

Exploring The Role of Cognitive Flexibility in Shaping Adaptive and Maladaptive Emotion Regulation Among College Students

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Abstract

This study explores the role of cognitive flexibility in shaping adaptive and maladaptive emotion regulation among Indian university students. The study used a quantitative design and gathered data from 268 university students using the Cognitive Flexibility Inventory and the Cognitive Emotion Regulation Questionnaire. The correlation analyses indicated that both the dimensions of cognitive flexibility-Alternatives (CFa) and Control (CFc) were positively associated with adaptive strategies and negatively associated with maladaptive strategies. Further regression analyses revealed that the CFa predicted adaptive regulation, while CFc was significantly inhibited maladaptive strategies. These findings highlight the prominent regulatory functions of cognitive flexibility components and support their relevance in developing culturally sensitive interventions for student mental health.

Keywords: cognitive flexibility, cognitive emotion regulation strategies, adaptive and maladaptive coping, college students.

Introduction

The ability to adaptively manage emotions is crucial for psychological well-being (Kraiss et al., 2020). Effective management of academic stress, interpersonal challenges, and emotional pressures require adaptive emotional regulation (Barbayannis et al., 2022; Rentzios et al., 2025). Current research indicates that many university students experience significant psychological distress like anxiety, depression, and suicidal ideation (Paiva et al., 2025; Pradubkham et al., 2026). These concerns raises the need to examine underlying cognitive-affective mechanisms, such as cognitive emotion regulation and cognitive flexibility. These factors influence the individual's capacity to cope effectively with stressors (Gu et al., 2025; Ma et al., 2025; Waterhouse et al., 2025). Cognitive flexibility enables individuals to disengage from rigid cognitive patterns and respond more adaptively to environmental demands. (Hohl & Dolcos, 2024; Uddin, 2021). Empirical research has shown higher cognitive flexibility with improved academic adjustment, reduced anxiety, and enhanced well-being among students (Alsaif et al., 2024; Çelebi et al., 2023; Demirtaş, 2020). Emotion regulation is conceptualized as the process through which individuals influence their emotional experiences and expressions, and is increasingly understood to operate along a continuum of adaptive and maladaptive strategies (Flores-Kanter et al., 2021; Gadassi-Polack et al., 2023; Navas-Casado et al., 2023; Öztekin et al., 2025). Being able to switch between different ways of managing emotions is important for staying emotionally balanced, especially when situations keep changing (Chen et al., 2024; Haag et al., 2024; Pruessner & Ortner, 2025). Cultural variation represents relatively understudied area in research on emotion regulation among university students. Most past studies were done in Western countries, so their findings may not fully apply to people from non-Western cultures. In collectivist cultures, especially in Southeast Asia, people learn to manage their emotions in ways that focus on maintaining relationships, depending on others, and being aware of their social roles (Abd Hadi et al., 2023; Kitayama & Salvador, 2024; De Leersnyder et al., 2021). Cross-cultural research indicates that emotion regulation strategies and their psychological outcomes vary across sociocultural contexts (Fekar Gharamaleki & Fathipour-Azar, 2025; Kakollu et al., 2026; Qiu et al., 2025; Alruwaili, 2025). Previous researches had mainly focused cognitive flexibility and emotion regulation in isolation and on their general emotional outcomes (Ahmadi et al., 2025; Klein et al., 2024). There remains a critical gap in understanding how cognitive flexibility specifically influences the use of adaptive and maladaptive cognitive emotion regulation strategies (Alwesmi et al., 2024; Nakhostin-Khayyat et al., 2024). Addressing this gap is particularly relevant in contemporary contexts characterized by heightened academic pressures and post-pandemic challenges, which have been associated with increased stress, anxiety, and mental health concerns among university students (Barbayannis et al., 2022; Dresen et al., 2025; Pérez-Jorge et al., 2025). Therefore, the present study aims to understand the role of cognitive flexibility in shaping adaptive and maladaptive emotion regulation strategies in college students.

Method

Participants

The sample consisted of 268 undergraduate and postgraduate students (159 females and 109 males) between the ages of 18 and 25 years. Participants were informed about the purpose of the study, and electronic informed consent was obtained before data collection. Participation was voluntary, and the confidentiality of participant information was maintained throughout the study. Ethical approval was obtained from the University Research Committee, and the study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

Measures

The Cognitive Flexibility Inventory (CFI): The CFI (Dennis and Vander Wal, 2010) was used to assess cognitive flexibility among university students. It is a 20-item self-report questionnaire designed to measure an individual's ability to identify alternative explanations and solutions to challenging situations and perceive difficult situations as controllable. The inventory uses a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). It comprises two dimensions: Cognitive Flexibility–Alternatives (CF-a), which assesses the ability to generate multiple explanations and alternative solutions to situations, and Cognitive Flexibility–Control (CF-c), which measures the tendency to perceive challenging situations as manageable.

The Cognitive Emotion Regulation Questionnaire (CERQ): The CERQ (Garnefski et al., 2001) was used to assess the cognitive strategies employed by individuals to regulate their emotions in response to stressful or challenging experiences. It is a 36-item self-report questionnaire comprising nine subscales, with four items in each subscale. Responses are rated on a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The nine subscales are grouped into two broad categories: adaptive and maladaptive cognitive emotion regulation strategies. The adaptive strategies include acceptance, positive refocusing, refocus on planning, positive reappraisal, and putting into perspective. The maladaptive strategies include self-blame, rumination, catastrophizing, and other-blame. For the present study, the scores of the respective subscales were summed to obtain scores for adaptive and maladaptive cognitive emotion regulation strategies.

Procedure

The study employed a quantitative, cross-sectional, correlational research design to examine the associations between cognitive flexibility components and adaptive and maladaptive cognitive emotion regulation strategies among university students. Participants were recruited using convenience sampling approach. Data were collected using an online questionnaire containing demographic information and standardized measures of the cognitive flexibility and cognitive emotion regulation. The survey link was distributed through academic networks and social-media platforms. Participants completed the questionnaire voluntarily at a time convenient to them. Responses were collected anonymously and used solely for research purposes.

Statistical Analysis

Data were analysed using IBM SPSS Statistics version 26. Descriptive statistics, including means and standard deviations, were calculated for all study variables. Spearman's correlation coefficients were used to examine the relationships among cognitive flexibility–Alternatives (CF-a), cognitive flexibility–Control (CF-c), adaptive cognitive emotion regulation strategies, and maladaptive cognitive emotion regulation strategies. Two multiple regression analyses were conducted. In the first model, adaptive cognitive emotion regulation strategies were entered as the dependent variable, with CF-a and CF-c entered simultaneously as predictors. In the second model, maladaptive cognitive emotion regulation strategies were entered as the dependent variable using the same predictors. Statistical significance was set at $p < .05$.

Results

Table 1: Descriptive Statistics and Correlations for Study Variables

Variable	N	M	SD	1	2	3
1. CF-a	268	61.58	10.93			
2. CF-c	268	28.92	7.99	.219**		
3. Adaptive strategies	268	62.24	13.84	.323**	.101	
4. Maladaptive strategies	268	42.57	10.44	-.073	-.384**	.248**

Note. N = 268. CF-a = Cognitive Flexibility-Alternatives; CF-c = Cognitive Flexibility-Control; **p < .01 (two-tailed).

Table 2: Multiple Regression Analyses Predicting Adaptive Cognitive Emotion Regulation Strategies from Cognitive Flexibility Components (CF-a & CF-c)

Predictor	B	SE	β	t	p
CF-a	0.43	0.07	.336	5.77	.001
CF-c	0.03	0.10	.014	0.24	.808

Note. N=268. Dependent variable: Adaptive Strategies, $R^2=.115$, Adjusted $R^2=.108$, $F(2,265)=17.15$, **p<.01.

Table 3: Multiple Regression Analyses Predicting Maladaptive Cognitive Emotion Regulation Strategies from Cognitive Flexibility Components (CF-a & CF-c)

Predictor	B	SE	β	t	p
CF-a	0.04	0.05	.040	0.72	.474
CF-c	-.55	0.07	-.420	-7.46	.001

Note. N=268. Dependent variable: Maladaptive Strategies, $R^2=.174$, Adjusted $R^2=.168$, $F(2,265)=27.88$, **p<.01.

Discussion

The study extends the research on the role of two distinct components of cognitive flexibility, cognitive flexibility-alternatives (CF-a) and cognitive flexibility-control (CF-c) in understanding the use of adaptive and maladaptive cognitive emotion regulation (CER) strategies among college students. The correlational study was conducted to investigate the relation between Cognitive Flexibility and Cognitive Emotion Regulation Strategies. A moderate significant positive association was observed between CF-a and CF-c, suggesting that the ability to generate multiple perspectives is linked with a stronger perceived capacity to regulate internal experiences. This could mean that when students are faced with difficult or uncertain situations, some are able to pause, reflect, and consider multiple ways of understanding or responding to the problem and this in return gives them a sense of control. Recent empirical

work further supports this interdependence, demonstrating that individuals who are able to consider alternative interpretations of a situation may develop a greater sense of agency over their thoughts and emotions, thereby enhancing their capacity to respond effectively to stressors (Bosshard et al., 2024; Ouyang et al., 2026; Xu et al., 2020). CF-a was found to be positively associated with adaptive cognitive emotion regulation strategies. This suggests that students who are more adept at imagining different ways to interpret or respond to a situation are also more likely to engage in constructive regulatory approaches-such as reframing the meaning of an event, focusing on solutions, or practicing acceptance. Prior researches have indicated that cognitive flexibility facilitates the reinterpretation of stressful experiences which enables the individuals to adopt more adaptive regulatory responses (Ghosh & Halder, 2020; Gu et al., 2025; Marciniak et al., 2024; Wang et al., 2025). CF-c demonstrated a significant negative association with maladaptive cognitive emotion regulation strategies, indicating that students who believe they can manage their thoughts and emotions during distress are less likely to ruminate or amplify their suffering through destructive mental loops. CF-c appears to represent a stabilizing component of cognitive flexibility, supporting emotional regulation by limiting the persistence of negative cognitive processes. An interesting finding in study was the positive association between adaptive and maladaptive cognitive emotion regulation strategies. Although these strategies are conceptually distinct. This may explain the fact that students who frequently use adaptive strategies like positive reappraisal or planning may also, at times, engage in maladaptive tendencies such as self-blame or rumination. This shows that emotional coping styles are dynamic and not mutually exclusive. These strategies can vary across situational demands and individual differences. Cognitive emotion regulation strategies are generally categorized as adaptive or maladaptive according to the psychological outcomes. Previous studies have shown emotion regulation as a fluid and context-dependent system (Aldao & Nolen-Hoeksema, 2012; Garnefski & Kraaij, 2006; Chen et al., 2024; Wang et al., 2025; Pruessner & Ortner, 2025; Ullah et al., 2021). The multiple regression analysis was conducted to predict Adaptive and Maladaptive Cognitive Emotion Regulation Strategies from Cognitive Flexibility Components. The results showed that CF-a can help predict positive ways students manage their emotions. Students who scored higher on CF-a used more constructive emotional strategies such as positive reappraisal, future-oriented planning, and acceptance. Apart from staying calm, managing emotional challenges also need the ability to mentally step back, reassess, and reframe the situation. Students who could have more alternative explanations of understanding a problem are more psychologically resilient. Individuals who scored more in CF-a may possess stronger metacognitive awareness. This also enable individuals to adopt more adaptive regulatory responses (Gu et al., 2025; Palamarchuk et al., 2021; Stover et al., 2024; Brockbank et al., 2024). In contrast, CF-c did not significantly predict the use of adaptive strategies in this sample. This finding may suggest that simply believing one's ability to manage their thoughts and feelings might not parallelly improve positive emotional strategies. Previous research suggests that perceived cognitive control is linked with disengaging from maladaptive responses, such as rumination, than to initiating adaptive emotion regulation strategies. (Genet & Siemer, 2011; Joormann & D'Avanzato, 2010). While the ability to generate multiple perspectives can help individuals reframe stressful situations, it is often the sense of control over one's internal states that determines whether distressing thoughts will escalate. In this study, CF-c emerged as an inverse predictor of maladaptive cognitive emotion regulation strategies. Students who reported feeling more capable of managing their thoughts and emotional responses were significantly less likely to engage in harmful cognitive patterns such as rumination, catastrophizing, and self-blame. This might suggest that perceived cognitive control acts as a kind of internal stabilizer. It prevents automatic negative thoughts from escalating in emotionally charged or high-stress situations like academic failure, interpersonal conflict, or career uncertainty. Higher levels of cognitive control and flexibility have been associated with lower levels of depressive and anxiety symptoms (Gabrys et al., 2018; Genet & Siemer, 2011). CF-a-did not significantly predict maladaptive strategies. This might due to that the ability to generate new interpretations and the repetitive negative thinking can co-exist. Without the capacity to filter, redirect, or suppress unhelpful thoughts, having too many perspectives could even lead to cognitive overload or indecision in emotionally charged situations. CF-a maybe more helpful in enhancing adaptive coping but CF-c dominates the regulation and suppression of maladaptive responses. These findings highlight the distinct roles of cognitive flexibility's subcomponents. In the context of adaptive emotional functioning, it is not merely the sense of control over one's mind that predicts positive outcomes. It is the capacity to imagine alternatives, reinterpret meaning, and mentally reorient that proves more influential, as well as understanding the unique value of perceived control in helping students not just think differently, but also think less destructively, when under emotional duress. Among the college students, many of whom are still developing advanced emotion regulation capacities, this kind of mental openness can be helpful in navigating academic pressures, interpersonal conflict, and identity transitions with resilience. These may help

universities to further understand and support psychological functioning among young adults in academic environments.

Limitations

Cognitive Emotion Regulation Strategies are studied on broader domains like adaptive and maladaptive strategies. It could have been better understood by using its different subcomponents. A mixed method approach could be better over the complete quantitative approach to understand how factors like personality or social support may have cultural influences. Integrating neurocognitive assessments may further clarify underlying mechanisms and strengthen the evidence base for cognitive-emotional interventions in educational settings.

Conclusion

The findings underscore the complexity and specificity of cognitive-emotional processes in emerging adults, particularly within the high-stress context of college life. Cognitive flexibility—specifically its components of Alternatives and Control—relates to adaptive and maladaptive cognitive emotion regulation strategies among Indian college students. The findings reveal that CF-a is more strongly associated with the promotion of adaptive strategies, while CF-c plays a critical role in suppressing maladaptive emotional responses, underscoring the functional differentiation within the broader construct of flexibility. These insights highlight cognitive flexibility not as a unitary trait, but as a multidimensional process that interacts with emotion regulation to shape psychological resilience in academic contexts. By focusing on a non-Western, student population, the study contributes culturally relevant evidence to the literature and addresses a significant gap in emotion regulation research. The results emphasize the importance of designing interventions that simultaneously cultivate flexible thinking and promote adaptive regulatory strategies to support students' emotional well-being and academic adjustment.

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