



The Mediating Role of Cognitive Flexibility on the Relationship between Emotional Appraisal and Pro-Environmental Behavior Among Young Adults

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ARTICLE INFO	ABSTRACT
Submission: August 28, 2026 Revised: September 27, 2026 Accepted: October 06, 2026 Available Online: October 16, 2026 Keywords: Pro-environmental behavior, cognitive flexibility, emotional appraisal, environmental psychology, young adults Corresponding author: Ifrah Syed Email: ifrashakir23@gmail.com	The primary purpose of this study was to assess the role of emotional appraisal and cognitive flexibility in predicting pro-environmental behavior in young adults. This being one of the pressing calls worldwide, this research was aimed to understand the psychological constructs that may relate to sustainable acts. Data were collected through questionnaires. Sectioned into the correlational type, 381 university students were purposely selected as subjects. The tools used for data gathering were the BEIS 10, the Cognitive Flexibility Inventory (CFI), and the Pro-Environmental Behavior Scale (PEBS). After the collection of data, analyses were done using the SPSS statistical package, including Pearson correlation and multiple regression, to analyze, correlate and assess the predictive strength among the variables. The results show significant positive correlations between both emotional regulation and cognitive flexibility with pro-environmental behavior. Regression analysis particularly revealed cognitive flexibility as a more robust predictor than emotional appraisal, placing emphasis on the weight of adaptive cognitive processing in steering environmentally responsible behavior. The findings, therefore, suggest certain psychological bases for sustainable behavior whereby any intervention that seeks to promote cognitive flexibility and emotional regulation could improve environmental sustenance among youngsters. The study included the use of self-report measures, which may be subject to social desirability bias, and a sample limited to university students, which restricts generalizability. Future research should explore longitudinal designs, include diverse demographic groups, and examine potential mediating variables such as environmental awareness and social norms.

Introduction

In today's emerging world environmental deprivation and climate change have become one of the pressing issues and specifically in the countries like Pakistan which is prone to uneven repercussions due to social, economic and geographic vulnerability (Ahmed & Kiyani, 2024). Pakistan is rated among the highest in climate change vulnerability, and is experiencing increased flooding, drought, air pollution, and biodiversity loss (Acquadro Maran et al., 2023). While these environmental threats come with significant pressure on public health, economic viability, and social welfare, the youth, which is 64.2% of the population, are especially susceptible (Hussain, 2015).

Young adults being the global conscience and future instigators have the ability and power to either influence or work towards bettering their environment and that depends on their attitudes and behaviors towards sustainability (Li et al., 2023). Even there is much awareness about environmental concerns there is still an unequivocal gap between positive environmental attitudes and actual behavior (PEB) by Pakistani youth (Acquadro Maran et al., 2023). Developing countries are more susceptible to this gap due to complicated pathways like socioeconomic status, customs and institutions (Knez et al., 2019). Emotional appraisal is the cognitive assessment of environmental stimuli to produce an emotional response that may either motivate or inhibit PEB, like fear, hope, guilt, or pride (Jones et al., 2017).

Pakistani literature suggests that there are complicated emotional reactions to environmental degradation while many young adults show an increase amount of emotional attachment and concern (Ahmed & Kiyani, 2024), an increased climate anxiety and eco-paralysis interferes with their behavior to act sustainably have also been reported (Acquadro Maran et al., 2023). There seems a paradox which is simply having emotional appraisal may not show the concern about the positive environmental action and so we are in a need to think and how cognitive factors may mediate some of the perceived emotional influences on behaviors.

Cognitive flexibility is well defined as the brain's ability to adapt thinking and behavior in response to changing demands of the environment and to take into account multiple perspectives or alternate solutions (Knez et al., 2019). It allows people to re-frame problematic situations, regulate emotional responses, and execute available coping strategies (Ahmed & Kiyani, 2024). Based on an empirical basis, cognitive flexibility has been recognized as a mediator of emotional processes and PEB; those with high cognitive flexibility demonstrate effective emotion regulation, which allows them to turn debilitating climate anxiety into positive environmental action (Li et al., 2023). However, research involving this mediating role with young adults in Pakistan is limited.

The Theory of Planned Behavior has been used to explain PEB because it includes the ideas of attitudes, subjective norms and perceived control to predict intention and action (Ajzen, 1991). The Theory of Planned Behavior covers both thinking and social influences. It usually assumes that feelings and flexible thinking work together continuously to shape behavior (Jones et al., 2017). Cultural aspects, such as where people think responsibility lies and the expected roles for men and women and for social classes shape people's views, about the environment and how they act in Pakistan. This shows that it is essential to study these topics in the context (Asghar & Nazneen 2016).

The purpose of this study is to address critical research gaps through an examination of cognitive flexibility as a mediator between emotional appraisal and pro-environmental behavior among young adults in Pakistan. The study brings together both affective and cognitive perspectives in a framework that is culturally grounded and thus can enhance understanding of the psychological mechanisms of pro-environmental behaviour in developing nations.

Since all ecological crises requires a behavioral element it is urgent when co-convened with youth. Emotional appraisal is the base of instigating Pro-environmental behavior however, the potential for emotional appraisal to facilitate PEB is ultimately reliant on cognitive flexibility which in returns allows for better emotional regulation and problem solving to take place. Furthermore, this study will add literature relating to cognitive effective pathways to sustainability and expanding knowledge in this area may facilitate in establishing culturally relevant implementations and interventions to nurture environmental citizens in Pakistan.

Literature Review

Understanding human behavior with the lens of climate change is an essential consideration for the attainment of sustainable objective. Over the past several decades, researchers have found out the psychological foundations of PEB which is defined as the any positive action taken to ameliorate the harm. Especially emotional appraisal and cognitive flexibility have emerged as two important dimensions of PEB. There is current evidence that emotional appraisal and cognitive flexibility intersect and shape environmental behaviors but the process on how cognitive flexibility connect have not been extensively studied particularly in Pakistan. A study by Panno et al (2015) showed the role of cognitive reappraisal and PEB. This suggests that people who regulate their emotions effectively are more likely to perceive climate change as a significant issue.

Pro-environmental behavior (PEB) has caught attention as a practical way to fight climate change. Research shows that people take part in PEB because of a mix of values how risky they think it is, feelings, thinking patterns and what society expects (Lange & Dewitte 2019). PEB means any action that tries to keep the environment as healthy as possible for example recycling saving energy or buying sustainable goods (Steg & Vlek 2009). In Pakistan the environment is getting worse because of fast city growth cutting down trees and not rules to protect nature. Surveys across the country reveal that young people in Pakistan are more aware of and worried about climate change. PEB does not always match that worry. This matches studies that show a gap, between how people feel and how they behave.

The theory of emotion developed by Lazarus in 1991 is often used to understand how emotions come from how people evaluate situations. In the environment, the feelings of people about climate change like anxiety, guilt, fear or hope depend on how they see the danger and how well they think they can deal with it. A study by He and others in 2022 said that spending time in nature in Islamabad helps people act in a way that's good for the environment but this depends on how much someone believes nature is important. This belief is connected to how flexible they're in dealing with environmental problems. Another study by Khawaja and Janjua in 2024 found that companies in Pakistan's textile industry that do things to help the environment depend on how workers understand being responsible for the environment. This also shows how flexible they are in thinking. Even though there is a lot of research about how emotions and how flexible people are in thinking affect actions that're good for the environment there is still not much research, about how both of these things together affect young adults.

Ghaffar (2024) noted that spending time in nature in Islamabad promotes PEB; however, this relationship depends on person's cognitive reappraisal.

Emotional appraisal, particularly the reappraisal of negative emotions, can either inhibit or catalyze pro-environmental action. Panno et al. (2020) found that people who are more likely to engage in reappraisal are more likely to feel better and show stronger emotional connections to nature. Research in environmental psychology has also shown that eco-anxiety, or chronic worry about climate change, can lead to paralysis versus activism, depending on how individuals interpret that anxiety (Clayton, 2020); constructive reappraisal transforms suffering into motivation, while catastrophizing avoids. Panno et al. (2015) provided evidence that cognitive reappraisal is positively linked to environmental concern, and Ojala (2012) found that youth who employed meaning-directed coping strategies such as positive reappraisal was more optimistic and engaged in more sustainable behaviors.

Cognitive flexibility is the ability to change how you think switch your point of view and adjust your approach when things change around you (Westhoff et al., 2024). People who score higher in flexibility say they handle stress better and are more likely to act in ways that match their long-term goals. For example, they might choose to use plastic or take part in recycling efforts (Marciniak et al. 2024).

Lange & Dewitte (2019) found that those with cognitive flexibility were more likely to do things that help the environment. Langenbach et al. (2020) Added that cognitive flexibility plays a role in turning attitudes into real actions. They found that even if someone cares about the planet they may not act on it unless they have mental resources. Cognitive flexibility in this case acts like a gate. Only those, with enough flexibility can consistently follow through on their green intentions. In Pakistan, cognitive flexibility is associated with better academic performance, increased adaptability to difficult situations, and stress regulation among students (Kiye & Habeş, 2024). Emotion regulation strategies, particularly cognitive reappraisal, have been shown to be more effectively employed by people with high cognitive flexibility (Wang et al., 2024). Applied to ecological behavior, this suggests a pathway whereby emotional appraisal of potential climate threats creates concerns that influence cognitive flexibility, which in turn allows for adaptive emotion regulation and planning behaviour that leads to sustained PEB even in adverse contexts.

Hickman et al (2023) found that youth in Canada and UK have climate anxiety and concern about the future, distrust the governments and motivation to take action. In contrast to these findings, Pakistani youth have an extraordinary concern about climate change but their concern does not translate into action. There are systemic failings and inhibition of emotional expression. As a result, emotional appraisal must be considered with other psychological constructs which can mediate or moderate its influences on behavior.

One study among Pakistani university students found exposure to natural environments positively altered youth mood and improved environmental empathy and behavioral intentions through an indirect pathway of enhanced emotional engagement (Saeed et al., 2021), while another identified that emotion regulation mediates the relationship between cognitive flexibility and psychological well-being a framework that can be extended to environmental behavior (Kiye & Habeş, 2024).

Theoretical Framework

One of the most widely recognized frameworks for predicting human behavior, particularly in the realm of environmental psychology, is the Theory of Planned Behavior (TPB) proposed by Ajzen (1991). TPB posits that an individual's behavioral intention considered the most immediate predictor of actual behavior is determined by three core components: attitude toward the behavior, subjective norms, and perceived behavioral control. In this study, the TPB framework is extended by incorporating emotional appraisal and cognitive flexibility as critical psychological variables that influence the core components of the theory and ultimately predict pro-environmental behavior (PEB) among young adults. Emotional appraisal contributes directly to the formation of positive environmental attitudes, aligning with TPB's first component (Ochsner & Gross, 2008; Li et al., 2023). Cognitive flexibility

which is the ability to adapt, problem-solve, and emotionally regulate under changing circumstances enhances perceived behavioral control (Dennis & Vander Wal, 2010), reflecting TPB's third core construct and reinforcing the idea that behavioral control is both cognitive and contextual. This conceptualization frames cognitive flexibility as mediating the relationship between emotional appraisal and pro-environmental behavior.

Rationale

With the increase in the environmental crises and climate change and biodiversity loss to water scarcity and planet earth becoming an Anthropocene calls with urgent action. Even though worldwide many actions are being taken but there still remains an attitude-behavior gap, people may profess their concern but there is an inconsistency in adopting pro-environmental behaviors. (Saeed et al., 2021). All of the psychological variables, emotional appraisal has become important for inhibiting and stimulating action. Whereas, cognitive flexibility which is the mind's capacity to switch perspectives is little investigated. Abundant researchers have identified the important role of cognitive flexibility in problem solving, emotional regulation and responsible behavior in the face of climate adversity.

This study explores the gap by focusing young adults of Pakistan a population which is exceedingly vulnerable to climate crises and positioned to influence the future sustainability pathways. Ranking of Pakistan is among top ten when it comes to climate related disasters. Youth of this country is well aware but face a cultural, emotional and structural barrier to PEB action.

By integrating theory of planned behavior (TPB) an established model that accentuates the roles of attitudes, social norms and perceived behavioral control predicting behavior along with emotional appraisal and cognitive flexibility this study proposes a more holistic and cognitively informed model of behavior change.

This research is timely and significant it contributes to the theoretical development of behavior change by clarifying the internal mechanisms that connect emotion to action. And since it is situated in Pakistan it ensures that are findings are contextually grounded and applicable to one of the world's most climate vulnerable nations.

Method

Objectives

To test the mediating role of cognitive flexibility in the relationship between emotional appraisal and PEB among young adults.

Hypotheses

- H1: Cognitive flexibility is positively mediating the relationship between emotional appraisal and pro-environmental behavior.
- H2: Emotional appraisal positively predicts pro-environmental behavior.
- H3: Cognitive flexibility positively predicts PEB

Instruments

The Cognitive Flexibility Inventory (CFI; Dennis & Vander Wal, 2010) is a 21-item self-report measure of two aspects of cognitive flexibility: Alternatives (the adaptive ability to perceive multiple alternative explanations for life occurrences) and Control (an internal locus of control, or the tendency to perceive difficult situations as somewhat controllable), rated on a 7-point scale from strongly disagree (1) to strongly agree (7). Internal consistency in this study was satisfactory ($\alpha = .895$).

The Brief Emotional Intelligence Scale (BEIS-10; Davies, Lane, Devonport, & Scott, 2010) comprises 10 items across five subscales, Appraisal of Own Emotions, Appraisal of Others' Emotions, Regulation of Own Emotions, Regulation of Others' Emotions, and Utilization of Emotions – rated on a 5-point Likert scale from strongly disagree (1) to strongly agree (5), and was used to assess emotional appraisal. Internal consistency was satisfactory ($\alpha = .839$).

The Pro-Environmental Behavior Scale (Mateer et al., 2022) consists of 11 self-report items (6 private behaviors, 5 public behaviors), rated on a 6-point scale (0 = never; 6 = always). Higher scores represent greater engagement in ecological and sustainable behaviors. Internal consistency was satisfactory ($\alpha = .838$).

Sample

This study was conducted in Islamabad and Rawalpindi, Pakistan, using a quantitative correlational design. Online Google Forms and physical survey forms were distributed to students at NUMS Rawalpindi, NUST Islamabad, and FAST NUCES Islamabad. Of a targeted 400 young adults, 381 valid responses were obtained (135 male, 246 female), within a targeted age range of 18–25 years.

Table 1: Demographic Characteristics of the Sample for Study (N = 381)

Demographics	Group	f	%
Gender	Male	135	35.4
	Female	246	64.6
Education Level	Undergraduate	318	83.5
	Graduate	58	15.2
	Post graduate	5	1.3
Occupation	Unemployed	276	72.4
	Employed	105	27.6
Socioeconomic Status	Lower	4	1.0
	Middle	241	63.3
	Upper Middle	117	30.7
	Upper	19	5.0

Table 1 shows the demographic information of the participants. 64.6% of the study participants were female and 35.4% were male. A majority of participants fell in the 18–25 age bracket, distributed as 18 (10.8%), 19 (16.3%), 20 (15.7%), 21 (15.5%), 22 (14.7%), 23 (10.5%), 24 (5.2%), and 25 (11.3%). 83.5% of participants were undergraduate, 15.2% graduate, and 1.3% postgraduate. 72.4% were unemployed and 27.6% employed. By socioeconomic status, 1.0% were lower, 63.3% middle, 30.7% upper middle, and 5.0% upper SES.

Procedure

Participants were briefed about the purpose of the research, the voluntary nature of participation, and the right to withdraw at any time, and were given informed consent, a demographic sheet, and the three scales. Confidentiality and anonymity were assured. Of 400 participants approached, 218 responded online and 182 in person; 19 in-person surveys were invalid and discarded, leaving 381 valid forms.

Results

Descriptive statistics for all study scales were computed to examine the normality of the data. Cronbach's alpha reliability was estimated to evaluate internal consistency. Correlations among the scales were computed through Pearson correlation, and hypothesis testing was carried out via regression and mediation analysis.

Table 2: Cronbach's Alpha and Descriptive Statistics of Study Measures Used in Study (N = 381)

Scales	Variables	α (k)	M	SD	Range	Skewness	Kurtosis
CF	Cognitive Flexibility	.89 (21)	105.7	20.1	28-195	-.662	2.281
EA	Emotional Appraisal	.838 (10)	37.9	6.7	10-51	-.846	1.761
PEB	Pro-environmental	.838 (11)	35.9	12.42	.00-66	-.004	-.097

Table 2 shows Cronbach's alpha reliability and descriptive statistics of the scales. Alpha values of all instruments are 0.75 and above, a satisfactory and acceptable value. Skewness and kurtosis values for all scales lie between -3 and +3, an acceptable range (George & Mallery, 2010), confirming normal distribution of the data.

Table 3: Correlation Matrix for All the Variables of the Study (N = 381)

S.no		1	2	3
1	Cognitive Flexibility	-		
2	Emotional Appraisal	.549**	-	
3	Pro-environmental behavior	.340**	.468**	-

Note. **p < .01

Table 3 presents Pearson correlation coefficients among the study variables. Cognitive flexibility shows a moderate positive correlation with emotional appraisal ($r = .549$, $p < .01$) and a weak positive significant correlation with PEB ($r = .340$, $p < .01$), while emotional appraisal shows a moderate positive significant correlation with PEB ($r = .468$, $p < .01$). All correlations are positive, moderate, and statistically significant, suggesting that cognitive flexibility, emotional appraisal, and PEB are interconnected.

Table 4: Regression Analysis Among the Study Variables (N = 381)

Variables	B	SE	t	95% CI [LL]	95% CI [UL]
Constant	-.201	3.5	-.057	-7.150	6.748
EA	.747	.100	7.45	.550	.994
CF	.074	.033	2.210	.008	.139
R^2	.229				

Note. Predictors: (Constant), Emotional Appraisal, Cognitive Flexibility, Dependent Variable, Pro-environmental behavior.

Table 4 presents a linear regression analysis examining the predictive relationship of emotional appraisal and cognitive flexibility with PEB. The model accounted for 23% of the variance in PEB ($R^2 = .229$). Emotional appraisal was a significant predictor ($B = .747$, $SE = .100$, $t = 7.45$, $p < .01$), with higher EA scores associated with greater PEB. Cognitive flexibility was a weaker but significant positive predictor ($B = .074$, $SE = .033$, $t = 2.210$, $p < .01$). The constant was not statistically significant ($B = -.201$, $SE = 3.5$, $t = -.057$).

Table 5: Regression Analysis for Mediation of Cognitive Flexibility Between Emotional Appraisal and Pro-Environmental Behavior (N = 381)

Variables	Cognitive flexibility (Model 1)		Pro-environmental behavior (Model 2)		95% CI [LL]	95% CI [UL]
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>		
Constant	42.96**	4.98	-.20	3.53	.715	6.75
Emotional Appraisal	1.65**	.13	.75**	.10	.55	.94
Cognitive Flexibility			.07**	.03	.01	.14
R^2	.30		.48			
<i>F</i>			56.17**			

Note. B= Unstandardized coefficient.

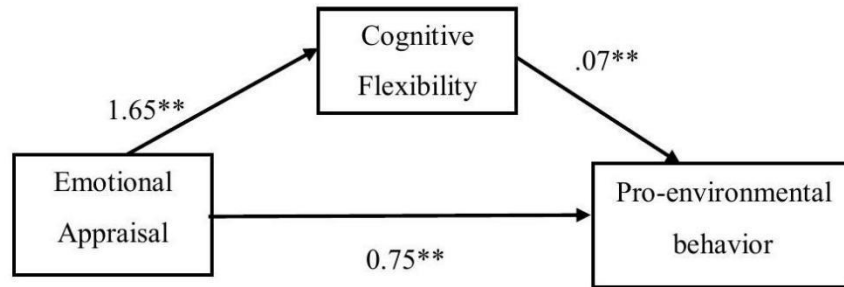


Figure (3); Conceptual model of direct and indirect effect of EA and CF on PEB

Figure 3 represents the conceptual model of direct and indirect effect of emotional appraisal and cognitive flexibility on pro-environmental behavior. The values presented are unstandardized regression coefficients. ******($p < .01$).

A mediation analysis was conducted using Model 4 of Hayes' (2022) PROCESS macro to examine whether cognitive flexibility mediates the relationship between emotional appraisal and pro-environmental behavior ($N = 381$). Emotional appraisal significantly predicted cognitive flexibility, $B = 1.65$, $SE = 0.13$, $t = 12.78$, $p < .001$, 95% CI [1.40, 1.91], $\beta = .55$. In the second stage, both emotional appraisal ($B = 0.75$, $SE = 0.10$, $t = 7.45$, $p < .001$, 95% CI [0.55, 0.94], $\beta = .40$) and cognitive flexibility ($B = 0.07$, $SE = 0.03$, $t = 2.21$, $p = .03$, 95% CI [0.01, 0.14], $\beta = .12$) significantly predicted pro-environmental behavior.

The indirect effect of emotional appraisal on pro-environmental behavior through cognitive flexibility was statistically significant, $B = 0.12$, 95% bootstrap CI [0.02, 0.30], based on 5,000 bootstrap samples (standardized indirect effect $\beta = .07$, 95% bootstrap CI [0.01, 0.16]), indicating a small but significant mediation effect. The results support a partial mediation model, where emotional appraisal influences pro-environmental behavior both directly and indirectly through cognitive flexibility. The model accounted for 30% of the variance in cognitive flexibility ($R^2 = .30$, $F(1, 379) = 163.42$, $p < .001$) and 23% of the variance in pro-environmental behavior ($R^2 = .23$, $F(2, 378) = 56.17$, $p < .001$).

Discussion

The present study investigated the mediating role of cognitive flexibility in the relationship between emotional appraisal and pro-environmental behavior (PEB) among young adults. The correlation results support the hypothesized relationships, revealing significant positive associations between cognitive flexibility, emotional appraisal, and pro-environmental behavior. The significant positive correlation between cognitive flexibility and emotional appraisal ($r = .549$, $p < .01$) aligns with prior research on cognitive-emotional processes; Malooly et al. (2013) introduced the concept of 'affective flexibility' as the ability to flexibly attend to and disengage from emotional aspects of situations, finding that this capacity strongly predicts effective emotional reappraisal. Our results extend this, suggesting cognitive flexibility may enable individuals to more effectively process and regulate emotions related to environmental concerns.

The positive correlation between cognitive flexibility and pro-environmental behavior ($r = .340$, $p < .01$), though weaker than other associations, supports our first hypothesis. This is consistent with research showing that openness — a personality trait associated with flexible and abstract thinking — significantly predicts pro-environmental behaviors (Hirsh, 2010); flexible thinking appears necessary for individuals to conceptualize the complex temporal and spatial consequences of environmental issues. The moderate positive correlation between emotional appraisal and PEB ($r = .468$, $p < .01$) supports our second hypothesis and aligns with research showing that most climate-related emotions relate positively to pro-environmental behaviors, while indifference correlates negatively (Böhm et al., 2020).

The regression analysis revealed emotional appraisal as a strong, significant predictor of PEB and cognitive flexibility as a weaker but still significant positive predictor, together accounting for 23% of the variance in PEB. This aligns with Böhm et al. (2020), who found emotional reactions to climate change — worry, hope, and moral emotions — strongly associated with environmental action across diverse cultural contexts, suggesting interventions to increase PEB should address emotional processing alongside knowledge. Cognitive flexibility's role is consistent with Hirsh (2010), who found openness to experience influences both

environmental concern and behavior, with flexible thinkers better able to incorporate new information and consider long-term impacts of their choices.

The mediation analysis indicated that cognitive flexibility significantly, though partially, mediated the relationship between emotional appraisal and PEB: emotional appraisal positively predicted cognitive flexibility, which in turn predicted higher PEB. This is consistent with Malooly et al. (2013), who found affective flexibility associated with greater emotion regulation and adaptive behavior. The indirect effect, though modest, was statistically significant, indicating that cognitive flexibility serves as a psychological mechanism through which emotional appraisal translates into pro-environmental action – in line with research linking flexible cognitive styles such as openness to experience with greater environmental concern and behavior (Hirsh, 2010), and with cognitive flexibility's association with effective problem-solving and adaptive coping (Genet & Siemer, 2011).

Because emotional appraisal's direct effect on PEB remained significant after controlling for cognitive flexibility, the mediation was partial, suggesting other pathways – social norms, environmental values, and personal efficacy – likely also link emotional appraisal and PEB (Steg & Vlek, 2009; Gifford & Nilsson, 2014). These findings support dual-process models of environmental behaviour that theorize action emerging through the interplay of affective and cognitive factors (Steg & Vlek, 2009), and suggest interventions promoting sustainable behavior among young adults should address both emotional and cognitive domains.

Conclusion

This study examined the mediating role of cognitive flexibility in the relationship between emotional appraisal and pro-environmental behavior among 381 young adults (aged 18–25) in Pakistan. Emotional appraisal was found to be a strong predictor of pro-environmental behavior, accounting for a considerable amount of variance; young adults more comfortable appraising their emotional experiences concerning environmental issues were more likely to convert those feelings into behavioral outcomes. Cognitive flexibility was found to be a partial mediator between emotional appraisal and PEB: emotional appraisal positively predicted cognitive flexibility, which in turn predicted increased PEB. The indirect effect, though small, was statistically significant, confirming cognitive flexibility as a psychological mechanism through which emotional appraisal impacts pro-environmental behavior – consistent with Malooly et al. (2013), who found affective flexibility facilitates emotion regulation and adaptive behavior.

The partial mediation suggests cognitive flexibility is an important pathway, but that emotional appraisal may also directly affect pro-environmental behavior through other mechanisms such as social norms, values, and self-efficacy (Gifford & Nilsson, 2014; Steg & Vlek, 2009). This extends the literature on cognitive flexibility by situating it within environmental psychology, showing that beyond its established role in adaptive coping and problem-solving (Genet & Siemer, 2011), cognitive flexibility also plays a role in translating emotional engagement into tangible pro-environmental behaviors.

These findings have importance for programs that focus on adults: because emotional thinking is a strong sign of actions that help the environment programs should teach about the environment and also connect with feelings. For example, through activities that make people think about how they feel about climate change and damage to nature (Böhm et al. 2020). The role of being able to think in ways also shows that training people to think in new ways and solve problems can help turn feelings, about the environment into real actions (Panno et al. 2018) which supports plans that mix education and rules to deal with both feelings and thinking when it comes to helping the environment (Steg & Vlek 2009; Gifford & Nilsson 2014).

Limitations

A cross-sectional design does not permit causal inferences, and reliance on self-report measures may introduce social desirability and retrospective bias. The sample was comprised of young adults from universities in Islamabad and Rawalpindi, limiting generalizability to other cohorts or cultural groups. Although cognitive flexibility was the focus as a mediator, other psychological constructs such as environmental identity, moral reasoning, or future time perspective could be valuable avenues for future inquiry. Future research might apply longitudinal or experimental designs to establish causal relationships, examine whether interventions designed to improve emotional and cognitive skills promote sustainability, and extend this work to different populations and culturally relevant contexts. Incorporating additional mediators and moderators, such as personality traits, social norms, or contextual factors, together with multi-method approaches including behavioural observation and physiological measures, would further strengthen future research in this area.

References

1. Acquadro Maran, D., et al. (2023). Pro-environment behaviors, efficacy beliefs perceived individual and social norms: A questionnaire survey in a sample of young adults from Pakistan. *SAGE Open*, 13(4). <https://doi.org/10.1177/21582440231207444>
2. Ahmed, N., & Kiyani, T. (2024). Climate change and youth mental health in Pakistan: The role of resilience and education. *Pakistan Journal of Psychology*, 55(1), 11–28.
3. Ahmed, S., & Kiyani, A. (2024). Cognitive flexibility as a mediator between nature relatedness and emotion appraisal. *Ecopsychology*, 16(3). <https://doi.org/10.1089/eco.2023.0043>
4. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
5. Asghar, M., & Nazneen, L. (2016). The role of locus of control in pro environmental attitude and behavior in youth. *Peshawar Journal of Psychology and Behavioral Sciences*, 2(2), 263–274.
6. Böhm, G., Doran, R., Hanss, D., Halstead, J., & O'Connor, R. E. (2020). Emotional reactions to climate change: A comparison of seven industrialized countries. *Climate Policy*, 20(5), 1–15. <https://doi.org/10.1080/14693062.2020.1745748>
7. Dennis, J. P., & Vander Wal, J. S. (2010). The cognitive flexibility inventory: Instrument development and estimates of reliability and validity. *Cognitive Therapy and Research*, 34, 241–253. <https://doi.org/10.1007/s10608-009-9276-4>
8. Davies, K. A., Lane, A. M., Devonport, T. J., & Scott, J. A. (2010). Validity and reliability of a brief emotional intelligence scale (BEIS-10). *Journal of Individual Differences*. <https://doi.org/10.1027/1614-0001/a000028>
9. Gifford, R., & Nilsson, A. (2014). Personal and social factors that influence pro-environmental concern and behaviour: A review. *International Journal of Psychology*, 49(3), 141–157. <https://doi.org/10.1002/ijop.12034>
10. Gülüm, I. V., & Dağ, I. (2023). The mediating role of cognitive emotion regulation in the relationship between cognitive flexibility and psychological well-being. *ResearchGate*. <https://www.researchgate.net/publication/387474009>
11. Hirsh, J. B. (2010). Personality and environmental concern. *Journal of Environmental Psychology*, 30(2), 245–248. <https://doi.org/10.1016/j.jenvp.2010.01.004>
12. Hussain, A. (2015). Pro-environmental behaviour and implementation of environmental interventions in Pakistan [Master's thesis]. Norwegian University of Science and Technology.
13. Jones, C. R., Hine, D. W., & Marks, A. D. (2017). The future is now: Reducing psychological distance to increase public engagement with climate change. *Risk Analysis*, 37(2), 331–341. <https://doi.org/10.1111/risa.12601>
14. Knez, I., et al. (2019). Cognitive flexibility and pro-environmental behaviour: A cross-cultural perspective. *Journal of Personality*, 93(5), 1013–1028. <https://doi.org/10.1002/per.2204>
15. Li, X., et al. (2023). Climate emotions and anxiety among young people in Canada: A national survey and call to action. *PLOS ONE*, 18(2). <https://doi.org/10.1371/journal.pone.0274083>
16. Malooly, A. M., Genet, J. J., & Siemer, M. (2013). Individual differences in reappraisal effectiveness: The role of affective flexibility. *Emotion*, 13(2), 302–313. <https://doi.org/10.1037/a0030466>
17. Murtaza, S. A., Akhtar, R., & Ghaffar, A. (2022). Climate change and pro-environmental behaviours: The significant environmental challenges of livelihoods. *ResearchGate*. <https://www.researchgate.net/publication/35974427048>
18. Ochsner, K. N., & Gross, J. J. (2008). Cognitive emotion regulation: Insights from social cognitive and affective neuroscience. *Current Directions in Psychological Science*, 17(2), 153–158. <https://doi.org/10.1111/j.1467-8721.2008.00566.x>

19. Panno, A., Donati, M. A., Milioni, M., Chiesi, F., & Primi, C. (2018). Emotion regulation and risk-taking: Predicting risky choice in probabilistic gambling through cognitive reappraisal and expressive suppression. *Journal of Behavioral Decision Making*, 31(2), 275-284. <https://doi.org/10.1002/bdm.2056>
20. Steg, L., & Vlek, C. (2009). Encouraging pro-environmental behaviour: An integrative review and research agenda. *Journal of Environmental Psychology*, 29(3), 309-317. <https://doi.org/10.1016/j.jenvp.2008.10.004>
21. Van der Werff, E., Steg, L., & Keizer, K. (2013). The value of environmental self-identity: The relationship between biospheric values, environmental self-identity and environmental preferences, intentions and behaviour. *Journal of Environmental Psychology*, 34, 55-63. <https://doi.org/10.1016/j.jenvp.2012.12.006>
22. Mateer, T. J., Melton, T. N., Miller, Z. D., Lawhon, B., Agans, J. P., & Taff, B. D. (2022). A multidimensional measure of pro-environmental behavior for use across populations with varying levels of environmental involvement in the United States. *PloS one*, 17(10), e0274083. <https://doi.org/10.1371/journal.pone.0274083>



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