

EXAMINING THE RELATIONSHIP BETWEEN NATURE CONNECTEDNESS AND PSYCHOLOGICAL RESILIENCE AMONG KOHAT UNIVERSITY STUDENTS.

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Abstract

Background: University students face academic, financial, and personal stressors that can undermine their mental health. Nature connectedness, meaning a person's emotional and cognitive sense of being linked to the natural world, has been proposed as a protective resource. Evidence from Pakistani higher education, however, remains limited.

Objective: This study examined the relationship between nature connectedness and psychological resilience among students of Kohat University of Science and Technology.

Methods: A quantitative, cross-sectional, correlational design was used with 200 university students (60.5% men, 39.5% women; 82.5% undergraduates). Participants completed an online questionnaire with the Connectedness to Nature Scale (CNS; Mayer & Frantz, 2004) and the Brief Resilience Scale (BRS; Smith et al., 2008). Ethical approval and informed consent were obtained, and responses were anonymous. Data were analyzed using Pearson product-moment correlation.

Results: Nature connectedness showed a moderate, positive, and statistically significant correlation with psychological resilience, $r(198) = .443, p < .001$. Students who felt more connected to nature reported higher resilience, so the research hypothesis was supported.

Conclusion: Nature connectedness appears to be an important protective factor for students' resilience, although resilience is also shaped by other factors such as social support and coping style. Universities may benefit from green campus spaces, outdoor activities, and nature-based wellness programs. Future research should use longitudinal and experimental designs and larger, more diverse samples, and should test mediators such as perceived stress and mindfulness.

INTRODUCTION

Background of the Study

University life is known as a time when people are more likely to face mental health challenges. Students have to deal with school work, pressure from tests, money problems and figuring out who they are. All of these can make it hard for them to cope. Mental health in college students has been a topic that researchers have studied a lot. They have found that being strong and finding meaning in life are ways to protect against mental health issues (Ma et al., 2025). In this situation researchers are looking at more than personal qualities. They are also looking at things like the environment and daily habits which might help people feel stronger. One of these things that has become popular in studies is being connected to nature. This means how much someone feels linked to the world both emotionally and in their thinking and experiences.

Grounded in psychological resources theory, contemporary scholarship increasingly conceptualizes the natural environment as a restorative landscape capable of augmenting individual coping mechanisms within this theoretical domain, nature connectedness functions as a critical cognitive framework that facilitates stress recovery and bolsters adaptive capacities (Ahmad et al., 2025).

Despite this theoretical foundation linking environmental engagement to stress mitigation, empirical investigations examining how these dynamics operate specifically within higher education cohorts in developing regions remain sparse (Ingulli & Lindbloom, 2013; Shruthika & Verma, 2025). To address this empirical void, the present study investigates the intricate mechanisms through which environmental affiliation influences the psychological hardiness of university students in Pakistan.

Building upon stress reduction theory, exposure to the natural world initiates dual physiological and psychological pathways that systematically lower cortisol levels and restore depleted attentional resources (Cai & Zhan, 2025). Yet, while existing literature frequently isolates the

direct benefits of green spaces, the precise interplay between an individual's enduring connection to nature and their capacity to bounce back from academic stressors requires further clarification (Nation et al., 2024).

To address this gap, the current investigation establishes a comprehensive structural framework that evaluates how cognitive bonds with the natural world systematically foster adaptive psychological functioning among undergraduates at Kohat University (Ma et al., 2025). By examining these localized dynamics, this study addresses the pronounced scarcity of empirical data regarding nature-based mental health frameworks in South Asian higher education institutions (Budiyo et al., 2025).

Mayer and Frantz (2004), created a scale called the Connectedness to Nature Scale. They used it to measure how much someone feels connected to the world. Their study showed that being connected to nature can predict how people act towards the environment and how happy they are. This means that being connected to nature is not about the environment but also about mental health. Since then many people have studied this idea in groups. They found that being more connected to nature is linked with stress, better mood and better mental health. Another important idea in this study is resilience. Resilience is about how someone can handle tough times deal with problems and get back to normal after something difficult happens (Mayer & Frantz, 2004).

Connor and Davidson (2003), a scale called the Connor-Davidson Resilience Scale. They described resilience as how someone deals with stress and said it's important to help with anxiety, depression and stress. Now people see resilience as something that happens at levels. People are seen as resilient when they get back to how they were before a time. Sometimes they even get better than before because of the experience. Two main ideas explain why being around nature helps health. One is Attention Restoration Theory. It says that natural places help the brain get back energy that is used up from thinking.

The other is Stress Reduction Theory. It says that being in nature makes the body feel calm and helps reduce stress.

A study by Noorlila et al.,(2024) and others found that being connected to nature is linked with feeling refreshed and having values. They found that being connected to nature helps reduce stress. In a study students said that being connected to nature helps them feel less stressed feel better and think more clearly. Being in nature helps them take a break from school stress and have time to think and feel better. The researchers said that this helps build resilience. Other studies about spaces on campuses also show that students often have stress, sadness and worry. More and more evidence shows that having areas and nature on campus helps with mental health and general well-being.

Even though there is a lot of evidence around the world most studies about being connected to nature and resilience have been in places like East Asia, the West and some parts of South Asia. Not much is known about students in Pakistan in areas like Kohat in Khyber Pakhtunkhwa. Students at Kohat University face their special challenges, like University work, money issues and a place with easy access to nature. It's important to know more about this because schools are being asked to create no-cost ways to help student mental health like making campuses greener and having activities in nature. This study looks at how connected students at Kohat University are to nature and how resilient. It wants to find out how much students feel connected, to nature and how resilient

Method and Material: Conceptual Framework:



Research Design:

The present study employs a quantitative, cross-sectional, correlational design. Nature connectedness serves as the independent variable and psychological resilience serves as the dependent variable. Data are collected through standardized self-report measures administered to university students.

Population, Sample & Sampling Techniques:

The study was conducted in Kohat University of Science and Technology. A sample of 200 university students was selected because it is considered adequate for correlational research. Methodological guidelines indicate that a sample of approximately 200 participants provides sufficient statistical power (80%, $\alpha = .05$) to detect medium effect sizes in correlation and regression analyses while ensuring reliable and valid statistical estimates. The sample size was also considered feasible given the study's time and resource constraints.



Hypothesis:

H₁: There is a significant relationship between nature connectedness and psychological resilience among university students.

H₀: There is no significant relationship between nature connectedness and psychological resilience among university students.

Connectedness to Nature Scale (CNS)

Nature connectedness was measured using the Connectedness to Nature Scale (CNS) developed by Mayer and Frantz (2004). The scale consists of 14 items designed to assess an individual's emotional connection with the natural environment. Responses are recorded on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Higher scores indicate a stronger sense of connectedness to nature. The scale demonstrated satisfactory psychometric properties in the original study, with Cronbach's alpha coefficients ranging from .84 to .87, indicating good internal consistency reliability (Mayer & Frantz, 2004). The scale has demonstrated satisfactory reliability and validity across different populations. Three items of the scale are reverse scored before calculating the total score.

Brief Resilience Scale (BRS)

Psychological resilience was assessed using the Brief Resilience Scale (BRS) developed by Smith et al. (2008). The scale consists of 6 items designed to measure an individual's ability to bounce back from stress and adversity. Responses are rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Items 2, 4, and 6 are reverse scored before calculating the total score. Higher scores indicate greater psychological resilience.

The original study reported good reliability, with Cronbach's alpha coefficients ranging from .80 to .91 across different samples, demonstrating satisfactory internal consistency (Smith et al., 2008).

Ethical Considerations

Ethical approval for the study was obtained from the Department of Psychology, Kohat University of Science and Technology (KUST), Kohat. Participants provided informed consent electronically before completing the online questionnaire. Participation was voluntary, and participants were free to withdraw at any time without penalty. No personally identifiable information was collected, and all responses were kept anonymous and confidential. Data were

used exclusively for research purposes and stored securely. The study adhered to the ethical principles of informed consent, confidentiality,

voluntary participation, beneficence, non-maleficence, and respect for participants' rights

Results:

Table 1 Frequencies and percentages of the demographic characteristics of the participants (N=200)

Variables	F	%
Gender		
Men	121	60.5%
Women	79	39.5%
Age		
18 -20	45	22.5%
21-25	146	73.0%
26-30	9	4.5%
Education		
Undergraduate Students	165	82.5%
Graduate Students	35	17.5%
Residence		
Rural	133	66.5%
Urban	67	33.5%
Time spent in nature		
Very rarely	39	19.5%
Sometimes	97	48.5%
Often	48	24.0%
Very often	16	8.0%

Table 1 explained the frequency and percentage of the demographic variables of the participants included in the study. There were males (N=121) and females (N=79) in the sample, with 60.5% males and 39.5% females. The participants age range was, which was categorized into three

groups. Group 1 had an age range of 18-20, with a percentage of 22.5%. Group 2 had an age range of 21-25, with a percentage of 35%.7.0. Group 3 had an age range of 26-30, with a percentage of 4.5% Based on qualification, participants were also categorized into two groups: students of undergraduate were categorized into group 1,

with a percentage of 82.5%; Graduate students were categorized into group 2 with a percentage

of 17.5%.

Table 2 Pearson Product Correlation of Nature connectedness and Psychological resilience study variables (N=200)

Variables	1	2
Nature connectedness	1	
Psychological resilience	.443**	1

Note. $p < .05$, $p < .01$, $p < .001$

Note. $N = 200$, r = Pearson correlation coefficient. CNS = Connectedness to Nature Scale; BRS = Brief

Resilience Scale.

Table 2 A Pearson product-moment correlation was conducted to examine the relationship between nature connectedness and psychological resilience among university students. The analysis revealed a moderate positive and statistically significant correlation between nature connectedness and psychological resilience, $r(198) = .443$, $p < .001$. This indicates that students with higher levels of nature connectedness tend to report higher levels of psychological resilience. Therefore, the study hypothesis proposing a significant positive relationship between nature connectedness and psychological resilience was supported.

Discussion

The present study examined the relationship between nature connectedness and psychological resilience among university students. The findings supported the study hypothesis, indicating a moderate positive and statistically significant relationship between nature connectedness and psychological resilience, $r(198) = .443$, $p < .001$. These results suggest that university students who feel more emotionally and cognitively connected to nature tend to demonstrate greater psychological resilience. Therefore, the null hypothesis was rejected, and the alternative hypothesis was accepted. The findings are consistent with the Biophilia Hypothesis, which proposes that human beings possess an innate tendency to affiliate with the natural environment and that this connection

promotes psychological functioning and adaptive coping (Wilson, 1984). Similarly, Attention Restoration Theory suggests that exposure to natural environments restores depleted cognitive resources, reduces mental fatigue, and enhances emotional regulation, thereby strengthening resilience (Kaplan & Kaplan, 1989). These theoretical perspectives provide a strong explanation for the positive association observed in the present study.

Mayer and Frantz (2004) reported that individuals with higher levels of nature connectedness experience greater psychological well-being and life satisfaction. Capaldi et al., (2014), in a meta-analysis, concluded that nature connectedness is positively associated with psychological well-being, positive affect, and overall mental health. Although psychological resilience was not the primary outcome in their study, enhanced well-being is considered an important protective factor that contributes to resilient functioning. Furthermore, the findings are supported by research demonstrating that contact with nature helps individuals recover from stress and improves emotional adjustment. Bratman et al., (2019) reported that spending time in natural environments is associated with reduced stress, improved mood, and enhanced psychological functioning. Similarly, Pritchard et al., (2020) found that individuals with stronger connections to nature exhibit greater resilience because natural environments foster adaptive coping, emotional regulation, and recovery from adversity. The observed moderate correlation ($r =$

.443) indicates that while nature connectedness contributes meaningfully to psychological resilience, resilience is a multidimensional construct influenced by additional factors such as personality characteristics, social support, coping strategies, optimism, and life experiences (Southwick et al., 2014). Therefore, nature connectedness should be viewed as one important protective factor among several determinants of resilience.

The findings have important practical implications for higher education institutions. Universities may promote students' psychological resilience by encouraging regular engagement with natural environments through campus green spaces, outdoor recreational activities, environmental education, and nature-based wellness interventions. Such initiatives may contribute to improved mental health, better stress management, and enhanced psychological adjustment among university students. Despite these contributions, several limitations should be acknowledged. The reliance on self-report measures may have introduced response and social desirability biases. Future studies should employ longitudinal or experimental designs, include larger and more diverse samples, and investigate potential mediating or moderating variables such as perceived stress, mindfulness, social support, or psychological well-being to better understand the mechanisms linking nature connectedness and resilience.

Conclusion

The present study provides evidence of a significant positive relationship between nature connectedness and psychological resilience among university students. Students who reported stronger connections with nature also demonstrated higher levels of resilience, suggesting that nature connectedness is an important psychological resource that supports adaptive functioning and mental well-being. These findings highlight the value of incorporating nature-based experiences into university mental health promotion programs.

Encouraging regular interaction with natural environments may strengthen students' ability to cope with stress and adversity while fostering greater psychological resilience. Future research should employ longitudinal and intervention-based designs to further examine the causal relationship between nature connectedness and resilience and to explore the psychological mechanisms underlying this association.

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