

COGNITIVE AND AFFECTIVE PREDICTORS OF EMOTION REGULATION: EMOTIONAL REACTIVITY AND ATTENTIONAL CONTROL IN YOUNG ADULTS

Debolina Roy^{1*}, Dr. Gautam Gawali²

¹*PhD research scholar, AIBAS, Amity University Mumbai, Email ID: roydebolinapsy@gmail.com, ORCID ID: 0009-0006-2543-9679

²Professor and Director, AIBAS, Amity University Mumbai, Email ID: ggawali@mum.amity.edu

ABSTRACT

Emotion regulation involves an interaction between cognitive processes and emotional responses, yet the relative contribution of these factors remains less clear during young adulthood. The present study examined the relationships of attentional control and emotional reactivity with cognitive reappraisal and expressive suppression among 268 Indian university students aged 18 to 25 years. A cross-sectional design was used, and participants completed self-report measures of attentional control, emotional reactivity, and emotion regulation. Pearson correlations and multiple regression analyses were conducted. Emotional reactivity showed more consistent associations with emotion regulation strategies than attentional control. Positive emotional reactivity significantly predicted greater cognitive reappraisal, whereas negative emotional reactivity predicted lower cognitive reappraisal. The model explained 21.7% of the variance in reappraisal. For expressive suppression, negative emotional reactivity was the only significant predictor, and the model explained 6.2% of the variance. Attentional focusing and attentional shifting did not independently predict either regulation strategy when all predictors were considered simultaneously. These findings suggest that positive and negative emotional reactivity may have distinct relationships with habitual emotion regulation strategies in young adults.

KEYWORDS: emotion regulation; attentional control; emotional reactivity; cognitive reappraisal; expressive suppression; young adults

INTRODUCTION

Emotions influence how people understand situations and respond to everyday challenges. In daily life, emotional reactions occur frequently and often require regulation to support adaptive functioning. Emotion regulation involves the ways individuals understand, manage, and adjust their emotions and emotional expressions to support healthy adaptation and psychological well-being throughout life (Gross, 2015). Beyond its relevance in clinical and personality psychology, emotion regulation has broader relevance for public mental health because it shapes how individuals cope with stress, maintain relationships, and adapt to everyday challenges (Compas et al., 2017; Lincoln et al., 2022). Difficulties in emotion regulation are consistently associated with psychological distress and a greater risk of mental health problems (Keskiner et al., 2024). Earlier models primarily emphasized specific regulation strategies, particularly cognitive reappraisal and expressive suppression (Gross and John, 2003), whereas contemporary research highlights the importance of flexibly adapting emotion regulation strategies to situational demands and contextual factors (Chen et al., 2024; Wang et al., 2025). Attentional control refers to the ability to maintain focus on relevant information and to shift attention when situational demands change (Derryberry and Reed, 2002). Cognitive and affective systems are closely interconnected, with cognitive control processes contributing to the modulation of emotional responses through interactions between prefrontal regulatory systems and regions involved in emotional processing (Ochsner and Gross, 2008; Buhle et al., 2014). Emotional reactivity describes how readily emotions are triggered, how intensely they are experienced, and how long they persist in response to emotionally relevant situations (Festucci et al., 2024). Higher emotional reactivity is typically associated with greater sensitivity to emotional cues, whereas lower emotional reactivity is linked to more attenuated emotional responses (Nock et al., 2008; Koval et al., 2013). The effectiveness of emotion regulation is shaped by how cognitive and affective systems interact, especially in emotionally demanding situations (Pessoa, 2009; Dolcos et al., 2011). Individual differences in attentional control and emotional reactivity may be particularly relevant during young adulthood, a period characterized by heightened emotional, cognitive, and social demands. These demands are particularly evident among university students, who must navigate increasing academic responsibilities, changing relationships, and greater personal independence during the transition to adulthood (Arnett, 2000). Recent research also shows that academic pressure, social adjustment, and uncertainty about the future contribute significantly to stress and emotional difficulties among students (Zuo et al., 2024; Charan et al., 2025). These experiences are also shaped by cultural context, particularly in collectivistic societies where social harmony and interpersonal relationships strongly influence emotional expression and emotion regulation (Mesquita and Walker, 2003; De Leersnyder et al., 2021). Recent studies suggest that attentional control is associated with emotion regulation strategy use, including cognitive reappraisal (Andries et al., 2024), while emotional reactivity is related to habitual patterns of emotion regulation (Brunel and Fombouchet, 2026). Despite these

findings, comparatively little is known about the relative contributions of attentional control and emotional reactivity when examined simultaneously. In particular, it remains unclear whether positive and negative emotional reactivity are differently associated with cognitive reappraisal and expressive suppression after accounting for individual differences in attentional control. Evidence addressing these relationships among Indian university students also remains limited, despite recent research examining cognitive reappraisal and expressive suppression among Indian emerging adults (Kakollu et al., 2026). Understanding the cognitive and emotional processes underlying emotion regulation may help identify students vulnerable to maladaptive coping and emotional distress before severe symptoms develop. This is especially important for designing scalable preventive interventions, such as psychoeducation, attention training, and stress-management programs, that can be implemented in educational settings (Conley et al., 2015). Such approaches may support broader public health efforts aimed at strengthening emotional resilience and psychological well-being among young adults. Accordingly, the present study examined the relative contributions of attentional focusing, attentional shifting, positive emotional reactivity, and negative emotional reactivity to cognitive reappraisal and expressive suppression among young adults.

METHOD

Participants

The sample consisted of 268 participants (159 females and 109 males) between the ages of 18 and 25 years. Approval for the study was obtained from the University Research Committee before data collection began. Participants were informed about the purpose of the study, and electronic informed consent was obtained from all of them. Confidentiality of all participant information was strictly maintained throughout the study. The research was carried out in accordance with the ethical principles outlined in the Declaration of Helsinki.

Measures

The Attentional Control Scale (ACS): The ACS (Derryberry and Reed, 2002) is a 20-item self-report measure of perceived attentional control. It assesses two components: attentional focusing, reflecting the ability to maintain attention on task-relevant information, and attentional shifting, reflecting the ability to redirect attention when required. Items are rated on a 4-point Likert scale, with higher scores indicating greater perceived attentional control.

Emotion Regulation Questionnaire (ERQ): The ERQ (Gross and John, 2003) is a 10-item self-report measure assessing two habitual emotion regulation strategies: cognitive reappraisal and expressive suppression. Six items assess cognitive reappraisal and four assess expressive suppression. Items are rated on a 7-point Likert scale, with higher scores indicating greater use of the respective strategy.

Perth Emotional Reactivity Scale (PERS): The PERS (Becerra et al., 2019) is a 30-item self-report measure assessing emotional reactivity across positive and negative emotional domains. It evaluates the activation, intensity, and duration of emotional responses. The present study used the General Positive Reactivity (GPR) and General Negative Reactivity (GNR) scores. Items are rated on a 5-point Likert scale ranging from 1 (very unlike me) to 5 (very like me), with higher scores indicating greater emotional reactivity.

Procedure

The study employed a cross-sectional design. Participants were recruited using a non-probability convenience sampling approach. Data were collected using an online questionnaire containing demographic information and standardized measures of attentional control, emotional reactivity, and 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 26. Descriptive statistics, including means and standard deviations, were calculated for all study variables. Pearson's correlation coefficients were used to examine bivariate associations among attentional focusing, attentional shifting, general positive reactivity, general negative reactivity, cognitive reappraisal, and expressive suppression. Two multiple regression analyses were then conducted. In the first model, cognitive reappraisal was entered as the dependent variable, with attentional focusing, attentional shifting, general positive reactivity, and general negative reactivity entered simultaneously as predictors. In the second model, expressive suppression was entered as the dependent variable using the same predictors. Statistical significance was set at $p < .05$. Multicollinearity among predictors was assessed before regression analysis and was found to be within acceptable limits.

RESULTS

Table 1. Descriptive Statistics and Correlations for Study Variables

Variable	N	M	SD	1	2	3	4	5
1. Attn-Focus	268	21.44	4.02					
2. Attn-Shift	268	25.03	3.52	.320**				
3. GPR	268	54.88	10.60	.158**	.161**			

4. GNR	268	47.78	12.38	.432**	.090	-.058		
5. EXSUPP	268	17.44	5.33	.163**	.136*	-.048	.204**	
6. COGREAP	268	28.70	6.49	.030	.102	.437**	-.179**	.143**

Note. Attn-Focus = attentional focusing; Attn-Shift = attentional shifting; GPR = general positive reactivity; GNR = general negative reactivity; EXSUPP = expressive suppression; COGREAP = cognitive reappraisal. $p < .05$; ** $p < .01$.

Descriptive statistics and Pearson correlations are presented in Table 1. Cognitive reappraisal showed its strongest positive association with positive emotional reactivity ($r = .44$, $p < .01$) and was negatively associated with negative emotional reactivity ($r = -.18$, $p < .01$). Expressive suppression was positively associated with negative emotional reactivity ($r = .20$, $p < .01$) and showed smaller positive associations with attentional focusing and attentional shifting. These relationships were examined further using multiple regression analyses.

Table2. Multiple Regression Analysis Predicting Cognitive Reappraisal from Attentional Control and Emotional Reactivity

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Attn-Focus	0.037	0.104	.023	0.358	.720
Attn-Shift	0.078	0.107	.042	0.729	.466
GPR	0.255	0.034	.417	7.421	<.001
GNR	-0.088	0.032	-.168	-2.751	.006

Note. $N = 268$. Dependent variable = cognitive reappraisal. $R^2 = .217$, adjusted $R^2 = .205$, $F(4, 263) = 18.25$, $p < .001$. Attn-Focus = attentional focusing; Attn-Shift = attentional shifting; GPR = general positive reactivity; GNR = general negative reactivity.

A multiple regression analysis was conducted to examine whether attentional control and emotional reactivity predicted cognitive reappraisal. Attentional focusing, attentional shifting, general positive reactivity, and general negative reactivity were entered simultaneously as predictors. The overall model was significant, $F(4, 263) = 18.25$, $p < .001$, and explained 21.7% of the variance in cognitive reappraisal ($R^2 = .217$, adjusted $R^2 = .205$). General positive reactivity was positively associated with cognitive reappraisal ($\beta = .417$, $t = 7.42$, $p < .001$), whereas general negative reactivity showed a smaller negative association ($\beta = -.168$, $t = -2.75$, $p = .006$). Attentional focusing and attentional shifting were not significant predictors when all variables were considered simultaneously (both $ps > .05$). Overall, cognitive reappraisal was more strongly associated with emotional reactivity than with attentional control in the multivariable model.

Table3. Multiple Regression Analysis Predicting Expressive Suppression from Attentional Control and Emotional Reactivity

Predictor	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i>
Attn-Focus	0.091	0.094	.069	0.973	.332
Attn-Shift	0.166	0.096	.110	1.732	.084
GPR	-0.034	0.031	-.067	-1.097	.273
GNR	0.069	0.029	.161	2.339	.017

Note. $N = 268$. Dependent variable = expressive suppression. $R^2 = .062$, adjusted $R^2 = .048$, $F(4, 263) = 4.36$, $p = .002$. Attn-Focus = attentional focusing; Attn-Shift = attentional shifting; GPR = general positive reactivity; GNR = general negative reactivity.

A multiple regression analysis was conducted to examine whether attentional control and emotional reactivity predicted expressive suppression. Attentional focusing, attentional shifting, general positive reactivity, and general negative reactivity were entered simultaneously as predictors. The overall model was significant, $F(4, 263) = 4.36$, $p = .002$, and explained 6.2% of the variance in expressive suppression ($R^2 = .062$, adjusted $R^2 = .048$). General negative reactivity was the only significant predictor of expressive suppression ($\beta = .161$, $t = 2.34$, $p = .017$), with higher negative emotional reactivity associated with greater use of expressive suppression. Attentional shifting was not a significant predictor ($\beta =$

.110, $p = .084$). Attentional focusing and general positive reactivity were also not significant predictors (both $ps > .05$). Overall, general negative reactivity was the only predictor that contributed significantly to expressive suppression when all four predictors were considered simultaneously.

DISCUSSION

The present study examined the relationships of attentional control and emotional reactivity with cognitive reappraisal and expressive suppression among Indian university students. Overall, emotional reactivity showed a more consistent relationship with emotion regulation strategies than attentional control. Positive emotional reactivity was associated with greater use of cognitive reappraisal. Negative emotional reactivity was associated with lower use of reappraisal and greater use of expressive suppression. In contrast, attentional focusing and attentional shifting did not emerge as significant independent predictors of either regulation strategy when all predictors were considered simultaneously. These findings suggest that positive and negative emotional reactivity may be important in understanding individual differences in habitual emotion regulation strategies.

Emotional Reactivity and Cognitive Reappraisal

Positive emotional reactivity showed the strongest association with cognitive reappraisal. Students with higher positive emotional reactivity reported greater use of reappraisal. This relationship was found in both the correlation and regression analyses. In contrast, negative emotional reactivity was associated with lower use of reappraisal. This pattern suggests that positive and negative emotional reactivity may have different relationships with the way individuals reinterpret emotional situations. One possible explanation for the positive association is that positive emotional experiences may support a broader way of processing information. Experimental research has shown that positive emotions can broaden the scope of attention and increase the range of thoughts and possible responses available to an individual (Fredrickson and Branigan, 2005). This broader processing may make it easier to consider alternative interpretations of an emotional situation. Such reinterpretation is central to cognitive reappraisal. Although previous research has mainly examined positive emotional states rather than trait emotional reactivity, it provides a possible explanation for the positive relationship observed in the present study. Negative emotional reactivity showed a smaller but significant negative association with cognitive reappraisal. Students with higher negative emotional reactivity reported less frequent use of reappraisal. One possible explanation is that stronger negative emotional responses may make cognitive reinterpretation more difficult. Experimental research has shown that the intensity of an emotional situation can influence the choice of emotion regulation strategies. Reappraisal tends to be selected less often when negative emotional intensity is high (Sheppes et al., 2014). Neuroimaging research also indicates that reappraisal involves prefrontal and cingulate systems that support cognitive control and the modification of emotional responses (Ochsner et al., 2012). These findings provide a possible basis for understanding why greater negative emotional reactivity was associated with lower reappraisal in the present study. However, emotional intensity and emotional reactivity are not the same construct. Emotional reactivity includes how readily emotions are activated, their intensity, and how long they persist. Therefore, findings from studies of emotional intensity should be viewed as a possible explanation rather than direct evidence for the present results. The cross-sectional design of the present study also does not establish the direction of the relationship. Greater negative reactivity may make reappraisal more difficult, but frequent use of reappraisal may also be related to how negative emotions are experienced over time.

Emotional Reactivity and Expressive Suppression

A different pattern was found for expressive suppression. Negative emotional reactivity was the only significant predictor of expressive suppression in the regression model. Students with greater negative emotional reactivity reported greater use of suppression. Positive emotional reactivity did not independently predict suppression. The regression model also explained only a small proportion of the variance in suppression. This suggests that other psychological, interpersonal, or situational factors may also contribute to the use of this strategy. The positive relationship between negative emotional reactivity and suppression is consistent with previous work showing an association between habitual suppression and greater experience of negative emotion (Gross and John, 2003). One possible explanation is that individuals who experience negative emotions more readily or strongly may have more occasions in which they attempt to control their outward emotional expression. However, the reverse explanation is also possible. Frequent suppression may be associated with the continued experience of negative emotion even when its outward expression is reduced. The present cross-sectional findings cannot determine which process occurs first. The cultural context is also relevant when interpreting expressive suppression. Suppression has often been associated with less favourable psychological and interpersonal outcomes. However, its function may not be the same across cultures. Research has shown that some negative social consequences of suppression are weaker among individuals who endorse more Asian cultural values (Butler et al., 2007). Cross-cultural research has also found that societies that place greater emphasis on social order, hierarchy, and embeddedness tend to report greater use of suppression (Matsumoto et al., 2008). These findings suggest that suppression can be influenced by social expectations regarding emotional expression. This cultural perspective may be relevant to the present Indian university sample. However, cultural values, social harmony, and norms regarding emotional expression were not directly measured in this study. Therefore, culture should be considered as a possible context for understanding the finding rather than as an explanation established by the present data.

Role of Attentional Control

The findings for attentional control were less consistent than those for emotional reactivity. Attentional focusing and attentional shifting were positively correlated with each other. Attentional focusing was also positively associated with both positive and negative emotional reactivity. Attentional shifting was positively associated with positive emotional reactivity, but it was not significantly associated with negative emotional reactivity. These findings suggest that attentional focusing and shifting may have somewhat different relationships with emotional responding. Neither attentional focusing nor attentional shifting was significantly associated with cognitive reappraisal at the bivariate level. Both variables also remained non-significant in the regression model. This indicates that self-reported attentional control was not independently associated with habitual cognitive reappraisal in the present sample. This finding does not necessarily mean that attentional control has no role in emotion regulation. Previous research has found that self-reported attentional control can predict spontaneous emotional downregulation following exposure to emotional stimuli (Morillas-Romero et al., 2015). The difference between those findings and the present results may partly reflect differences in how emotion regulation was assessed. The present study examined habitual use of cognitive reappraisal through self-report. In contrast, Morillas-Romero et al. examined changes in emotional responses following an experimental emotional induction. Attentional control may therefore be more relevant to regulation that occurs during specific emotional situations than to how frequently a person reports using a particular strategy in everyday life. A somewhat different pattern was observed for expressive suppression. Attentional focusing and attentional shifting showed small positive correlations with expressive suppression at the bivariate level. However, neither variable remained a significant predictor when all predictors were considered simultaneously. Thus, attentional control did not explain significant unique variance in expressive suppression after emotional reactivity was considered alongside it. These findings suggest that the relationship between attentional control and emotion regulation may depend on the way regulation is measured and the context in which it occurs. Models of emotion regulation flexibility also emphasize that the usefulness and selection of regulation strategies can vary according to situational demands (Aldao et al., 2015). It is therefore possible that attentional control becomes more relevant under particular emotional conditions rather than showing a direct relationship with habitual reappraisal or suppression. The present study tested only the independent effects of attentional control and emotional reactivity. Interaction effects were not examined. Future research could test whether attentional control changes the relationship between emotional reactivity and the use of specific regulation strategies.

Limitations and Directions for Future Research

The findings of this study need to be viewed within a few limitations. The cross-sectional design does not show how attentional control, emotional reactivity, and emotion regulation influence one another over time. The study also relied on self-report measures, which may not fully reflect how these processes operate during actual emotional situations. Future studies could use longitudinal or experimental designs and include behavioural or real-time measures. The use of non-probability sampling may limit how far the findings can be generalized. Future research could include larger and more diverse samples from different institutions and regions. The model predicting expressive suppression also explained only a small proportion of variance, suggesting that other psychological, interpersonal, or situational factors may also play a role. The present study examined only the independent effects of attentional control and emotional reactivity. Future studies could examine whether attentional control changes the relationship between emotional reactivity and emotion regulation strategies. Cultural values related to emotional expression were also not directly measured. Cross-cultural research may help clarify whether similar patterns are found in other cultural settings.

CONCLUSION

This study examined the relationships of emotional reactivity and attentional control with cognitive reappraisal and expressive suppression among young adults. Emotional reactivity showed a more consistent association with emotion regulation strategies than attentional control. Higher positive emotional reactivity was associated with greater use of cognitive reappraisal, whereas higher negative emotional reactivity was associated with lower reappraisal and greater use of expressive suppression. Attentional focusing and attentional shifting did not independently predict either regulation strategy when all variables were considered together. These findings suggest that the way individuals experience positive and negative emotions may be more closely related to their habitual regulation strategies than general self-reported attentional control. The results also highlight the need to consider positive and negative emotional reactivity separately when examining emotion regulation in young adults.

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