

Effectiveness of Mindfulness Training to Enhance Emotion Regulation Abilities of High School Adolescents at SMA X, Bojonegoro

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ABSTRACT: This study aimed to evaluate the impact of mindfulness training on emotion regulation among adolescents at SMA X Bojonegoro. Mindfulness is defined as a practice of non-judgmental, present-moment attention that enables individuals to recognize their emotions and respond in a calmer and more appropriate manner to situational demands. An experimental design was employed, involving two groups: a mindfulness training group and a control group. Data were collected from 14 adolescents with low emotion regulation skills using the 37-item Emotion Regulation Scale developed by Gross (2007). Results indicated that mindfulness training significantly improved emotion regulation abilities in the training group, as evidenced by pre- and post-intervention score comparisons. These findings underscore the importance of mindfulness training as a tool to support adolescents in regulating emotions without altering their situational awareness or appraisal. This insight may inform the development of effective programs that integrate mindfulness as a primary technique.

KEYWORDS: Mindfulness, Emotion Regulation, Adolescents, Mindfulness Training, Mental Health

I. INTRODUCTION

Developmental tasks do not end during any phase of an individual's life. For instance, Hilmy et al. (2020) state that one of the primary tasks of adolescence is achieving emotional autonomy or maturity, which enables adolescents to respond to their emotions more stably in any situation. Furthermore, how adolescents regulate their emotions is part of the "rebellion period," often regarded as a "process toward maturity" (Hilmy et al., 2020). Emotion regulation, defined as the ability to manage one's emotional responses when facing stress, is among the most critical skills adolescents need to develop. It plays a significant role in their psychological and social development (Gross & Thompson, 2007).

Diananda (2018) reported that adolescence is often marked by emotional turmoil, characterized by frequent mood swings and internal conflicts. Hormonal changes and cognitive development during this period tend to cause emotional instability. Kaligis et al. (2021) further observed that adolescents who struggle to regulate their emotions effectively are more likely to experience mental health issues such as anxiety, depression, and behavioral disorders. In defining emotion regulation, Eisenberg et al. (2002) describe it as an individual's capacity to control and adjust the intensity of their emotions in response to social demands. Adolescents with poor emotion regulation often face difficulties in performing developmental tasks and building positive relationships (Santrock, 2010). Cole et al. (2004) add that emotion regulation processes may operate either consciously or unconsciously.

This research found that poor emotion regulation negatively impacts adolescents. For example, a study by Takwati (2019) revealed that inadequate emotion regulation often leads to maladaptive behaviors such as substance misuse, self-harm, and delinquent acts. Another study showed that adolescents who struggle to regulate their emotions tend to rely on maladaptive coping strategies, manifesting in both external behaviors and internal behaviors like self-harm. A meta-analysis conducted by Aldao et al. (2010) also indicated that unhealthy coping strategies—such as rumination or emotion suppression—are closely linked to mental health disorders like depression and bipolar disorder. It was also found that restrictive practices and excessive rumination exacerbate the severity of depressive and anxious symptoms. Data from multiple studies confirm that emotion regulation serves as a transdiagnostic factor across various internalizing and externalizing disorders. This is also evident in non-suicidal self-injury (NSSI), which is strongly associated with dysfunctional emotion regulation, resulting in reduced adaptive regulation and increased emotional symptomatology.

Various approaches have been proven effective in helping individuals improve emotion regulation, and mindfulness is among the most commonly used. Kabat-Zinn (2003) first introduced mindfulness, defining it as deliberately focusing on the present moment without judgment. Building upon this, Baer (2003) described mindfulness as the ability to observe both internal and external experiences in a nonjudgmental manner. Bishop et al. (2004) identified two pivotal elements: directing attention to current experiences and maintaining a mindset of curiosity, receptivity, and acceptance towards observations. Likewise, Segal et al. (2002)

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examined mindfulness in the realm of preventing depression, highlighting the importance of being present without avoidance, judgment, or attempts to alter the present moment. This method enables individuals to identify negative thought patterns that could trigger depressive episodes and offers the mental space needed to change their perspective on emotional encounters.

Research by Yusainy et al. (2018) shows that mindfulness helps adolescents become more aware of and accepting toward their emotions without judgment. This reduces anxiety and stress while enhancing emotion regulation skills. Moreover, mindfulness creates space for individuals to respond logically and constructively to emotions, thereby avoiding harmful emotional reactions (Neff, 2003). Mindfulness programs like Learning to BREATHE, developed by Broderick (2013), have been tested and found effective in improving adolescents' emotion regulation and emotional well-being. This program teaches mindfulness exercises that increase bodily and breathing awareness and promote acceptance of thoughts and feelings. Broderick (2013) reported that it effectively reduced anxiety, stress, and emotional tension among adolescents, while improving their overall well-being.

However, despite these benefits, a major challenge in implementing mindfulness is resistance from adolescents themselves. Many teenagers are skeptical of these techniques, perceiving them as unfamiliar or difficult to integrate into daily life. Therefore, designing mindfulness training programs that are accessible and attuned to adolescents' challenges is essential. Anggareni (2021) found that adolescents who are more mindful and accepting of their emotions are more likely to resist impulsive reactions and respond to stress in healthier ways. Moreover, some existing programs lack clear guidance for adolescents navigating emotional challenges both at school and in everyday contexts.

Enhancing emotion regulation is crucial for adolescent development as it impacts academic performance, social relationships, and mental health. Mindfulness has become a valuable intervention by fostering emotional awareness and self-management of challenging emotions. Pioneering socio-cognitive mindfulness expert Ellen Langer (1989) emphasizes the significance of active "noticing" to interrupt automatic reactions, facilitating more adaptable responses by fostering present moment awareness. Focused on mindful behavior and emotional awareness, researcher Amanda Sheffield Morris (2007) asserts that when parents demonstrate these skills, children are more likely to develop robust self-regulation abilities, evolving into adolescents who can identify and thoughtfully respond to their emotions. Programs like Learning to BREATHE offer structured mindfulness interventions that have shown to enhance attentional control, emotional clarity, and reduce stress and psychosomatic symptoms in adolescents. Building on these insights and frameworks, this study aims to assess the impact of the Learning to BREATHE program on emotion regulation skills among students at SMA X Bojonegoro. Positive results from this study could advocate for the wider implementation of structured mindfulness training in schools to bolster emotional resilience and well-being among adolescents.

II. METHODS

This study used a quantitative approach, which focuses on collecting numerical data and analyzing it statistically (Azwar, 2017). An experimental design with a control group was implemented to examine the effectiveness of mindfulness training in improving emotion regulation among adolescents. The sample consisted of 14 students from SMA X Bojonegoro, aged 15–17 years, all exhibiting low emotion regulation skills. Participants were divided into two groups: seven in the experimental group and seven in the control group. Emotion regulation was measured using a 37-item Emotion Regulation Scale based on Gross's (2007) theory. This scale covered four dimensions: regulation strategy, emotional response control, emotional acceptance, and goal-oriented behavioral management, assessed via a five-point Likert scale.

The intervention used was the Learning to BREATHE program developed by Broderick for adolescents. It consisted of six 60-minute sessions delivered across three meetings (two sessions per meeting) that included breathing exercises, body awareness, and adaptive responses to stress and anxiety. The data analysis procedure included organizing data by variables and respondents, tabulation, and presentation. A Mann–Whitney U test was conducted to compare gain scores between the experimental and control groups post-intervention. Results with Asymp. Sig. < .05 were considered statistically significant. Additionally, the Wilcoxon Signed-Ranks Test was applied within each group, where $p < .05$ indicated a significant difference and $p > .05$ indicated no significant change.

III. RESULT

A Mann–Whitney U test was conducted to evaluate whether there was a significant difference in gain scores on the Emotion Regulation Scale between the mindfulness training group (experimental) and the control group. Descriptive statistics are shown in Table 1.

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Table 1. Descriptive Analysis of Emotion Regulation Gain Scores

	Group	N	Mean Rank	Sum of Ranks
Emotion Regulation	Experimental (mindfulness)	7	10,86	76,00
	Control	7	4,1	29,00

Source: Statistical Output Program SPSS Series 20 IBM for Windows

Each group consisted of seven participants ($n = 7$). The experimental group had a mean rank of 10.86, which is much higher than the control group's mean rank of 4.14. This indicates that the average rank of all scores is higher in the experimental group, suggesting stronger or higher scores. The sum of ranks also shows a significant difference: 76.00 for the experimental group and 29.00 for the control group. These values indicate that participants who took part in the mindfulness training tended to have higher emotion regulation gain scores compared to those in the control group.

Table 2. Mann–Whitney U Test Results

Emotion regulation	-3.009	.003
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Source: Statistical Output Program SPSS Series 20 IBM for Windows

The Mann–Whitney U test indicated a significant difference in emotion regulation gain scores between the experimental and control groups ($z = -3.009$, $p = .003$). A p-value of .003 provides strong evidence to reject the null hypothesis, indicating that the two groups differ significantly in their emotion regulation improvement. Given the standard statistical threshold ($\alpha = .05$), this result clearly surpasses the significance criterion.

The negative z value shows that the experimental group consistently achieved higher rank scores than the control group. In rank-based tests like the Mann–Whitney U, higher mean ranks reflect better performance—in this case, greater emotion regulation gains.

A Wilcoxon Signed-Ranks Test is a comparative test used to determine whether there is a significant difference between pre-intervention and post-intervention scores within each group—both experimental and control. Each group consists of paired scores from pretest and posttest measurements. The interpretation criteria for the Wilcoxon Signed-Ranks Test are as follows: If the Asymp. Sig. value is < 0.05 , the hypothesis is accepted (indicating a significant difference). If the Asymp. Sig. value is > 0.05 , the hypothesis is rejected (indicating no significant difference).

Table 3. Descriptive Statistics for Pre- and Posttest Scores

Keterangan		N	M	SD	Min	Max
Experimental	PreTest	7	83,00	3.109	76	85
	PostTest	7	118.43	15.480	100	140
Control	PreTest	7	77.43	10.952	57	85
	PostTest	7	73.14	12.280	55	89

Source: Statistical Output Program SPSS Series 20 IBM for Windows

From the descriptive analysis shown in Table 3, the experimental group had a mean emotion regulation score of 83.00 ($SD = 3.11$) before the intervention, which increased to 118.43 ($SD = 15.48$) after the training. This substantial gain indicates that participants in the mindfulness training group experienced marked improvements in emotion regulation following the intervention. In contrast, the control group's mean score declined from 77.43 ($SD = 10.95$) at pretest to 73.14 ($SD = 12.28$) at posttest, suggesting a decrease in emotion regulation without intervention.

Table 4. Wilcoxon Signed-Ranks Test Results

Group	Z	P
Experimental	-2.366	.018
Control	-1.103	.270

Source: Statistical Output Program SPSS Series 20 IBM for Windows

A Wilcoxon Signed-Ranks Test was conducted to evaluate these within-group changes. For the experimental group, the results showed a statistically significant increase ($z = -2.366$, $p = .018$), confirming that the mindfulness intervention led to significant improvements in emotion regulation. The negative z value indicates that posttest scores were consistently higher than pretest scores.

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Conversely, the control group did not show a significant change ($z = -1.103$, $p = .270$), indicating no meaningful improvement over time.

IV DISCUSSION

This study investigated the effectiveness of the Learning to BREATHE mindfulness training in enhancing emotion regulation among adolescents. The findings show that adolescents in the experimental group achieved significantly greater improvements in emotion regulation compared to their counterparts in the control group. A two-sample t-test confirmed this difference, supporting the hypothesis that mindfulness training leads to measurable emotional resilience in youth—a result consistent with Anggareni (2021).

Gross (2007) defines emotion regulation as the ability to monitor and control emotional responses to achieve set goals. Adolescents lacking these skills are at increased risk for psychological issues such as anxiety, depression, impaired social interaction, and concentration problems (Kaligis, 2021). Poor emotion regulation has also been linked to impulsive behavior, interpersonal conflict, and lower self-confidence. Santrock (2010) argues that it is crucial for adolescents to learn emotion regulation skills to navigate life's complexities.

Mindfulness, as defined by Kabat-Zinn (2001), involves observing one's emotions in a nonjudgmental manner, fostering self-awareness and open acceptance. This mechanism empowers adolescents to respond to emotional triggers with greater composure. Neff (2003) similarly highlights that mindfulness training is effective in reducing stress and anxiety while enhancing overall emotional well-being. In our study, adolescents who received the Learning to BREATHE intervention reported heightened emotional awareness and an enhanced ability to respond to worry without panic.

The efficacy of our intervention is further supported by observable decreases in physiological tension through relaxation and body-awareness techniques. Such outcomes reinforce Thompson's (1994) assertion that emotion regulation is essential to adolescents' emotional resilience and social adjustment. In fact, neuroimaging studies reveal that mindfulness strengthens neural pathways associated with attention and emotional inhibition, particularly in regions such as the anterior cingulate cortex and prefrontal cortex, which supports these behavioral observations.

Our results align with broader empirical literature. Metz et al. (2013) demonstrated that the Learning to BREATHE program significantly reduced perceived stress and psychosomatic complaints, while increasing effectiveness in emotion regulation among high school students. Additionally, recent pilot studies of online mindfulness interventions with adolescents during the COVID-19 pandemic revealed significant reductions in psychiatric symptoms and improvements in coping strategies, particularly among moderate-risk youth.

Analysis revealed no significant change in the control group. Without mindfulness training or similar interventions, adolescents' emotion regulation may plateau or decline. Gratz and Roemer (2004) highlight the importance of skills like recognizing, understanding, and accepting emotions in adolescent populations. Further, mindfulness promotes acceptance of feelings without judgment, which can prevent impulsive or inappropriate reactions. Consequently, mindfulness not only assists in managing negative emotions but also enhances adolescents' ability to focus on tasks and reduces emotional difficulties that can impair performance (Kabat-Zinn, 2003).

Post-training evaluations showed that most participants reported improved emotion control and heightened self-awareness during activities. These outcomes align with Broderick (2013), who demonstrated that mindfulness enhances adolescents' social and emotional capacities and supports daily stress management. Thus, this intervention appears to be effective in strengthening emotional regulation, aiding stress coping, and promoting mental well-being in adolescents. Together, these findings show that structured mindfulness interventions such as Learning to BREATHE can fortify psychological resilience by promoting emotional clarity, stress reduction, and self-regulation in adolescents, which has important implications for school and clinical practices.

V. CONCLUSIONS

Based on this study, we conclude that mindfulness training is beneficial for enhancing emotion regulation among adolescents at SMA X Bojonegoro. This conclusion is supported by the clear difference in pretest and posttest scores between the experimental and control groups. The mindfulness intervention resulted in emotional benefits for participants, enabling them to respond adaptively to worry and improving their overall well-being. These findings indicate that mindfulness can serve as an effective therapeutic tool for improving emotion control in adolescents. Emotion regulation plays a critical role in adolescent development, and without it, youths may face substantial difficulties in the future. Our results suggest that mindfulness training has the potential to transform maladaptive behavior, particularly in adolescents who struggle with emotional management. In contrast, the control group showed no significant change during the intervention, underscoring the importance of targeted mindfulness training in developing emotional skills in this age group.

These findings are supported by broader research showing that mindfulness-based interventions improve emotion regulation and psychological resilience in adolescents. Mindfulness enhances adolescents' ability to manage stress, reduce anxiety and depression,

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and promote mental well-being through improved emotional self-regulation. In light of these results, we recommend incorporating structured mindfulness programs—such as Learning to BREATHE—into educational and clinical settings to strengthen emotional resilience and support mental health in adolescents. Future studies should replicate these findings with larger samples and explore long-term effects to further establish mindfulness as a sustainable approach to adolescent emotional development.

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