

# IMPACT OF ECO-ART THERAPY ON MINDFULNESS AND RESILIENCE IN ADOLESCENTS

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Received: 12/5/2025

Revised: 23/6/2025

Accepted: 28/6/2025

Published: 30/12/2025

## Abstract

The present study examines the effect of eco-art therapy on mindfulness and resilience among adolescents. Twelve participants (4 males, 8 females) engaged in a structured eco-art therapy intervention, and pre- and post-test measures were collected using the Toronto Mindfulness Scale (Curiosity and Decentering subscales) and the Brief Resilience Scale. Data were analyzed using descriptive statistics, Shapiro-Wilk normality tests, paired-sample t-test, and Cohen's d to evaluate the magnitude of change. Normality test indicated that the variables are normally distributed. Paired-sample t-test revealed a significant increase in curiosity and resilience, while decentering showed a small, non-significant increase. The results suggest that eco-art therapy effectively enhances aspects of mindfulness and resilience, particularly promoting openness, present-moment awareness, and adaptive coping. The findings highlight the therapeutic potential of nature-based creative interventions for adolescent mental well-being and provide a foundation for future research on longer or more intensive interventions to strengthen all components of mindfulness.

**Keywords:** Eco-art therapy, Mindfulness, Resilience, Adolescents

## Introduction

Adolescence is a critical developmental stage characterized by rapid physical, cognitive, and emotional changes (Gaete, 2015; Maldonado *et al.*, 2013; Santre, 2022). During this period, individuals are often more vulnerable to stress, anxiety, and identity-related challenges (Maldonado *et al.*, 2013). Recent environmental shifts, such as increased availability of virtual platforms and excessive screen time, have negatively impacted adolescents' mental well-being (Santos *et al.*, 2023), leading to reduced engagement with the natural environment. This concern is particularly relevant in regions like Kerala, which is botanically rich and ecologically diverse (Alex & P, 2025), offering wide opportunities for connecting with nature. In contrast, research shows that connecting with nature can enhance mental well-being (Joschko *et al.*, 2023; Vujcic *et al.*, 2017) and being in natural settings can reduce the occurrence of chronic physiological and psychological conditions (O'Malley, 2020). Facilitating opportunities for individuals to connect with nature can, therefore, positively influence mental health. Humans have an inherent tendency to seek connection with nature

(Howell *et al.*, 2011), reflecting the interconnectedness of all life within a balanced ecosystem, often referred to as the "web of life" (Pike, 2021). The biophilia hypothesis similarly suggests that psychological health is closely linked to one's relationship with nature (Fleming & Shwartz, 2023; Howell *et al.*, 2011). Establishing this connection can be effectively achieved through eco-art therapy (Pike, 2021), which allows individuals to develop new neural pathways while fostering a bond with the natural environment. Through eco-art therapy, participants can enhance psychological attributes such as mindfulness and resilience, promoting overall well-being.

Building psychological resources like mindfulness and resilience can serve as protective factors, enabling adolescents to manage stress, regulate emotions, and adapt effectively to life's demands (Bajaj *et al.*, 2022; Lin *et al.*, 2019; van de Weijer-Bergsma *et al.*, 2012; Vidal-Meliá *et al.*, 2022). Mindfulness, defined as present-moment awareness with non-judgmental acceptance, has been shown to improve emotional well-being (Howell *et al.*, 2011; Vitagliano *et al.*, 2023). Similarly,

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resilience, the capacity to recover from difficulties and maintain positive functioning, plays a key role in fostering long-term psychological health.

In recent years, creative and nature-based interventions have gained attention as effective strategies for promoting well-being among adolescents. Eco-art therapy, which integrates artistic expression with natural elements, offers a unique approach to enhancing self-awareness, emotional regulation, and coping skills (A'Court, 2016; Kopytin, 2021; Kras, 2021; Pike, 2021). Unlike traditional interventions, eco-art therapy provides a holistic, experiential process that connects individuals with nature while encouraging creative exploration (Kulsum & Siregar, 2022). Despite its potential, empirical research on eco-art therapy among adolescents remains limited. Moreover, eco-art therapy has not been widely studied in the Indian context, particularly in Kerala, a region rich in biodiversity and natural resources, which offers an abundance of botanical materials for eco-art practices. This ecological richness makes Kerala a highly relevant setting for exploring eco-art therapy with children. The present study aims to address this gap by examining the impact of eco-art therapy sessions on mindfulness and resilience, thereby contributing to the understanding of innovative, integrative approaches in adolescent mental health care. The hypothesis of the present study is eco-art therapy will significantly increase mindfulness and resilience in adolescents

### Materials and Method

*The Toronto Mindfulness Scale (Lau et al., 2006)*: The Toronto Mindfulness Scale is a 13-item self-report measure designed to assess the immediate state of mindfulness after a meditation or mindfulness exercise. It evaluates two key components: curiosity, which reflects an open and receptive attitude toward one's present experience, and decentering, representing the ability to view thoughts and feelings with a non-judgmental distance. Items are rated on a 5-point Likert scale, ranging from 0 (not at all) to 4 (very much). Higher scores indicate greater mindfulness. It has demonstrated good internal consistency of 0.93 for curiosity and .91 for decentering and con-

struct validity in measuring state mindfulness.

*The Brief Resilience Scale (Smith et al., 2008)*:

The Brief Resilience Scale is a 6-item instrument developed to measure an individual's ability to recover quickly from stress or adversity. Unlike trait-based measures, the Brief Resilience Scale focuses specifically on the construct of 'bouncing back'. Items are rated on a 5-point Likert scale running from 1 (strongly disagree) to 5 (strongly agree). The total score will be obtained by finding the average of the raw score, with higher scores reflecting greater resilience. The scale shows good internal consistency ( $\alpha=.80-.91$ ) and strong convergent validity.

### Participants

The participants of the study were adolescents residing in Kottayam District, Kerala, India. Permission for conducting the sessions was obtained from the ward member of Kanakkary Grama Panchayath, and informed consent from the parents was secured with the assistance of a volunteer appointed by the ward member. Initially, 15 students in the age group of 12 to 18 years, representing both genders, attended the first session. However, three participants discontinued during the course of the program, resulting in a final sample of 12 adolescents, comprising 8 girls and 4 boys. Inclusion criteria required participants to be within the specified age range, enrolled in school, and willing to participate with parental consent. Exclusion criteria included the presence of any diagnosed severe psychiatric disorder or any physical disability preventing participation in art-based activities.

### Data Collection

The study followed a quantitative, pre-experimental one-group pretest-posttest design to examine the effects of eco-art therapy on mindfulness and resilience among adolescents. Participants were gathered in a community hall adjacent to a natural setting, where the study purpose was explained, informed consent was obtained, and a pretest was administered.

The intervention consisted of two structured sessions. Day 1 (2 hours) began with an

introduction to eco-art therapy, establishment of ground rules, and a brief discussion of confidentiality. This was followed by a silent nature walk and a grounding activity using leaves and flowers to cultivate mindful awareness. The core session activities involved creative exercises with natural materials aimed at enhancing mindfulness. The session concluded with group reflection and a closing visualization activity themed on a tree. Day 2 (2.5 hours) commenced with a grounding exercise and proceeded with nature-based art activities focused on fostering resilience. Participants engaged in individual and group creative tasks, followed by reflective discussions. The session concluded with a closing ritual, after which posttest measures of mindfulness and resilience were administered. The data were subjected to statistical analysis to evaluate changes between pre and post-intervention scores. In addition to quantitative measures, the researcher observed the participant's behaviors, engagement with activities, and group dynamics. These observations were used to provide descriptive insights that complement the quantitative findings.

## Results and Discussion

The descriptive statistics show that the sample consisted of 12 adolescents, with 4 males and 8 females.

**Table 1.** Result of the Shapiro-Wilk test of normality

	Shapiro-Wilk		
	Statistic	df	Sig.
Curiosity_pre	0.911	12	0.222
Resilience_post	0.943	12	0.543
Decentering_pre	0.881	12	0.089
Decentering_post	0.910	12	0.216
Curiosity_post	0.908	12	0.201
Resilience_pre	0.943	12	0.542

\*. This is a lower bound of the true significance.

Table 1 presents the result of the Shapiro-Wilk normality test for all pre- and post-test variables of mindfulness subscales (Curiosity and Decentering) and resilience. All variables have  $p > .05$ , indicating that the data are normally distributed and meet the assumptions of parametric testing.

Table 2 presents the results of the paired sample t-test and corresponding effect size (Cohen's  $d$ ) for pre- and post-test scores of Curiosity, Decentering, and Resilience. Curiosity shows a significant increase from pre- to post-test,  $t = -5.66$ ,  $p < .001$ , with a large effect size ( $d = 1.63$ ). Resilience also shows a significant improvement,  $t = -2.72$ ,  $p = .020$ , with a large effect size ( $d = 0.79$ ). Decentering increases slightly but does not reach significance,  $t = -1.77$ ,  $p = .104$ , with a medium effect size ( $d = 0.51$ ).

The results show that eco-art therapy has a positive effect on mindfulness and resilience among adolescents. The significant increase in curiosity suggests that participants become more open and attentive to their internal experiences, reflecting an enhanced capacity for present-moment awareness with a nonjudgmental attitude, which is a key component of resilience (Jha *et al.*, 2019). Although decentering shows a small, non-significant increase, this may indicate that the ability to observe thoughts and emotions from a detached perspective requires a longer or more intensive intervention. Resilience also shows a significant improvement, suggesting that engagement in nature-based creative activities strengthens adolescents' ability to adapt and cope with challenges. Previous research supports the interconnection between mindfulness and resilience, showing that mindfulness can foster resilience growth (Yuan, 2021). Overall, these findings reinforce the efficacy of eco-art therapy in promoting psychological well-being (Grabowska Chenczke *et al.*, 2022; Howell *et al.*, 2011; Phillips *et al.*, 2023; Pritchard *et al.*, 2020), particularly in enhancing aspects of mindfulness and resilience, aligning with prior studies highlighting the therapeutic benefits of nature-based and expressive arts interventions.

Table 2. Paired sample t-test and effect size

Variable	Mean	SD	Cohen's d	t	Sig. (2-tailed)
Curiosity_pre - Curiosity_post	-4.167	2.552	1.63	-5.655	0.000
Decentering_pre - Decentering_post	-2.083	4.078	0.51	-1.770	0.104
Resilience_pre - Resilience_post	-.3833	0.4877	0.79	-2.723	0.020

Research observations indicated that participants appeared more relaxed and attentive following the silent nature walk. During the mindfulness activity with leaves and flowers, several participants demonstrated curiosity, carefully exploring textures, scents, and the different phases of growth, from new leaves to shed leaves. Throughout the sessions, participants sat with peaceful, smiling faces, reflecting a calm and engaged state. In the creative activities, they showed excitement while experimenting with colors from fresh leaves and flowers, gaining hands-on experience with different textures of soil and mud. The tactile and olfactory engagement fostered concentration, a sense of connection to nature, and a feeling of calm, with several participants requesting extended time in these activities to maintain the peaceful state. Across most activities, participants expressed a desire to spend additional time with natural materials, and their increased engagement and reflective discussions supported the quantitative findings of enhanced mindfulness and resilience. The eco-art therapy can be incorporated into school and community mental health programs to enhance mindfulness and resilience among adolescents, particularly in regions rich in natural resources. The nature-based creative intervention also provides a cost-effective and engaging approach to foster psychological well-being. The study highlights the need for longer-duration or more intensive interventions to strengthen components such as decentering, which may require additional practice to develop.

### Conclusion

Eco-art therapy enhances mindfulness and resilience in adolescents, supporting its role as an effective intervention for promoting psychological well-being. While decentering

shows minimal change, the overall findings highlight eco-art therapy as a promising approach for fostering adaptive coping and present-moment awareness.

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