., 2024; Bajaj et al., 2019; Harnkijroong, 2024; Khoury, 2023; Peixoto & Gondim, 2020), and (Malinowski & Lim, 2015).

Mindfulness, as a concept, is related to awareness and consciousness rooted in the here and now. When combined with a nonjudgmental attitude, sustained attention, and mental openness, it leads to a pain-free,

impersonal insight. Fully conscious and aware experiences contribute to the sustainable development of essential experiences. Mindfulness is a way of establishing a more meaningful connection with life, increasing well-being by regulating unpleasant emotional states and preventing the instability of emotions and feelings. It allows thoughts and emotions to enter the mind freely without judgment or suppression. By avoiding the tendency to escape from painful thoughts and emotions, mindfulness enables individuals to stay present with their actual experiences—even unpleasant ones—facilitating acceptance, adaptability, and relief from distress (Zandi et al., 2021).

In this study, data were collected through self-report questionnaires. The responses were assessed based on participants' self-perception and honesty. Self-reporting inherently contains limitations such as inattention, carelessness, judgment errors, or misinterpretation of instructions, all of which may affect the study results. The inability to control all sample participants during the interval between pre-test, post-test, and follow-up, as well as the possible sensitization of the sample group, might have restricted the generalizability of the findings. To enhance future research, it is recommended to utilize additional data collection methods such as interviews and observations. Future studies should also consider moderating variables such as subcultural influences and socioeconomic conditions.

It is further recommended that subsequent studies include different age groups and participants from other social and educational settings. Given the impact of mindfulness intervention, psychologists are encouraged to employ this treatment extensively to improve happiness, emotion regulation, and psychological capital. Based on the findings of the current study, it is advised that mental health professionals and those active in the field of public health adopt and implement appropriately designed methods inspired by these approaches to promote happiness, cognitive emotion regulation, and psychological capital among students.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Ethical considerations in this study were that participation was entirely optional.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contribute to this study.

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