



Suppression Vs. Reappraisal: Comparative Predictive Strength Of Emotion Regulation Strategies On Academic And Perceived Stress In Emerging Adults (18–25 Years)

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ABSTRACT

Emerging adulthood (18–25 years) is a developmentally sensitive period marked by heightened academic demands and increased vulnerability to stress. Emotion regulation Strategies are very important in deciding how people deal with and react to certain kinds of pressures.; however, the comparative predictive strength of cognitive reappraisal as well as expressive suppression across different stress domains remains insouciantly clarified, particularly within non Western academic contexts. This study investigated the distinct and comparative predictive the functions of cognitive reappraisal and expressive repression in relation to felt stress and academic stress in emerging adults. A quantitative, cross-sectional, predictive correlational design was utilised. Data were gathered from 200 emerging adults (ages 18–25) enrolled in higher education institutions in India through an online survey. Participants administered the Emotion Regulation Questionnaire (ERQ) (evaluating cognitive reappraisal and expressive suppression), the Perceived Stress Scale (PSS-10), and a comprehensive Academic Stress Scale (ASS). Pearson's correlation along with simultaneous multiple regression analyses were performed utilising Jamovi. Correlation studies revealed that expressive suppression was highly correlated with both perceived stress and academic stress, but cognitive reappraisal showed no significant relationship with either stress measure at the bivariate level. Regression studies indicated that expressive suppression significantly positively predicted both perceived stress and academic stress, whereas cognitive reappraisal significantly negatively predicted perceived stress alone, even accounting for suppression. Reappraisal did not serve as a major predictor of academic stress. The data indicate that expressive suppression is a reliable susceptibility factor for stress, but cognitive reappraisal has a specific protective function for overall stress evaluations.

The research emphasises the necessity of differentiating between domain-general and domain specific stress consequences and identifies expressive repression as a vital focus for stress reduction interventions in academic environments for emerging adults.

Keywords: emotion regulation; cognitive reappraisal; expressive suppression; perceived stress; academic stress

CHAPTER : 1

INTRODUCTION

1.1 EMERGING ADULTHOOD AND STRESS VULNERABILITY

Although there is continuing debate about the boundaries of emerging adulthood, the field has agreed to delineate this period as ages 18, 25 (Sánchez-Sánchez et al., 2025). This is a unique time of extended education, identity exploration, and delayed access to social roles such as full, time work and marriage (Sánchez-Sánchez et al., 2025). In this stage of emerging adulthood, many individuals are enrolled in college where they balance academic load and life considerations such as selecting a career, selecting a romantic partner, and establishing a family (Sánchez-Sánchez et al., 2025), 2025; Sun & Nolan, 2021; Brewer et al., 2016). University students often cite struggles related to critical exams, heavy workload, competitive nature and expectation to perform well, financial strain, and friendship reshuffling as common stressors encountered during their studies (Liu et al., 2023; Sun & Nolan, 2021; Brewer et al., 2016). Therefore, stress seems to be normative during emerging adulthood; however, this has its costs as stress is positively related to depression, anxiety and poorer psychological health in college student samples in multiple nations (Sánchez-Sánchez et al., 2025), 2025; Zahniser & Conley, 2018; Liu et al., 2023; Sun & Nolan, 2021).

Emerging adults' stress is not only from significant life events, but also from common academic problems, ongoing uncertainty in the future and challenges of forming an identity, which can all exhaust individuals' limited resources of coping (Sánchez-Sánchez et al., 2025), 2025, Yu et al., 2025, Sun & Nolan, 2021). This stage is a great opportunity of psychological growth, especially for acquiring adaptive coping strategies, such as emotion regulation (Park et al., 2020, (Sánchez-Sánchez et al., 2025), (Sánchez-Sánchez et al., 2025) et al., 2025). It seems that the impact of emotion regulation toward how emerging adults cope with academic or high, impact stressful events, rather than the impact of stressors themselves on them, is significant in shaping stress outcomes (Park et al., 2020, Zahniser & Conley, 2018, Liu et al., 2023, Brewer et al., 2016).

1.2 EMOTION REGULATION AS A CORE PSYCHOLOGICAL PROCESS

Emotion Regulation refers to the systems people use to regulate their emotions, the timing of one's feelings and emotional expression. (Cutuli, 2014). The work on emotion regulation focuses on the mechanisms by which emotions are regulated rather than the intensity of emotion itself, illustrating that people vary not only in how intensely they experience emotions, but also in how they respond to and manage those feelings (Cutuli, 2014; Brockman et al., 2017; Haga et al., 2009). In developmental and clinical research, emotion regulation is increasingly conceptualized as a central, modifiable mechanism that helps explain why some individuals adapt well under stress while others develop internalizing symptoms or burnout (Park et al., 2020; Zahniser & Conley, 2018; Brewer et al., 2016; Salimzadeh et al., 2020).

Among emerging adults, the ways in which emotions are regulated prospectively predict a wide range of outcomes, including psychosocial adjustment, depressive symptoms, anxiety, flourishing, and academic-related functioning (Park et al., 2020; Sánchez-Sánchez et al., 2025; Zahniser & Conley, 2018; Brewer et al., 2016; Vinter et al., 2020). Longitudinal studies show that individual differences in regulation strategies forecast future mental health and role functioning, even after controlling for baseline adjustment, underscoring a predictive not merely correlational role for emotion regulation (Park et al., 2020; Zahniser & Conley, 2018; Brewer et al., 2016). Adaptive strategies (e.g., positive reappraisal, planning, seeking emotional support) are generally associated with higher well-being, optimism, and resilience, whereas maladaptive strategies (e.g., rumination, suppression, substance use,) predict elevated distress and poorer health outcomes (Haga et al., 2009; Vinter et al., 2020).

Despite its importance, emerging adulthood does not automatically bring more adaptive regulation. A large longitudinal study following students across their first two years of college found that social support-seeking increased and suppression decreased over time, but cognitive reappraisal actually declined and substance-use coping increased, suggesting that not all regulatory changes are beneficial (Park et al., 2020). Such findings further support the current emphasis on understanding specific strategies as targets of prevention and intervention efforts in academics. Cognitive reappraisal and expressive suppression are the two strategies to have received the most empirical attention in the literature.

1.3 THEORETICAL FRAMEWORK

The present study is centered around James J. Gross's Process Model of Emotion Regulation, which differentiates between antecedent, focused emotion regulation strategies, such as cognitive reappraisal, and response, focused emotion regulation strategies, such as expressive suppression.

This model hypothesizes that cognitive reappraisal modifies the emotional impact of a situation by changing its meaning prior to emotional response activation, while expressive suppression modifies emotional behaviors post, emotional response generation. Antecedent, focused emotion regulation techniques are generally considered to be more flexible and are associated with lower levels of stress, while the reverse is true for response, focused strategies (Gross, 2002; Gross & Thompson, 2007).

This study also utilizes the Transactional Model of Stress and Coping by Richard S. Lazarus and Susan Folkman to contextualize the anxiety relief hypothesized to result from use of cognitive reappraisal. Lazarus and Folkman define stress as arising from how individuals interpret environmental events in relation to available coping resources.

Lazarus and Folkman argue that cognitive reappraisal alters stress appraisals and thus decreases perceived stress, but that expressive suppression leaves appraisal unaffected and may contribute to stress maintenance (Lazarus & Folkman, 1984).

Finally, the framework of Arnett's Theory of Emerging Adulthood, proposed by JeOrey Jensen Arnett, provides general guidance for the present investigation. Arnett's theory states that ages 18-25 are characterized by heightened stress exposure and ongoing development of self, regulatory capacities, which influence the stress and mental health consequences of this period (Arnett, 2000, 2015).

1.4 COGNITIVE REAPPRAISAL AND EXPRESSIVE SUPPRESSION

Cognitive reappraisal is a proactive emotion control method wherein individuals modify their interpretation of a circumstance to transform its emotional significance and effect (Cutuli, 2014). Reappraisal may entail reconceptualising academic problems as growth opportunities, perceiving setbacks as transient, or understanding stress as an indicator of involvement rather than inadequacy. Across university and community samples of emerging adults, greater habitual use of reappraisal is linked to higher psychological well-being, life satisfaction, flourishing, and optimism, as well as lower depressive symptoms and anxiety (Sánchez-Sánchez et al., 2025; Zahniser & Conley, 2018). Longitudinal studies of college students indicate that reappraisal mitigates the detrimental impacts of perceived stress on later outcomes internalising symptoms and forecasts more adaptive psychosocial profiles over time (Zahniser & Conley, 2018; Brewer et al., 2016). Reappraisal also mediates links between positive early experiences and later flourishing, highlighting its role as a key mechanism of positive adaptation (Yu et al., 2025).

Expressive suppression is a response-focused approach wherein individuals restrain the external manifestation of emotions following the elicitation of an emotional reaction (Cutuli, 2014). Instead of altering the meaning of the circumstance, suppression focuses on behavioural manifestation, frequently resulting in an unchanging internal experience. Consistent use of expressive suppression has been linked to poorer emotional and psychosocial outcomes across cultures and age groups. Sánchez-Sánchez et al. (2025) and Cutuli (2014) observed that individuals who frequently suppress emotional expression report higher levels of negative affect and psychological distress, alongside reduced social functioning and overall well-being. Comparable associations have been found in different groups, such as by Brockman et al.

(2017), Haga et al. (2009), Vally and Ahmed (2020), and Salimzadeh et al. (2020).

Between the longitudinal and day, to, day studies, evidence accumulates to suggest that suppression is harmful over time. For example, McCullen et al. (2022), and Waizman et al. (2023), found that greater use of suppression predicted an increase in depressive symptoms and psychological distress during times of high uncertainty (e.g., around COVID, 19). More recent findings by Liu et al., (2024), found that long term suppression was associated with less adaptive objective trajectories when under chronic stress. Notably, this negative effect appears to be increased in those with negative childhood histories, where suppression increases the association between stressful experiences and depression (Hong et al., 2018; McCullen et al., 2022).

Crucially, Cognitive reappraisal and expressive repression do not represent opposing extremes of a singular continuum. Many emerging adults use both strategies to varying degrees, and their relative adaptiveness can depend on context, culture, and the type of outcome considered (Waizman et al., 2023; Sun & Nolan, 2021; Brockman et al., 2017; Juang et al., 2016).

Person centered analyses reveal distinct regulation profiles (for instance, elevated reappraisal with minimal suppression vs diminished reappraisal with heightened suppression) that are differentially associated with mental health, with “mainly reappraisal” profiles showing the most favourable and “mainly suppression” profiles the least favourable outcomes (Brewer et al., 2016; Larionow et al., 2025). Nevertheless, despite extensive research documenting associations of each strategy with well-being, their relative predictive influence for different forms of stress remains less clearly specified.

Despite converging evidence that reappraisal and suppression operate differently, there is still limited work comparing how strongly each strategy predicts specific stress outcomes— particularly domain-general perceived stress versus domain-specific academic stress—in the same emerging adult sample (Zahniser & Conley, 2018; Liu et al., 2023; Sun & Nolan, 2021). This comparative view is necessary in order to clarify whether interventions should seek to strengthen reappraisal, weaken suppression, or target both to help lower stress in academic settings.

1.5 PERCEIVED STRESS AND ACADEMIC STRESS AS DISTINCT OUTCOMES

like perceived stress, emotion regulation is traditionally defined as a global, subjective evaluation of stress, whereby individuals experience the demands in their environment as overwhelming and exceed their available coping resources (liu et al., 2023; sun & nolan, 2021; hong et al., 2018). it is a broad judgment of how unpredictably, uncontrollably, and overloading individuals perceive their daily stressors and life circumstances to be, combining sources of stress across domains of life, including school work, interpersonal relationships, finances, and health (sun & nolan, 2021). significant positive relationships have been found between perceived stress and depressive symptoms, and also significant negative relationships have been found between perceived stress and psychological well, being, in college students and young adults (hong et al., 2018; liu et al., 2023; sun & nolan, 2021; zahniser & conley, 2018).

In emotion regulation studies, perceived stress is occasionally used as an outcome variable (zahniser & conley, 2018; liu et al., 2023), but more frequently as a moderator of the relationship between regulatory strategies and depressive symptoms or psychological well, being (zahniser & conley, 2018; liu et al., 2023). academic stress, however, is clearly referring to a very specific category of stressors that are derived from the student role and environment. academic stressors in this study include worries on exams, grades, workload, time pressure, competitiveness, and family/teacher expectations (liu et al., 2023; sun & nolan, 2021; abela et al., 2025).

while academic stress is well, established as the primary chronic stressor for emerging adults, liu et al. (2023) found that the experience of class demands is one of the strongest correlates of burnout and academic disengagement, and strong evidence also links academic stress to depressive symptomatology (juang et al., 2016). more recently, abela et al. (2025) concluded that emerging adults report academic stress as one of the most persistent and salient psychological burdens. nonetheless, focusing specifically on academic stress theoretically limits the scope of the distress experienced by emerging adults, many of whom are dealing with romantic, family, financial, health, and other difficulties as well. because perceived stress and academic stress measure related but somewhat different facets of the stress experience, they may reveal different kinds of relationships with emotion regulation strategies. for instance, one emerging adult may report high academic stress but only fairly high perceived stress if she believes the demands of her academics are more than she can reasonably handle but life domains outside of academics are manageable and meaningful.

conversely, another emerging adult may report moderate academic stress but very high perceived stress if she experiences a lot of interpersonal conflict, financial difficulty, or health, related concern. research on college samples indicates that domain, general and domain specific measures of stress can have differing associations with and prediction of domains such as depression, well, being, and burnout (Zahniser & Conley, 2018; Liu et al., 2023; Abela et al., 2025; Vinter et al., 2020). for example, perceived stress may be more strongly associated with internalizing symptomatology than academic stress, which may be more directly associated with academic burnout and performance, related anxiety (Liu et al., 2023; Abela et al., 2025; Vinter et al., 2020). this variation has methodological implications. to rely solely on a global measure of perceived stress may overlook differences in the association between emotion regulation and stress in academic contexts, while a measure of academic stress alone may neglect regulation processes that influence broader stress evaluations. including measures of each domain provides a more differentiated picture of stress in emerging adulthood and sheds light on whether certain regulation strategies are more predictive of academic, global stress, or both domains.

1.6 RESEARCH GAP AND RATIONALE FOR THE PRESENT STUDY

There is a large amount of empirical literature documenting the potential of emotion regulation strategies in impacting emerging adults' coping with stress and mental health status. Park et al. (2020) and Zahniser and Conley (2018) suggest that individual differences in emotion regulation predict both immediate stress reactivity and long, term psychological outcomes, which has been echoed by recent work by Sánchez, Sánchez et al. (2025), Brewer et al. (2016), Waizman et al. (2023), and Brockman et al. (2017).

In this literature, reappraisal consistently appears as an adaptive strategy. For example, Reappraisal, as reported in Zahniser and Conley (2018) and Brewer et al (2016), predicts greater levels of mental well, being, flourishing and resilience; and more recent evidence indicates that reappraisal buffers longitudinal influences of perceived stress on internalizing symptoms (anxiety and depression), as found by SánchezSánchez et al., 2025, Liu et al., 2023, and Yu et al., 2025. Conversely, expressive inhibition (or expressive suppression) is not generally linked with optimal emotional effects. Cutuli (2014) and Haga et al. (2009) suggested that habitual suppression is associated with enhanced negative affect and depressive symptoms in the context of chronic or acute stress, and these results have been confirmed by prospective and daily diary designs showing heightened psychological stress following habitual expressive suppression (McCullen et al., 2022; Waizman et al., 2023; Vally & Ahmed, 2020; Brockman et al., 2017).

Longitudinal studies extend the longitudinal implications of these emotion regulation tendencies. Initial levels of reappraisal or suppression tendencies were predictive of later psychosocial adjustments, and transitions in anxiety and loneliness levels across extended periods of chronic stress (Zahniser & Conley, 2018; Brewer et al., 2016; Waizman et al., 2023). However, there are still some important gaps. First, even among the research that has focused on a more direct test, most have only tested simple bivariate relationships between each strategy and only one stress or well, being variable, rather than testing multiple strategies entered together to identify which best predicts stress (Zahniser & Conley, 2018; Liu et al., 2023; Brewer et al., 2016; Haga et al., 2009). This type of test would be necessary to show whether reappraisal enhancement or suppression reduction has more potential for intervention effects, or that both are necessary.

Second, much of the prior research has examined global perceived stress or broad indicators of psychological distress, relatively limited evidence has distinguished perceived from academic stress as separate, theoretically relevant outcomes in the same emerging adult sample (Zahniser & Conley, 2018; Liu et al., 2023; Abela et al., 2025; Vinter et al., 2020). Indeed, existing literature indicates that reappraisal weakens the links between perceived stress and internalizing symptoms, whereas suppression has a direct link with perceived stress; however, few studies have examined whether these are differentially predictive of academic stress when considering global perceived stress (Zahniser & Conley, 2018; Liu et al., 2023; Sun & Nolan, 2021).

Third, although emerging adulthood is a global phenomenon, much of the empirical base has been built in North American and European contexts. Cultural values, educational systems, and family expectations can shape both stress appraisals and typical emotion regulation patterns (Sánchez-Sánchez et al., 2025; Yu et al., 2025; Sun & Nolan, 2021; Vally & Ahmed, 2020; Juang et al., 2016). Cross-cultural studies show that both the frequency and the psychological correlates of reappraisal and suppression vary across groups; for example, reappraisal and suppression may relate differently to stress for students from different cultural backgrounds, and international students may rely more on both strategies than domestic peers (Yu et al., 2025; Sun & Nolan, 2021; Vally & Ahmed, 2020; Juang et al., 2016). However, research specifically examining the interplay of reappraisal, suppression, perceived stress, and academic stress among emerging adults in non-Western, high-pressure academic settings—such as the Indian higher-education context—remains limited. In such contexts, intense competition, high stakes examinations, and strong family expectations may amplify academic stress and influence which regulation strategies are viewed as acceptable or effective.

Fourth, although the existing large body of literature discusses the role of reappraisal and suppression in regard to one or two stress domains, there has been relatively few studies examining the differential predictive capability of these coping strategies across multiple stress domains after comparing and controlling for the common variance and other measurement and demographic covariates in the same model (Zahniser & Conley, 2018; Liu et al., 2023; Brewer et al., 2016; Haga et al., 2009; Larionow et al., 2025). Such studies could better inform psychological intervention and college counseling programs for alleviating student stress.

The goal of this research study is to assess the comparative predictive strength of cognitive reappraisal and expressive suppression on perceived stress among college students (ages 18–25) within the Indian context.

By treating perceived stress and academic stress as distinct but related outcomes and modelling reappraisal and suppression simultaneously, the study seeks to clarify (a) whether these strategies differentially predict domain-general versus domain-specific stress, and (b) whether one strategy exhibits stronger predictive power than the other. Clarifying these patterns can inform culturally sensitive, targeted interventions in university settings that focus on enhancing adaptive regulation (reappraisal) and reducing reliance on maladaptive strategies (suppression) to promote psychological well-being and mitigate stress among emerging adults.

CHAPTER : 2**REVIEW OF LITERATURE**

Zou et al. (2025) used two large samples of Chinese college students to test longitudinal and network links the relationship among expressive suppression, cognitive reappraisal, and generalised anxiety. In a two wave cross lagged model (N = 2,201; M age \approx 18), baseline reappraisal negatively predicted later anxiety, whereas suppression did not significantly predict anxiety over time, suggesting a stronger protective effect of reappraisal than risk effect of suppression for emerging adults' anxiety under academic and developmental stress . A moderated network analysis in a second sample (N = 3,150) showed that higher reappraisal weakened connections between key anxiety symptoms (e.g., excessive worry–irritability, nervousness uncontrollable worry), indicating that reappraisal reshapes the structure of anxiety experiences. Together, these findings position reappraisal as a robust buffer against stress related anxiety, while suppression appears comparatively weaker as a predictor.

Iuga and David (2024) described how several adaptive strategies (e.g., cognitive change, problem solving) were negatively related to overall burnout and emotion regulation difficulties were positively associated with emotional exhaustion, cynicism and efficacy. The high Pearson correlations between reappraisal and suppression prevented the authors from meta analysing reappraisal and suppression separately, however reappraisal and other specific adaptive strategies are theorised to buffer against burnout, while more maladaptive strategies such as suppression may increase the risk of burnout. Moderator analysis by age and grade level indicated that late adolescents and university students may be especially vulnerable to burnout under conditions of poor regulation.

Liu et al. (2023) Sampled 1,267 Chinese college students to Further explore whether cognitive reappraisal versus expressive repression moderate or mediate (not in this study) the association between stress and depression. After accounting for gender, reappraisal significantly buffered the impact of stress on depression, and the buffering effect was especially significant at higher levels of stress. Positive psychological capital had a similar buffering effect. On the other hand, expressive inhibition (suppression) did not significantly moderate the association between stress and depression. The findings imply that, in emerging adults, reappraisal is a relevant resilience factor as compared to suppression being a relevant risk factor, and interventions facilitating reappraisal, reduction in frequency should be explored to directly ameliorate college, related depression.

Nadeem et al. (2023) looked at cognitive reappraisal, expressive suppression and academic achievement in a sample of 300 Pakistani undergraduate students ages 18, 29 (using the Emotion Regulation Questionnaire and semester and degree percentages). Correlational findings revealed as; reappraisal was significantly and positively correlated with achievement and suppression was significantly and negatively correlated with achievement. Regression findings revealed reappraisal and suppression were significant predictors of achievement when entered independently and simultaneously revealing that reappraisal is a better predictor of achievement than suppression. The study concludes that students who tend to reappraise academic challenges are better in terms of grades and motivation, compared to those who tend to suppress their emotion which may have negative effects on concentration, motivation and grades.

Boemo et al. (2022) conducted a meta-analysis of EMA and diary studies to examine the links between moment, to, moment use of emotion regulation strategies and subsequent daily affect, finding strong concurrent effects for suppression and increased negative affect, as well as reappraisal and increased positive affect. In prospective analyses, reappraisal also exhibited positive effects on future positive affect, while suppression had a weak effect on future negative affect, further delineating the effects of these strategies on key daily life outcomes. For transitional, age youth managing steady university coursework, these within, day effects may translate such that optimal, adaptive use of reappraisal should aid in maintaining positive mood and a sense of mastery; meanwhile, suppression should co, occur with feeling distressed, quite often.

Miu et al. (2022) performed a meta-analysis of 215 studies investigating emotion regulation as a mediator between childhood adversity and psychopathology, demonstrating that heightened habitual suppression, rumination, and significant difficulties in emotion regulation substantially mediated the association between adversity and ensuing mental health problems, while habitual reappraisal showed protective, negative correlations. These mediation effects held across clinical and non-clinical samples, indicating that strategy use is not merely a correlate but a mechanism connecting stress exposure to symptoms . For emerging adults with earlier adversity entering demanding academic environments, high suppression combined with low reappraisal may predict heightened perceived and academic stress as well as psychopathology.

Jamieson et al. (2021) Conducted a classroom-based field trial with 339 U.S. community college students were randomly allocated to either a stress reappraisal intervention or an active control group were randomly assigned to either a stress reappraisal intervention or just an active control group . prior to an examination. The strategy redefined physiological arousal as beneficial rather than detrimental, thereby directing students towards a reinterpretation of stress. In comparison to controls, participants who engaged in reappraisal exhibited less mathematical evaluation anxiety, diminished threat appraisals, more favourable neuroendocrine responses (lower cortisol levels and elevated testosterone), superior performance on two following examinations, and increased course perseverance. Mediation analyses indicated that alterations in stress appraisals, along with subsequent modifications in procrastination and performance approach goals, elucidated the academic advantages. This causal data indicates that improving stress reappraisal can directly enhance both stress responses and academic performance in emerging adult students.

Moore et al. (2021) investigated emotion regulation strategies and stress recovery in young adults. The findings indicated that cognitive reappraisal predicted faster emotional recovery and lower perceived stress following stress exposure. Expressive suppression, in contrast, was associated with delayed recovery and prolonged stress responses. The authors highlighted that suppression interferes with emotional processing, thereby maintaining stress over time. These findings are particularly relevant for emerging adults who experience repeated academic stressors. The research offers more proof that reappraisal surpasses suppression in facilitating adaptive stress control.

Mouatsou and Koutra (2021) tested a path model linking reappraisal, suppression, self-esteem, and resilience in 390 Greek university students (M age \approx 20.6), a group facing multiple stressors typical of emerging adulthood. Resilience correlated positively with reappraisal and negatively with suppression, and self-esteem partially mediated the reappraisal–resilience link while fully mediating the suppression–resilience association

. In other words, reappraisal directly and indirectly (via higher self-esteem) enhanced resilience, whereas suppression undermined self-esteem, which in turn reduced resilience. The findings indicate that reappraisal serves as a more potent positive predictor of adaptive stress responses, whereas suppression indirectly heightens susceptibility by diminishing self-worth in emerging adults facing scholastic and social pressures. Preece et al. (2021) examined how various emotion regulation strategies relate to stress, related symptoms in emerging adults through network analysis. The use of cognitive reappraisal was recognized as a central adaptive node in relation to lower perceived stress and poorer emotion regulation. Meanwhile, expressive suppression was observed to link to clusters of stress and anxiety symptoms. The authors proposed that suppression may link to maladaptive emotion pathways that heighten stress. This technique allows for an in-depth evaluation of how emotion regulation schemas interrelate. A clear pattern emerged showing how reappraisal holds greater predictive power than suppression for stress, related manifestations in emerging adulthood.

Sun and Nolan (2021) studied Irish (Western) domestic and Chinese (Eastern) international college students in order to explore cultural differences in reappraisal, suppression, and perceived stress. They found that Chinese students scored higher on both reappraisal and suppression than Irish students, reflective of cultural differences in emotion regulation norms. When looking at the predictive power of emotion regulation strategies on perceived stress, reappraisal significantly predicted less perceived stress in both cultures. However, suppression was significantly correlated with higher perceived stress in Irish students but not in Chinese students. This demonstrates that the predictive ability of suppressing on perceived stress may be cultural, dependent, whereas reappraisal reliably influences perceived stress in college, aged students.

Kalia and Knauff (2020) explored the relation between ACEs and perceived chronic stress and cognitive flexibility, and whether emotion regulation strategies moderated these relations in 486 adults (not confined to students, but the range overlaps with emerging adulthood). They found that higher ACE exposure was associated with higher levels of perceived stress and less cognitive flexibility, but habitual use of reappraisal moderated the relation between ACEs and high perceived stress in such a way that reappraisal alleviated the association, while habitual suppression strengthened it.

Vally and Ahmed (2020) conducted a cross-sectional study of 147 undergraduate students (mean age=21 years, 3 months, 1 week, 6 days, and 3 hours) in the United Arab Emirates and investigated relationship of reappraisal and suppression with affect, thriving, coping and academic achievement. Reappraisal was positively related to positive affect, thriving, and both emotional as well as instrumental coping and negatively related to negative affect. It could not predict academic achievement. Suppression was related positively only to negative affect and negatively related to both emotional and instrumental coping. The authors were unable to predict the involvement of either emotion regulation strategy with academic achievement. This profile of emotional and coping adjustment demonstrated that reappraisal appears to be a beneficial emotion regulation strategy whereas suppression seems detrimental to emotional adjustment.

Chervonsky and Hunt (2019) Investigated emotion regulation strategies in relation to vulnerability to stress and anxiety. The authors found that expressive suppression was consistently associated with increased perceived stress and a subdued pursuit of emotional expression. Conversely, cognitive reappraisal directly

contributed to adaptive coping by promoting reinterpretation of stressors. The authors concluded that even though suppression may inhibit emotional expression in the short, term, in the long, term it heightens perceived stress due to persistent under, treat emotional arousal. Emerging adults who utilized suppression more frequently were also more susceptible to academic strain. The findings support the positive role of reappraisal and risk factor of suppression.

Kobylińska and Kusev (2019) conducted a review of cognitive emotion regulation strategies in relation to stress. They concluded that cognitive reappraisal enhances cognitive flexibility as well as decreases perceived stress by changing attributions of stressors. Expressive suppression, on the other hand, was found to impair working memory and increase emotional demands due to increased cognitive load. Academic stressors require extensive attention and cognition which is compromised by suppression. They emphasize that reappraisal allows benefits for emotion regulation and cognition which is advantageous in academic situations. Hence this review results in 10 further avenues for which reappraisal has advantages over suppression in the form of class performance and perceived stress.

Young et al. (2019) explored the process model differentiation within emotion regulation in adolescent anxiety and depression; while self-report studies demonstrate how emotion dysregulation as indicated by poor use of reappraisal correlates with increased anxiety and depression, experimental data shows that reappraisal predicts quicker emotional recovery after a social stressor among adolescents high on depressive symptomatology. As schools and peers constitute common stressors for this age group, these results suggest that reappraisal provides an adaptative compensation for frequent stress experiences, while suppression possibly maintains arrested distress and internalising problems.

Park et al. (2019) investigated the relationship between emotion regulation strategies, stress, and academic engagement in college, aged participants. Cognitive reappraisal was found to be a predictor of lower perceived stress, greater emotion regulation ability, and higher academic perseverance. Conversely, expressive suppression was associated with emotional depletion, greater stress, and academic disengagement. The authors argued that suppression increases internal emotional costs by inhibiting outward expression while failing to diminish emotional arousal, whereas reappraisal fosters adaptive coping by altering how one interprets academic challenges. This study underscores the importance of emotion regulation in moderating acute stress responses and performance outcomes, providing empirical support for the notion that reappraisal is a more valid predictor of psychological adjustment than suppression during college years.

Ford et al. (2018) explored emotion regulation flexibility and its relation to psychological stress. The results revealed that certain flexible emotional regulation strategies predicted lower perceived stress and greater emotional well, being (e.g., frequent use of cognitive reappraisal). Conversely, inflexibility towards expressive suppression correlated with higher stress and poorer emotional health. The authors pointed out that “highly flexible” (i.e., flexible, non, repetitive use of regulation strategies) students could more effectively adapt to these pressures by applying appropriate regulation strategies. Frequent use of suppression led to more emotional strain due to inefficient emotional processing. These results highlight the importance of flexible strategy use and highlight the reappraisal model’s significant increase in predicting academic stress and perceived stress.

Visted et al. (2018) systematically reviewed and meta analysed emotion regulation strategies in current and remitted major depressive disorder, finding that current depression is characterized by higher suppression and rumination and lower reappraisal, acceptance, and problem solving compared with controls. Remitted individuals continued to show elevated suppression and rumination, even when adaptive strategy use had normalized, suggesting that suppression may be a particularly stable risk factor for relapse. Given that emerging adults in higher education have elevated depression risk, these results imply that dispositional suppression may serve as a more robust indicator of enduring stress and mood disorders than low reappraisal in isolation.

Zahniser and Conley (2018) Monitored 1,130 students transferring to college at three intervals to investigate how reappraisal and suppression interact with perceived stress to forecast internalising symptoms. Cognitive reappraisal mitigated the impact of perceived stress on subsequent internalising issues, suggesting that individuals with good reappraisal skills had less depressed and anxiety symptoms compared to those with low reappraisal skills under elevated stress conditions. Conversely, expressive repression was identified as an independent risk factor, forecasting elevated internalising symptoms irrespective of perceived stress levels. This pattern underscores that, in emerging adults, reappraisal operates as a stress moderating protective factor, whereas suppression exerts a more straightforward detrimental effect, strengthening the argument that suppression is the stronger predictor of poor emotional outcomes under academic stress, while reappraisal better predicts resilience.

Compas et al. (2017) conducted A meta-analysis of 212 studies (N= 80,850) on coping and emotion regulation in young people suggests that adaptive emotion regulation using cognitive reappraisal followed by problem, focused coping was associated with decreases in internalising and externalising symptoms. Conversely, maladaptive emotion regulation strategies such as repression, avoidance and denial were associated with increase in psychopathology. There were no age differences although age only weakly moderated results, which showed the effect was similar across adolescence into emerging adulthood (an age range that incorporates a time of high academic and social stress). Based on these findings, we suggest that coping using reappraisal may protect against stress, related symptoms in students, whereas suppression may pose a risk.

English et al. (2017) explored daily emotion regulation strategies and their effects on experienced stress with experience, sampling methodology in young adults. It was revealed that expressive suppression was linked to increased experienced stress, poor emotional clarity, and compromised social support. Reappraisal, however, was associated with emotional stability and decreased stress reactivity. It was hypothesized that suppression hampers emotional authenticity and, therein, indirectly boosts stress by impinging on one's social support system. The ecological validity of the design enhances its generalizability to the types of academic and social stressors experienced by emerging adults. The results predominantly support suppression's detrimental effects and reappraisal's buffering effects on stress.

Naragon, Gainey et al. (2017) explored emotion regulation strategies as predictors of stress, related affective outcomes. Results reveal a significant association between expressive suppression, increased perceived stress, emotional inflexibility and ineffective coping strategies. Reappraisal, however, contributed to emotional flexibility and the reduction of stress vulnerability. The authors reasoned that while reappraisal is a means of

cognitively transforming the meaning of a stressor in order to avoid generating negative emotion, suppression results in chronic emotion and subsequent stress. Similarly, these findings are pertinent to emergent college students experiencing academic stress, thus providing support for the hypothesis that reappraisal will be a more powerful and adaptive predictor of low perceived and academic stress than suppression.

Schäfer et al. (2017) carried out a comprehensive meta-analysis examining the efficacy of different emotion management strategies in regards to psychological outcomes. Cognitive reappraisal has been consistently found to be a beneficial emotion regulation strategy, predicting lower stress levels and better emotional health. Expressive suppression on the other hand has been found to have different effects depending on the study, which has been linked to heightened physiological stress and emotional distress. The authors discussed emerging adulthood as a sensitive period in development during which older habitual use of maladaptive strategies such as suppression develops. These findings support process models of emotion regulation, which refer to the notion that the earlier in the emotion process the regulation strategy occurs, the more effective it is. This meta-analytical evidence provides further support to the idea that reappraisal has a predictive advantage over suppression in stress-related outcomes.

Doré et al.'s (2016) examined the relationship between emotion regulation flexibility and stress outcomes in emerging adults, finding that flexibility in reappraisal use was associated with perceived lower stress and adaptive emotion regulation, whereas inflexible use of expressive suppression correlated with higher stress and poorer adjustment. Flexible strategy use was particularly important in this young population when coping with complicated stressors, like those experienced in college, as examples and emerging adulthood was identified by the authors as an important time to develop emotion regulation skills that are relevant in the natural environment. Results indicate that reappraisal plays a role in adaptive regulation of stress, while expressively suppressing emotions poses a risk factor.

Joormann and Stanton (2016) studied emotion regulation strategies in relation to stress and psychological vulnerability. Results found expressive suppression was associated with increased reactivity to stress, sustained emotional recovery, and increased rumination; cognitive reappraisal was related to healthier emotional regulation and decreased feelings of stress. Within an undergraduate sample and a young adult sample, suppression was shown to interfere with cognitive processing; ultimately contributing to increased academic stress. The review focused on reappraisal, noting its positive contribution to emotional clarity and cognitive functioning, which are essential for achievement. Based on these results, researchers concluded that the emotion regulation strategy of reappraisal accounts for increased emotional and academic resilience while suppression does not.

Aldao and Tull (2015) looked at emotion regulation strategies in the context and process-based models of emotion, focusing on its impact as a predictor of stress vulnerability. The review reported that expressive suppression was associated with experiential avoidance which subsequently led to higher perceived stress and poor emotion regulation, unlike acceptance which was found to be an adaptive way to reduce stress by altering the way emotional information is processed. The review pointed out that emerging adults are particularly vulnerable to experiencing maladaptive regulation strategies due to their continuing psychological and

emotional development. It was shown that suppression lead to higher stress reactivity whereas reappraisal promoted flexible coping.

Seligowski et al. (2015) explored emotion regulation strategies in relation to stress, related symptoms and emotional functioning. Results revealed a positive relationship between expressive repression and poor coping abilities, emotional exhaustion, and perceived stress while cognitive reappraisal predicted resilience and ability to manage stress. The authors' highlighted that suppression does not change the emotional loading of the stress, inducing stimuli thereby resulting in the accumulation of unprocessed stress over time. The findings are particularly relevant within the context of young developing adults who experience frequent academic and social stresses. This research supports the idea that reappraisal is a protective emotion regulation strategy and that suppression heightens stress vulnerability.

Suri et al. (2015) examined the physiological effects of emotion regulation strategies across stress. The findings revealed that reappraisal led to significant reductions in physiological stress indicators, particularly cortisol responses. However, persistent stress responses and heightened physiological activation were associated with expressive suppression. The authors suggest that suppression impairs emotional processing, ultimately leading to prolonged stress activation. The results are particularly relevant for students where experience of persistent stress is endemic. The authors offer biological support for the beneficial effects of reappraisal, as well as the adverse effects of suppression, when regulating stress in emerging adults.

Cutuli (2014) Combined experimental, individual difference, and neuroimaging research on cognitive reappraisal as well as expressive suppression suggests that reappraisal has a more advantageous profile across affective, cognitive, and social domains than suppression. Reviewed laboratory research indicated that observers dealing with suppressors have elevated cardiovascular stress relative to those engaging with reappraisers, suggesting that suppression imposes a twofold burden on the individual and exacerbates interpersonal stress. Neuroimaging studies revealed distinct prefrontal–limbic circuitry associated with habitual reappraisal compared to suppression, suggesting that chronic suppression may correlate with vulnerability to stress, while reappraisal indicates a more adaptive regulatory mechanism pertinent to both academic and perceived stress trajectories in individuals aged 18 to 25.

Hu et al. (2014) Adopted a meta, analytical approach to systematically explore relationships between emotion regulation strategies and psychological health across numerous samples in the young, serving to expand the body of literature. The results revealed cognitive reappraisal was strongly associated with reductions in perceived stress, psychological adjustment and emotional regulation, while expressive suppression was significantly related to increases in stress, emotional impairments and negative effects. The researchers argued that suppression produces a greater internal burden of stress through its effects on emotion persistence, whereas reappraisal results in a more effective re, interpretation of circumstances in order to serve as a buffer for stress.

Southward et al. (2014) studied daily emotion regulation responses to stressors in young adults. Results revealed that expressive suppression predicted heightened perceived stress and emotional exhaustion during daily stressors. Reappraisal displayed positive influences on adaptive coping and emotional stability. The authors highlighted that frequent use of suppression over time culminates in inflammatory stress reactions,

especially in college where stressors may be encountered regularly. These results highlight how emotion regulation strategies have long, term effects on stress reactivity. These findings further lend additional evidence reappraisal as a better predictor of reduced felt stress in emerging adults.

Zimmermann and Iwanski (2014) investigated developmental changes in emotion regulation strategies on aging and individual differences. In particular, they demonstrated that emerging adults who used mostly expressive suppression had higher levels of perceived stress and lower levels of emotional competence. Conversely, reappraisal was related to more emotional clarity and more adaptive coping with stress. Essentially, emerging adulthood is a vital point at which emotion regulation strategies are stabilized; however, outcomes from the study suggest that it is important to use healthy regulation strategies, as reappraisal outperforms suppression when predicting one's levels of perceived stress in an academic context.

Aldao (2013) investigated emotion regulation strategies as predictors of depression, anxiety, and stress. Findings indicated that cognitive reappraisal acted as a buffer against perceived stress through regulation of emotional experience. Expressive suppression was associated with greater vulnerability to stress and emotion dysregulation. The author highlighted that emerging adulthood is an important developmental period in which the regulation strategies can shape the stress pathways. This review highlights the importance of identifying emotion regulation strategies as primary influences in academic and perceived stress.

DeSteno et al. (2013) examined the effect of emotion regulation strategies in reductions of affect intensity and stress response. The study demonstrated that cognitive reappraisal resulted in lessened strain by changing how one interpreted the emotion; thus, it was considerably more likely to facilitate goal, relevant behavior under stress. Expressive suppression resulted in a depleting of affective response and longer persistence of the stress state. The authors further explained that when watching stress, inducing movie clips, suppression drained resources that were needed to inform appraisal. As a result, the participants reported feeling more stress. These studies are particularly applicable with emerging adults reporting high levels of stressors dealing with academic evaluation. Therefore, the results provide further evidence that reappraisal promotes adaptive responses to stress while suppression can result in additional stress thus the relative, predictive strength of reappraisal.

Aldao and Nolen-Hoeksema's (2012) examination of the contextual appropriateness of emotion regulation strategies in response to stress revealed similar trends in results. The authors further found that expressive suppression was associated with increases in felt stress across contexts. Reappraisal was linked to decreases in emotional distress and increase in flexible coping. The authors concluded that the effectiveness of regulatory strategies was context, dependent and reappraisal could be particularly beneficial in beyond, control stress situations commonly encountered in academic settings (e.g., academic demands). This evidence provides further support for examining suppression and reappraisal in the context of predicting stress outcomes among emerging adults.

Berking and Wupperman (2012) reviewed emotion regulation as a transdiagnostic factor in stress susceptibility and psychological dysfunction. The authors noted that cognitive reappraisal was found to diminish stress by changing emotional appraisal before emotional activation was complete. Conversely, expressive suppression was identified as occurring at a later stage of emotion processing, making it more

cognitively taxing and stimulating arousal, which amplifies emotional responding and stress. Findings from student and young adult samples pointed to a link between suppression and emotional exhaustion and academic stress. This review underscores how repeated use of maladaptive strategies leads to the buildup of accumulated stress. These theoretical concepts are highly relevant to the current research question and provide strong conceptual support for finding reappraisal and suppression as differential predictors of perceived and academic stress among emerging adults.

Mc Rae et al. (2012) Consistent individual differences in emotion regulation strategies and their outcomes were examined. Behavioral outcomes showed that reappraisal predicted lower experienced emotion and stress while suppression predicted higher emotional reactivity and poorer recovery from stress. Neurocognitive outcomes revealed that reappraisal engaged cognitive control processes resulting in reduced stress reactions, whereas suppression both heightened internal emotional experiences. The authors proposed that long, term suppression may be especially harmful in cognitively complex areas such as academics. This research provides neurocognitive evidence in addition to behavioral evidence of reappraisal being a more suitable technique for stress management in emerging adulthood.

Ochsner et al. (2012) examined the cognitive and neural pathways by which emotion regulation strategies influence emotion responses. For example, Ochsner and colleagues found that reappraisal reduced stress responses through the activation of prefrontal control pathways that issued top, down regulation over emotion reactivity. Unlike the former, expressive suppression was revealed to exacerbate physiological activation and impose higher mental loads. The authors underlined that suppression did not change the emotional meaning of a stimulus, therefore its physiological stress activation remained unaffected. This neuroscientific research provides an empirical framework of understanding the differential effects of emotion control strategies. From the review, reappraisal was found to be the most effective for perceived stress reduction across academically demanding situations.

Webb et al. (2012) Conducted a meta-analysis evaluating the success of emotion regulation strategies in predicting psychological outcomes. Findings revealed that cognitive reappraisal had a positive relation with improved emotional functioning and decreased stress. Expressive suppression was linked to decreased emotional expression at times but increased chronic stress and worsened emotional outcomes. Suppression was theorized to not fix emotional experience and lead to ongoing stress. This meta-analysis is highly relevant for emerging adults who experience ongoing academic stressors.

Troy and Mauss (2011) explored when emotion regulation strategies were adaptive or maladaptive. While their results showed that cognitive reappraisal was most efficient under high conditions by lowering perceived stress and emotional distress, expressive suppression was more costly when emotional demands were high. They pointed out that people in academic contexts encounter many uncontrollable stressors, which render reappraisal especially advantageous for emerging adults. These findings reveal that the utility of emotion regulation strategies depends on contextual demands, as reappraisal was more predictive of reductions in stress than suppression.

Aldao et al. (2010) Conducted a meta-analysis on six dispositional emotion regulation strategies, indicating that suppression and avoidance showed medium to large positive correlations with anxiety, depression, eating, and substance-related symptoms, whereas reappraisal and acceptance revealed small to medium negative correlations with psychopathology. Internalizing disorders, closely associated with stress, shown significant correlations with increased suppression and diminished reappraisal. This indicates that, in both normative and clinical populations, suppression is a more potent predictor of maladaptive outcomes than reappraisal is for adaptive outcomes. The following pattern indicates that among emerging adults, significant suppression may be a primary predictor of heightened perceived and academic stress.

Troy et al. (2010) Investigated cognitive reappraisal as a mediator in the relationship among life stress and psychological distress in young adults. Using a longitudinal design, The research illustrated that individuals who were more habitual in their use of reappraisal experienced significantly lower emotional distress under conditions of elevated stress. In contrast, expressive suppression did not provide protective benefits and was associated with poorer emotional adjustment. The authors highlighted that reappraisal functions early in the emotion generating process, enabling individuals to reinterpret stressors prior to the escalation of emotional responses. These results are applicable to college students living with chronic uncontrollable stress. These results suggest reappraisal is a much better predictor than suppression of a change in perceived stress.

Haga et al. (2009) Examined the psychological and physiological associations of emotion management methods in young adults. The research indicated that regular utilisation of cognitive reappraisal correlated with diminished perceived stress and decreased cortisol reactivity in response to demanding tasks. In contrast, expressive inhibition was associated with elevated physiological stress responses and intensified emotional distress. The authors contended that suppression extends emotional arousal by inhibiting emotional processing, therefore maintaining stress activation. These findings offer significant biological evidence corroborating the varied effects of regulatory techniques. The research reinforces the assertion that reappraisal is superior to suppression in managing stress, especially in evaluative and performance-oriented contexts like academia.

Moore et al. (2008) Found differential relations of reappraisal vs. expressive suppression with stress, related symptoms among female students and individuals from communities experiencing trauma. Several samples revealed a consistent association of suppression with greater PTSD, anxiety, sadness, and stress, related symptoms, whereas reappraisal demonstrated negative or null effects, painting a more adaptive picture. Mediation models identified ruminative style as a partial link in the suppression, symptoms pathway, and factor analysis endorsed the independence of each two, factor model, suggesting the low suppression was specifically indicative of stress pathology, while reappraisal was modestly protective, a distinction greatly relevant to perceived stress and internalizing in students.

Gross and Thompson (2007) elucidated Antecedent, focused strategies which modify emotion at an earlier stage of an emotional response compared to Response, focused methods. For instance, cognitive reappraisal, an antecedent, focused strategy where emotional responses are reinterpreted, was effective in reducing both emotion severity and subjective stress. Conversely, expressive suppression, a response, focused strategy where physiological arousal was increased, failed to reduce emotion severity but inadvertently increased

reflected physiological response as well as psychological burden. They highlighted that suppression could often exacerbate noted cognitive and emotional strain. These theoretical considerations underpin the postulations that cognitive reappraisal would be a more effective emotion regulation strategy than expressive suppression given the academic stressors often experienced in emerging adulthood.

Butler et al. (2007) investigated the interpersonal and biological effects of expressive suppression. They demonstrated that suppression intensified stress, related physiological responses and caused social dysfunction, which in turn led to increased perceptions of stress. Conversely, cognitive reappraisal supported emotional labour and attenuated stress response, and the authors pointed out that social incongruence alone degrades social support to intensify stress. Their research is highly applicable to college students adjusting to college stress amid social and evaluation environments. The investigators have established the maladaptive effects of suppression in stress management.

Kim & Hamann (2007) investigated of neural and experiential differences between suppression and reappraisal as mechanisms to regulate emotion. Findings indicated that reappraisal reduces emotional intensity and subjective distress, whereas suppression increases internal stress despite reductions in individual outward emotional expression. PET imaging indicated increasing activation of the amygdala during suppression, implying prolonged emotional activation. Study authors concluded that suppression does not effectively suppress the experience of emotion and results in higher feelings of stress. This study has significant implications for academic settings, whereby consistent suppression will serve to increase stress. This investigation provides neurobiological instantiations for the negative consequences of suppression and stress reducing effect of reappraisal in adults.

John and Gross (2004) Analysed experimental and individual difference evidence concerning reappraisal and suppression, concluding that reappraisal is associated with suppressing is correlated with diminished levels of positive affect, worse interpersonal functioning, and lower levels of well-being. with elevated negative emotion, impaired social relationships, and reduced life satisfaction. Research revealed that younger persons (college-aged) utilise more suppression and less reappraisal compared to older adults, indicating that emerging adults may be more vulnerable to the adverse consequences of suppression on social and emotional adaptation in academic settings.

Gross (2002) Distinguished cognitive reappraisal (early, antecedent-focused) from expressive suppression (late, response-focused) and empirically demonstrated that reappraisal reduces subjective negative emotion and expressive behaviour without affecting memory, whereas suppression diminishes visible expression but fails to modify subjective distress, negatively impacts memory performance, and increases physiological activation for both the regulator and interaction partners. The findings indicate that, during stress, regular use of suppression may perpetuate internal anguish and cognitive burden, while reappraisal is more likely to facilitate emotional relief and cognitive efficiency which is essential for both academic achievement and perceived stress in emerging adults.

CHAPTER : 3**METHODOLOGY****3.1 AIM**

The present study aims to examine the comparative predictive strength of cognitive reappraisal and expressive suppression on perceived stress and academic stress among emerging adults (18–25 years) enrolled in higher education institutions in India.

3.2 OBJECTIVES

1. To investigate the correlation between cognitive reappraisal and reported stress in emerging adults.
2. To investigate the correlation between cognitive reappraisal and academic stress in emerging adults.
3. To investigate the correlation between expressive inhibition and perceived stress in emerging adults.
4. To investigate the correlation between expressive suppression and academic stress in emerging adults.
5. To ascertain if cognitive reappraisal and expressive suppression independently forecast subjective stress when simultaneously included in a regression model.
6. To ascertain if cognitive reappraisal and expressive suppression independently forecast academic stress when incorporated concurrently in regression model.
7. To evaluate the comparative predictive efficacy of cognitive reappraisal and expressive suppression concerning domain-general (perceived stress) and domain-specific (academic stress) outcomes.

3.3 HYPOTHESES OF THE RESEARCH**3.3.1 HYPOTHESES OF CORRELATION**

- H1: Expressive suppression will exhibit a positive correlation with perceived stress in developing adults.
H2: Expressive suppression will exhibit a positive correlation with academic stress in emerging adults.
H3: Cognitive reappraisal will exhibit a negative correlation with perceived stress in emerging adults.
H4: Cognitive reappraisal will exhibit a negative correlation with academic stress in emerging adults.

3.3.2 PREDICTIVE REGRESSION HYPOTHESES

- H5: Expressive suppression will significantly and positively predict felt stress, even when accounting for cognitive reappraisal.
H6: Expressive suppression will significantly and positively predict academic stress, even when accounting for cognitive reappraisal.
H7: Cognitive reappraisal will strongly and negatively predict felt stress, controlling for expressive suppression.
H8: Cognitive reappraisal will not significantly predict academic stress when controlling for expressive suppression.

3.3.3 COMPARATIVE HYPOTHESIS

- H9: Expressive suppression will exhibit greater and more consistent predictive efficacy than cognitive reappraisal in relation to both subjective stress and academic stress outcomes.

3.4 RESEARCH DESIGN AND STUDY FRAMEWORK

This study utilised a quantitative, non-experimental, cross-sectional correlational methodology to evaluate the predictive efficacy of emotion control techniques on stress outcomes in emerging adults. The primary objective was to assess whether cognitive reappraisal and expressive suppression independently predicted perceived stress and academic stress, while accounting for the common variance among the regulatory strategies.

A correlational approach was chosen since the study aimed to examine naturally occurring variations in emotional regulation among individuals instead of to experimentally influence emotional processes. The simplified procedure is appropriate for testing expected relationships and the relative utility of variables in applied settings, where research such as the current investigation is constrained by ethical or pragmatic limitations on experimental manipulations.

The entire procedure of model of emotion regulation was consistently followed throughout the study, which hinges on differentiating strategies that target antecedent events to emotion (e.g., cognitive reappraisal) from those that direct attention to managing the emotion itself (e.g., expressive suppression).

This theoretical framework informed decision, making regarding variables as well as the statistical technique used to evaluate whether the alternative emotion regulation strategies could each predict unique variance in the outcome variable.

3.5 PARTICIPANTS

3.5.1 SAMPLE CHARACTERISTICS

Participants in this study included 200 emerging adults (18, 25 years of age), who are still experiencing neurocognitive development, growing independence, and additional academic stressors, as well as additional psychosocial stressors. Participants were actively attending college or university.

The age range was chosen to correspond with recent conceptualizations of emerging adulthood and span the transition in development from adolescence into full, fledged adulthood, characterized by identity exploration, instability, and self-regulatory development. Theoretically, there was reason to concentrate on this age range because both emotion regulation capacity and stress experience are actively undergoing development.

3.5.2 SAMPLING METHOD

Participants were recruited through non, probability convenience sampling, a fairly standard method in psychology research in academic environments where participants are recruited via academic channels and encouragements for self-selection. Participants were not paid and no other compensation or inducements were offered.

3.5.3 SAMPLE SIZE JUSTIFICATION

The sample size (N = 200) was adequate for the analysis planned. If performance on the Comi assay had been used as a predictor rather than outcome, the sample size would have been adequate to perform multiple regression analyses with two predictors to detect small, to, moderate effects. The sample size was larger than the commonly recommended minimum for regression analyses, indicating a stable parameter estimate, and less likely to cause overfitting.

3.6 MEASURES

3.6.1 EMOTION REGULATION QUESTIONNAIRE (ERQ)

Emotion regulation strategies were measured using the Emotion Regulation Questionnaire (ERQ), a widely used and validated self-report measure used to measure general emotion regulation tendencies. The ERQ has two potentially separate subscales:

- Cognitive Reappraisal (6 items), assessing the extent to which participants tend to cognitively re-evaluate stressful or emotion-inducing situations
 - Expressive Suppression (4 items) Measuring the tendency to inhibit the outward expression of emotion
- Items are rated on a 7-point Likert scale where 1 indicates strong disagreement and 7 strong agreement. The mean of the items that comprised each subscale was used to create the subscale scores. The higher the score the more often the strategy was used.

The Cognitive Reappraisal subscale demonstrated good internal consistency (Cronbach's $\alpha = .78$) and the Expressive Suppression subscale demonstrated acceptable internal consistency (Cronbach's $\alpha = .70$). Item-total correlations were acceptable, and all items were retained.

3.6.2 PERCEIVED STRESS SCALE (PSS-10)

Perceived Stress Scale (PSS, 10), ten items, was used to measure stress and the perception of stress by individuals in experiencing life as unpredictable, uncontrollable, and overburdened in the last month.

Items are scored on a 5-point Likert scale with 0 (never) to 4 (very often). Some items are reverse scored prior to the final scoring. Higher scores suggest more perceived stress. The PSS, 10 had high internal consistency in this study (Cronbach's $\alpha = .79$) indicating valid measurement of total perceived stress.

3.6.3 ACADEMIC STRESS SCALE (ASS)

Academic stress was measured by a multi-item Academic Stress Scale which was designed to measure stress related to academic demands, tests, workload, pressure of time, institutional demands and assessment.

Assessment items were rated on a Likert-type scale, with higher ratings indicating greater academic stress. The Academic Stress Scale showed excellent internal consistency reliability within the sample used in this study (Cronbach's $\alpha = .92$).

Item analyses revealed very strong item-total correlations, and removal of any item did not considerably raise the reliability, thereby providing support for the full usage of the scale.

3.7 OPERATIONALIZATION OF VARIABLES INDEPENDENT VARIABLES

3.7.1 INDEPENDENT VARIABLES

- Cognitive Reappraisal (ERQ Reappraisal subscale score)
- Expressive Suppression (ERQ Suppression subscale score)

3.7.2 DEPENDENT VARIABLES

- Perceived Stress (PSS, 10 total score)
- Academic Stress (Academic Stress Scale score)

All variables were continuous and each was standardized where relevant for regression interpretation.

3.8 PROCEDURE

Participants have completed the questionnaire in an online self-report format. This enabled the participants to be anonymous and to complete the questionnaire bank to suit them. Participants have been provided with an information page before starting the questionnaire. This information page gives details of the aim of the study, describes voluntary participation and confidentiality assurances.

Subjects completed the following tasks in the following order once consent was given: demographics, Emotion Regulation Questionnaire, Perceived Stress Scale, and Academic Stress Scale. It took approximately 15, 20 minutes for subjects to complete the entire survey. Without the collection of any personal data, each response was stored securely for research purposes.

3.9 ETHICAL CONSIDERATIONS

This research was conducted in accordance with the ethical standards of the American Psychological Association for research involving human participants. No participants were required to participate in this research. Participants were free to withdraw from the research at any time without penalty or consequences. Informed consent was obtained prior to data collection and confidentiality and anonymity were preserved at all times.

The non, invasive nature of the self-report measures meant they posed little risk to participants in this study. Participants were not deceived and were provided with appropriate contact details of a helpline should participation cause any hardship.

3.10 DATA SCREENING AND PREPARATION

The data were checked for accuracy, missing, and violations of assumptions prior to conducting any inferential analysis. No missing data were identified for any variables. The descriptives were reviewed to inspect measures of central tendency and variability as well as skewness and kurtosis.

All variables showed near normal distributions in respect of skewness and kurtosis values within the tolerances. Outliers and influential examples examined using Cook's distance and the Mahalanobis distance. There were no points over the critical values and this indicated the data set was suitable for regression analysis.

3.11 STATISTICAL ANALYSIS PLAN

The analyses were conducted using Jamovi (version 2.x). The plan of analysis was as follows:

3.11.1 DESCRIPTIVE STATISTICS

The means, standard deviations, medians, ranges, skewness and kurtosis were computed for all variables.

3.11.2 RELIABILITY ANALYSIS

Cronbach's alpha was used in order to assess the internal consistency reliability of all the scales.

3.11.3 CORRELATION ANALYSIS

Pearson product, moment correlation coefficients were calculated in order to examine the bivariate relationships between the different stress dimensions and approaches to emotion regulation. Two, tailed significance tests were conducted.

3.11.4 MULTIPLE REGRESSION ANALYSES

Two simultaneous multiple regression models were conducted:

Model 1: Cognitive reappraisal and expressive suppression will predict perceptions of stress.

Model 2: The effect of cognitive reappraisal and expressive suppression on academic stress

This enabled the estimation of unique predictive effects, controlling for any overlap between predictors.

3.12 ASSUMPTION TESTING

The presence of multicollinearity was checked using variance inflation factor (VIF) and tolerance. Influence diagnostics were based upon Cook's distance. Checking the assumptions of linearity and homoscedasticity by examining residual plots.

All statistical tests were conducted with an alpha level set at .05, and standard regression coefficients are provided so that the relative strength of each predictor can be assessed.

3.13 METHODOLOGICAL RIGOR AND TRANSPARENCY

Methodological safeguards for rigor and reproducibility were put into place. Instruments were well, validated to ensure construct validity; reliability analyses ensured measures were applied consistently within the sample. Assumption checks verified the appropriateness of the analytic approach. Simultaneous regression helped mitigate the effects of omitted variables when comparing predictors.

All analytic decisions were driven by theory and were compatible with the stated research aims.

The methods were reported in enough detail to allow replication.

3.14 SUMMARY OF METHOD

In sum, this study used an intense, theory, based, and ethically, implementing approach to test the moderator model of two emotion regulation strategies (cognitive reappraisal and expressive suppression) on stress outcomes in emerging adults.

The use of validated measures, sufficient sample, diligent data screening, and careful statistical model provide one with confidence in the strength and meaning of the results.

CHAPTER : 4

RESULTS

4.1 PRELIMINARY ANALYSES

Preliminary analyses were conducted prior to addressing the primary research questions, to examine the psychometric properties (validity, distributional properties, normality) and descriptives of the variables in the study. These analyses were conducted to support the assumptions for correlational, regression analyses. Additionally, the measures had an acceptable level of reliability for use with this sample.

4.2 RELIABILITY ANALYSIS

The internal consistency reliability for The Emotion Regulation Questionnaire (Cognitive Reappraisal subscale) was acceptable, with a Cronbach's alpha of .78. The participants' overall Mean Cognitive Reappraisal score was 4.75 (SD = 1.08). The item, rest correlation coefficient ranged from .42 to .63, and was between moderate and highly correlated with the scale score. The Cronbach's alpha values when particular

items were deleted ranged from .71 to .77, suggesting that no single item deleted would produce a dramatic rise in internal consistency; thus all six items were retained for further analysis.

Table 4.1 Reliability Statistics for Cognitive Reappraisal Subscale

	Mean	SD	Cronbach's α
scale	4.75	1.08	0.775

The Expressive Suppression subscale exhibited satisfactory internal consistency, with a Cronbach's alpha of .70. The average expressive suppression score was 4.34 (SD = 1.33). Item rest correlations varied from .28 to .63, reflecting differences in item contributions while demonstrating overall good scale coherence. Despite the potential improvement of Cronbach's alpha to .76 upon the removal of one item (ERQ4), the existing reliability satisfied standard acceptability criteria for psychological research, and the item was preserved due to its conceptual significance to the construct of expressive suppression.

Table 4.2 Reliability Statistics for Expressive Suppression Subscale

	Mean	SD	Cronbach's α
scale	4.34	1.33	0.703

The Perceived Stress Scale (PSS-10) showed a high level of internal consistency dependability, as shown by a Cronbach's alpha of .79. Item-rest correlations varied between .12 and .63. Although one reverse-scored item exhibited a comparatively poor item-rest correlation, the overall dependability of the scale was deemed good, and all items were preserved to maintain the standardised structure of the instrument.

Table 4.3 Reliability Statistics for Perceived Stress Scale (PSS-10)

	Mean	SD	Cronbach's α
scale	2.30	0.614	0.785

The Academic Stress Scale demonstrated very high internal consistency, with a Cronbach's alpha of .92. The mean academic stress score on this measure was 2.32 (SD = .89). Item rest correlations ranged from .55 to .75 denoting that there were consistent and good associations between items and the scale score. Cronbach's alpha scores following item removal ranged from .91, .92, thus no artefact had a significant impact on the Cronbach's alpha. All artefacts were retained.

Table 4.4 Reliability Statistics for Academic Stress Scale

	Mean	SD	Cronbach's α
scale	2.32	0.891	0.919

4.3 DESCRIPTIVE STATISTICS AND DISTRIBUTIONAL PROPERTIES

Descriptive statistics were completed for each variable in the study. The analytic sample included 200 emerging adults with complete data on all variables. The means were 4.75 (SD=1.08) for cognitive reappraisal, 4.34 (SD=1.33) for expressive suppression, 2.18 (SD=0.49) for perceived stress and 2.32 (SD=0.89) for academic stress. The median values were similar to the means for all variables indicating they were not skewed by outliers.

The observed score ranges demonstrated sufficient diversity among constructs. The ratings for cognitive reappraisal and expressive suppression spanned the complete scale range (1–7), but perceived stress ratings varied from 0.80 to 3.40, and academic stress scores ranged from 0 to 4.00. The evaluation of distributional properties revealed that all variables exhibited appropriate skewness and kurtosis values.

The skewness scores went from –0.46 to 0.01, and the kurtosis values went from –0.24 to 0.49, all within widely recognised limits. The data demonstrated no significant departures from normalcy, hence endorsing the application of parametric statistical methods in following investigations.

Table 4.5 Descriptive Statistics of Study Variables

	Reappraisal	Suppression	PerceivedStress	AcademicStress
N	200	200	200	200
Missing	0	0	0	0
Mean	4.75	4.34	2.18	2.32
Median	4.83	4.50	2.20	2.25
Standard deviation	1.08	1.33	0.485	0.891
IQR	1.67	1.75	0.600	1.10
Minimum	1.00	1.00	0.800	0.00

Table 4.5 Descriptive Statistics of Study Variables

	Reappraisal	Suppression	PerceivedStress	AcademicStress
Maximum	7.00	7.00	3.40	4.00
Skewness	-0.464	-0.404	0.0108	-0.197
Std. error skewness	0.172	0.172	0.172	0.172
Kurtosis	0.485	-0.244	0.127	-0.177
Std. error kurtosis	0.342	0.342	0.342	0.342

4.4 CORRELATION ANALYSIS

To look at the bivariate correlations, Pearson's product-moment correlation coefficients were used among cognitive reappraisal, expressive suppression, perceived stress, and academic stress.

All significance tests were performed using two-tailed criteria.

Cognitive reappraisal showed a strong beneficial link to expressive suppression. ($r = .27, p < .001$), suggesting that elevated levels of reappraisal were marginally linked to increased utilisation of suppression methods.

Cognitive reappraisal had no significant correlation with felt stress ($r = -.12, p = .091$) or academic stress ($r = .01, p = .869$).

Expressive suppression had notable positive correlations with perceived stress ($r = .27, p < .001$) and academic stress ($r = .23, p = .001$), suggesting that increased dependence on suppression correlates with elevated levels of both general and academic stress.

The strength of these connections resided in the small-to moderate spectrum.

A substantial positive association was found between perceived stress and academic stress. ($r = .59, p < .001$), indicating a considerable relationship between general stress perceptions and stress associated with academic obligations.

Table 4.6 Correlation Matrix Among Cognitive Reappraisal, Expressive Suppression, Perceived Stress, and Academic Stress

		Reapprais al	Suppressio n	PerceivedStre ss	AcademicStre ss
Reappraisal	Pearson's r	—			
	df	—			
	p-value	—			
Suppression	Pearson's r	0.272***	—		
	df	198	—		
	p-value	<.001	—		
PerceivedStress	Pearson's r	-0.120	0.266***	—	
	df	198	198	—	
	p-value	0.091	<.001	—	
AcademicStress	Pearson's r	0.012	0.225**	0.590***	—
	df	198	198	198	—
	p-value	0.869	0.001	<.001	—

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

4.5 MULTIPLE LINEAR REGRESSION ANALYSES

4.5.1 PREDICTION OF PERCEIVED STRESS

A multiple linear regression analysis was conducted to examine whether cognitive reappraisal and expressive suppression significantly predicted perceived stress. The overall regression model was statistically significant, $F(2, 197) = 12.20$, $p < .001$, accounting for 11% of the variance in perceived stress ($R^2 = .11$, adjusted $R^2 = .10$).

Cognitive reappraisal was identified as a notable negative predictor of felt stress, $\beta = -.21$, $t(197) = -2.97$, $p = .003$. This suggested that, when accounting for expressive suppression, elevated cognitive reappraisal correlated with less felt stress.

Expressive suppression was found to be a significant positive predictor of experienced stress, $\beta = .32$, $t(197) = 4.61$, $p < .001$, which indicated that participants who more frequently employed suppression techniques reported higher levels of stress.

The collinearity diagnostics show no evidence of multicollinearity, with the variance inflation factor (1.08) and tolerance (0.93) values for both predictors.

The influence diagnostics show low Cook's d (max= 0.18), suggesting that no individual observation had an overly strong influence on the regression estimates.

Table 4.7 Model Fit for Regression Predicting Perceived Stress

Model	R ²	Adjusted R ²	Overall Model Test			
			F	df1	df2	p
1	0.110	0.101	12.2	2	197	<.001

Note. Models estimated using sample size of N=200

Table 4.8 Regression Coefficients for Perceived Stress

Predictor	Estimate	SE	t	p	Stand. Estimate	95% Confidence Interval	
						Lower	Upper
Intercept	2.1066	0.1626	12.96	<.001			
Reappraisal	-0.0928	0.0313	-2.97	0.003	-0.207	-0.345	0.0696
Suppression	0.1175	0.0255	4.61	<.001	0.322	0.184	0.4597

Table 4.9 Collinearity Statistics for Perceived Stress Model

	VIF	Tolerance
Reappraisal	1.08	0.926
Suppression	1.08	0.926

4.5.2 PREDICTION OF ACADEMIC STRESS

A second multiple linear regression examined the ability of cognitive reappraisal and expressive repression to predict academic stress. The overall model was statistically significant, $F(2, 197) = 5.55$, $p = .005$, and explained 5.3% of the variance in academic stress ($R^2 = .05$, adjusted $R^2 = .04$).

Expressive suppression was the only significant positive predictor for academic stress, $\beta = .24$, $t(197) = 3.33$, $p = .001$. The more students relied on suppression strategies, the greater their levels of academic stress. Cognitive reappraisal was not a significant predictor of academic stress, $\beta = -.05$, $t(197) = -0.74$, $p = .460$. Again, collinearity statistics did not suggest any multicollinearity issues ($VIF = 1.08$ for both predictors). Influence diagnostics showed that there were relatively low Cook's distance statistics (maximum = 0.16) indicating that the estimates were not overly influenced by the presence of outliers.

Table 4.10 Model Fit for Regression Predicting Academic Stress

Model	R ²	Adjusted R ²	Overall Model Test			
			F	df1	df2	p
1	0.0534	0.0437	5.55	2	197	0.005

Note. Models estimated using sample size of N=200

Table 4.11 Regression Coefficients for Academic Stress

Predictor	Estimate	SE	t	p	Stand. Estimate	95% Confidence Interval	
						Lower	Upper
Intercept	1.8350	0.3078	5.961	<.001			
Reappraisal	-0.0439	0.0592	-0.741	0.460	-0.0534	0.1954	0.0887
Suppression	0.1606	0.0483	3.328	0.001	0.2397	0.0977	0.3818

Table 4.12 Collinearity Statistics for Academic Stress Model

	VIF	Tolerance
Reappraisal	1.08	0.926
Suppression	1.08	0.926

4.6 COMPARATIVE PREDICTIVE STRENGTH OF EMOTION REGULATION STRATEGIES

Looking across the results of both regression models, it appears that expressive suppression was a consistent significant predictor of the dependent variables whereas, cognitive reappraisal was not. Specifically, expressive suppression was a significant predictor of perceived stress as well as academic stress. Conversely, cognitive reappraisal was not a significant predictor of academic stress.

Comparisons of standardized regression coefficients indicated that expressive suppression demonstrated greater magnitude and consistency of effects across outcomes, whereas the predictive influence of cognitive reappraisal was more limited and outcome-specific. The results underscore certain patterns in the predictive functions of emotion control methods concerning stress in emerging adults.

CHAPTER : 5

DISCUSSION

This study analysed the relative predictive efficacy of cognitive reappraisal and expressive repression on perceived and academic stress in emerging adults. The data demonstrate that expressive suppression is a reliable risk factor for both general and academic stress, while cognitive reappraisal serves a more specific, protective function just for perceived stress.

5.1 INTERPRETATION OF MAIN FINDINGS

In accordance with the process model of emotional regulation, suppression—a response focused strategy : exhibited a positive correlation with elevated perceived and academic stress, whereas reappraisal : an antecedent-focused strategy demonstrated an inverse relationship with perceived stress when analysed in conjunction with suppression. (Gross, 2015). In the bivariate correlations, suppression was significantly related to both perceived and academic stress, while reappraisal was not significantly related to either. However, once shared variance with suppression was controlled, reappraisal emerged as a significant negative predictor of perceived stress and remained unrelated to academic stress. This trend indicates that the observed

“non, effect” of reappraisal in zero, order correlations may indeed be partially confounded with the use of suppression, in addition to individuals’ use of multiple regulation strategies and not one pure strategy.

These results align with previous research demonstrating that chronic reappraisal reduces the effects of stressors and negative life experiences on negative outcomes, while expressive suppression is associated with increased stress and negative outcomes (Kalia & Knauft, 2020; Öztekin et al., 2025; Riepenhausen et al., 2022). For instance, Kalia & Knauft 2020 found that among adults with adverse childhood experiences, chronic cognitive reappraisal is associated with less perceived chronic stress, while expressive suppression is associated with greater perceived chronic stress.

Two studies with undergraduate and college student samples show that frequent use of cognitive reappraisal is linked to: less stress, less depression, and higher psychological well, being ((Sánchez-Sánchez et al., 2025)). Conversely, all three studies on expressive suppression respectively show that depressive and stress symptoms are positively correlated with frequent use of this emotion regulation strategy.

These findings extend the literature by demonstrating that for emerging adults, suppression is more strongly associated with perceived general stress as well as with academic, specific stress, while the function of reappraisal appears to be stronger in relation to overall stress appraisal.

Furthermore, the very high correlations between perceived and academic stress indicated shared variance between the indices, but relatively different predictors. Suppression uniquely predicted both indices, but reappraisal only predicted perceived, academic stress was not uniquely predicted by reappraisal. It is possible that academic stress is largely determined by internal and external factors outside the control of participants (i.e., hours of work, testing schedule, course requirements, employment expectations); in this context, suppression of emotional expression would have additional interpersonal and cognitive costs, resulting in more severe strain. Conversely, reappraisal may more readily influence broad appraisals about one’s life situation (“how stressful my life overall feels”) than reappraisal of academic culture.

5.2 THE NEURAL MECHANISMS THAT UNDERPIN REAPPRAISAL AND SUPPRESSION

Neuroimaging evidence offers a mechanistic explanation for why these strategies are differentially associated with stress. Cognitive reappraisal commonly recruits PFC control regions involved in inclusion, selection, and reinterpretation of emotional appraisals (dlPFC, vlPFC), as well as the ventromedial prefrontal cortex (vmPFC), which modulates affective value and top, down regulation of subcortical stimulation (He et al., 2023; Zilverstand et al., 2017). When reappraisal is successful, reductions in activity are observed in the amygdala and insula, which are involved in conscious detection and generation of feelings (He et al., 2023; Zilverstand et al., 2017).

Causal evidence from combined TMS, fMRI studies demonstrates that facilitatory vLPFC stimulation enhances vLPFC and vm PFC activity and prefrontal, subcortical coupling, ultimately attenuating amygdala and insula reactivity during reappraisal (He et al., 2023). This pattern of findings is consistent with an indirect pathway model wherein the vLPFC recruits the vm PFC as a hub to down, regulate limbic activation. From this standpoint, the habitual use of reappraisal for emotion regulation among emerging adults may be a marker of greater efficiency or strength in the recruitment of these prefrontal, limbic circuits, such that emotional reactivity and perceived stress are attenuated in daily life. Longitudinal structural work suggests that reappraisal supports particular developmental trajectories of cortical trajectories in regions implicated in social cognition and semantic processing that suggests its integration within maturing regulatory circuits during adolescence and early adulthood (Ferschmann et al., 2020).

In comparison, expressive suppression is associated with further engagement of fronto-parietal control systems (including dlPFC, vLPFC, IFG, and inferior parietal cortex), indicative of the few additional seconds of effort needed to continue inhibiting facial and bodily expression once emotional responding has begun (Sikka et al., 2022). In a systematic review of fMRI findings, suppression was found to modify activity in these regions relative to passively viewing an emotion, but its effects on amygdala and insula activity were variable, sometimes causing increases, decreases, or no change (Sikka et al., 2022). This variability may underlie the finding that suppression may not always lower subjective feeling intensity; rather, suppressors may simply find their internal state to be incongruent with their external gestures. The co-occurrence of this internal/external incongruence and sustained inhibitory effort may be what increases subjective feelings of stress and diminishes well-being.

Further developmental investigations, linking brain, predicted age difference (brain, PAD) and emotion regulation, shed light on the neural and maturational processes involved in suppression. For instance, increased brain, PAD in late childhood predicts greater use of expressive suppression 1.4 years later in early adolescence, independent of ADHD symptoms (Ágrez et al., 2025). Because emotion regulation involves the maturation of the prefrontal and subcortical systems in tandem, these results suggest that changes in brain development may culminate in greater use of suppression, (which predisposes youth to stress, related mental health problems).

Taken together, these neural data converge with the current behavioral results: reappraisal seems to involve a flexibly deployed, meaning-based modulation of emotion via an integrated prefrontal, limbic network that is linked to perceived stress, while suppression seems to involve a persistently deployed, resource-inefficient, top-down inhibition via fronto-parietal networks that may be cognitively more expensive and potentially increases, rather than alleviates, interpersonal suffering. In college settings in which cognitive demands are already high, the additional burden of cognitive effort involved in suppression may be especially deleterious and may account for its strong relationship to academic stress.

5.3 EMERGING ADULTHOOD, ACADEMIC CONTEXT, AND EMOTION REGULATION

Adolescence and emerging adulthood involve further development of prefrontal circuits and increased pressures for autonomous self-regulation. Longitudinal studies of school and college students find that reappraisal is related to school well-being in a positive feedback loop as well: greater well-being predicts greater subsequent use of reappraisal, indicating a virtuous cycle of adaptive regulation and outcomes (Beaumont et al., 2023). Reappraisal also tends to show positive links to resilience and differing measures of well-being and mental health (Riepenhausen et al., 2022), and can buffer the effects of stressful events in relation to depression and other outcomes (Kalia & Knauff, 2020; Liu et al., 2023; Öztekin et al., 2025).

The current sex, comparable sample of emerging adults (ages 18, 25) falls comfortably within this potential period of behavioral, neuroimaging, and neuroanatomical change. The null relationship between reappraisal and academic stressors could suggest that reappraisal is concomitant, theoretically, with global resilience mechanisms (e.g., positive appraisal style and positive global well, being), rather than specific academic stressors, which are less generalizable and more perhaps structured by external environment (e.g., grade burdens, pedagogy), and perhaps more skill, based (e.g., academic coping skills; Riepenhausen et al., 2022; Beaumont et al., 2023). The ongoing positive relationship between suppression and the academic, perceived, and general stress indices echoes previous longitudinal and cross-sectional literature documenting suppression's role as an antecedent to pervasive negative outcomes across many stressor types, future, oriented anxiety, job stress, trauma, pandemic response (Kalia & Knauff, 2020; McCullen et al., 2022; Öztekin et al., 2025; Waizman et al., 2023).

5.4 IMPLICATIONS FOR INTERVENTION AND ACADEMIC PRACTICE

The present results, along with converging behavioral and neuroimaging findings have several implications for interventions seeking to reduce stress in emerging adults. The positive relationship between reappraisal and perceived stress raises the possibility of reappraisal, focused interventions to student support programs. Based on meta, analyses and systematic reviews, Riepenhausen et al. (2022) provide evidence that cognitive reappraisal is a robust correlate of increased resilience and decreased risk for stress, related mental health problems, corroborated by neurocognitive evidence by Zilverstand et al. (2017). Experimental research also demonstrates that reappraisal skills can be trained and that neural changes in prefrontal, amygdala circuit underlie enhancements in regulation ability (He et al., 2023). Universities might integrate reappraisal training in orientation sessions, Counseling Center interventions, and curricula (e.g., classifying tests as challenges versus threats, interpreting failures as opportunities for growth).

Second, the strong observed relationships of expressive suppression with perceived and academic stress point to the importance of helping students regulate suppression. While some instances of suppression may offer adaptive benefit (e.g., facilitating attempts at maintaining a calm professional demeanour in certain events), habitual suppression is associated with higher stress, depression, and impaired social functioning (Kalia & Knauft, 2020; Liu et al., 2023; McCullen et al., 2022; Öztekin et al., 2025). Psychoeducational approaches that reduce maladaptive expectations for emotional experience, promote appropriate disclosure and expression, and teach alternative strategies (e.g., reappraisal, problem-focused coping, mindfulness) stand to be promising, in aiding some students from default suppression styles. Mindfulness, based approaches, which tend to raise trait reappraisal and reduce automatic suppression tendencies, could also be helpful.

Third, because emotion regulation strategies explained a relatively small amount of variance in academic stress, successful stress reduction may demand multilevel interventions that involve teaching the necessary skills at the individual level and also addressing contextual factors, such as increasing the flexibility of assessment systems and the clarity and supportiveness of feedback. Emotion regulation happens within institutions; bolstering prefrontal, limbic regulation might be irrelevant if the institutions continue to be systematically stressful.

Moreover, the neurodevelopmental literature points to emerging adulthood as a period of increased brain network plasticity involved in emotion regulation (Ferschmann et al., 2020; Ágrez et al., 2025). Thus, interventions at this time point have the potential to reduce present stressors, but in doing so, affect regulatory styles and neural pathways well into the future, with implications for occupational and mental health outcomes.

5.5 LIMITATIONS AND FUTURE DIRECTIONS

When interpreting these data, some limitations need to be considered. First, the cross-sectional nature of the study design precludes causal statements. Although in the regression models emotion regulation was modelled as a predictor of perceived and academic stress, it is also feasible that more perceived and academic stress increases suppression and decreases reappraisal effectiveness. Based on longitudinal and experimental studies, directionality can be teased out, for instance by training reappraisal or focusing on suppression and then measuring perceived and academic stress (Beaumont et al., 2023; Kalia & Knauft, 2020; Liu et al., 2023; Waizman et al., 2023).

Secondly, self-report measures of emotion regulation and stress were used in this study, and such self-report indices are vulnerable to shared method variance and potentially limitations of introspection. Future studies could include multimethod indicators of emotion regulation, such as behavioural, physiological, and neural indices. For instance, research by Zilverstand et al. (2017) indicates functional neuroimaging tasks to explore neural pathways of cognitive reappraisal and suppression, while Sikka et al. (2022) and He et al. (2023) paper

provides evidence for physiological indices of regulation strategy implementation, like facial electromyography and heart rate variability, that reveal autonomic processes involved in regulation. Exploring measures from these multiple approaches to quantifying emotion regulation would enable more accurate characterization of emotion regulation processes at the neural and autonomic level. Such multimethod designs would also facilitate strong tests of whether the prefrontal, amygdala connection, or fronto, parietal activation, serve as mediators of associations between regulation strategies and stress.

Finally, the sample consisted of first, year college students from one university within only one culture, which could affect generalization of the findings. Social norms about emotion regulation may influence both the social meaning and the relational and personal implications of suppression and reappraisal; for instance, suppression may be less harmful in a culture that emphasizes emotional control (Gross, 2015).

Cross-cultural and cross-institutional replications would be informative regarding whether the predictive disparities between suppression and reappraisal for perceived as well as academic stress replicate across institutions and whether they are modulated by emotion socialization norms. Similarly, academic stress was combined into one construct in this study. If replicated, future work could explore the discrete influences of various academic stressors (such as exams, workload, and interpersonal stress with peers or teachers) in the effects of emotion regulation strategies on academic burnout, whether certain stress domains are more amenable to reappraisal, or whether others may be more intensified by suppression.

Using network analytic models that have been successfully employed to decompose the relationship between specific cognitive regulation strategies such as catastrophizing or positive reappraisal and dimensions of academic burnout among college students may be useful (Iuga et al., 2025).

Despite these limitations, the present work adds to an increasing body of evidence that underscores the critical role that emotion regulation strategies play in modulating stress in emerging adulthood.

The fact that expressive suppression is an omnipresent predictor of perceived and academic stress, and reappraisal is a selective predictor of perceived stress alone, highlights potential targets for intervention at the psychological and neural level: ameliorating reappraisal deficits and burnout, inducing suppression within safe, novel, and perceived controllable academic contexts should strengthen emerging adult stress buffering mechanisms.

CHAPTER : 6

SUMMARY AND CONCLUSION

This study sought to determine whether cognitive reappraisal or expressive suppression was a better predictor of stress among emerging adults (age 18, 25). Guided by the process model of emotion regulation and situated within the developmental context of emerging adulthood, this study addressed an important gap in the literature by modelling two key emotion regulation strategies in simultaneous domain, general and domain, specific stress outcomes. This study moved beyond its bivariate associations to demonstrate how reappraisal and suppression influence stress in college differently.

The significant predictor of both perceived and academic stress, illustrating the link between suppression and greater stress as even when partialling out the influence of cognitive reappraisal, suppression remains an important predictor. The consistent finding that the feeling of an emotion is not altered by response, focused regulation strategies such as suppression suggests that inhibition of emotional expression across a broad set of dimensions may be a very reliable predictor of elevated stress levels. Interestingly, the behavior, focused regulation strategy of cognitive reappraisal was less consistent as a beta predictor, being a significant predictor of lower perceived stress, but not academic stress. This finding suggests that though appropriate emotional regulation strategies may be highly beneficial in managing certain stressors, they may not be equally useful in minimizing other stressors, especially when the stressors are externally imposed and structurally limited in feeling and time, such as in schools.

By separating stress into perceived and academic forms, our findings support the idea that stress is not a unified construct and that emotion regulation strategies may differentially affect how stress is experienced across domains. Perceived stress is a global appraisal of life demands and coping ability, where cognitive reappraisal could have a profound effect on stress perception. In contrast, academic stress differs in that it is directly related to workload, evaluative threat, and institutional requirements, where the expression of emotion through suppression may be more cognitively and interpersonally costly and thus favor an increased experience of stress, but where reappraisal may not be powerful enough on its own to impact stress perception in this situation.

The study contributes developmentally as well, positioning these findings within a framework of emerging adulthood, in which regulatory skill acquisition and accumulation of stressors related to the academic and psychosocial context continue. Emotion regulation strategies during this developmental stage may set the stage for future trajectories in stress and emotional health. Our findings indicate that reliance on expressive suppression during emerging adulthood may be a particularly meaningful risk factor, and reappraisal a potentially protective factor influencing global but not academic domain stress.

This study makes a substantial addition to the growing body of work by presenting compelling evidence from an Indian college setting where academic competition, performance pressure, and the sociocultural rules about emotion expression may have distinct influences on individuals' stress experiences. These results highlight the importance of exploring emotion regulation choices in other cultural and educational contexts, and urge researchers to be cautious about stretching the findings from Western samples to other settings. Suppression may be especially common and harmful in intense academic environments, increasing both academic and appraisal, based stress.

Finally, regarding applied implications, these findings have potential utility for stress, management and mental health interventions for students. While developing skills to improve cognitive reappraisal may be useful in improving coping with global stressors, these findings suggest that decreasing tendencies toward expressive suppression may be an important intervention target as well: American emerging adults can self-report high levels of both suppression and reappraisal, and suppression appears to be more clearly associated with stress than either experience of emotion or cognitive reappraisal. Specifically, emotion regulation strategies that increase emotional awareness and acceptance and foster effective, context, appropriate regulation strategies may be even more effective for helping students cope with stressful situations when they are combined with training in cognitive reframing of these events.

Additionally, though emotion regulation strategies only predicted 1- 3% of variance in academic stress relative to other factors, these relatively small effects call attention to the need to adopt multilevel approaches when examining relationships between stress and emotion regulation strategies. Findings from this study contribute to our understanding of emotion regulation and stress in emerging adulthood by demonstrating that expressive suppression and cognitive reappraisal are both unique and differentially related to stress experiences. While expressive suppression was a general predictor of both perceived and academic stress, cognitive reappraisal was only differentially related to perceived stress and was the only predictor to exhibit a direct, protective relation in this domain.

These results confirm process models of emotion regulation and highlight the importance of targeting maladaptive regulation strategies in order to promote stress, resistance and well, being in emerging adults. Furthermore, the findings of this study reveal different patterns of associations between emotion regulation strategies and various stress domains, providing a theoretically and practically grounded platform for future research and intervention alike.

CHAPTER : 7

REFERENCES

- Abela, K., Hussain, A., & Law, D. (2025). Interweaving Threads: Untangling the Moderating Relationship of Parent-Child Conflict and Closeness in the Association Between Interparental Conflict and Emotion Regulation. *Emerging Adulthood (Print)*, 13, 410–423. <https://doi.org/10.1177/21676968241311950>
- Ágrez, K., Vakli, P., Weiss, B., Vidnyánszky, Z., & Bunford, N. (2025). Assessing the association between ADHD and brain maturation in late childhood and emotion regulation in early adolescence. *Translational Psychiatry*, 15, 220. <https://doi.org/10.1038/s41398-025-03113-4>
- Aldao, A. (2013). The future of emotion regulation research: Capturing context. *Perspectives on Psychological Science*, 8(2), 155–172. <https://doi.org/10.1177/1745691612459518>
- Aldao, A., & Nolen-Hoeksema, S. (2012). The influence of context on the implementation of adaptive emotion regulation strategies. *Behaviour Research and Therapy*, 50(7–8), 493–501. <https://doi.org/10.1016/j.brat.2012.04.004>
- Aldao, A., & Tull, M. T. (2015). Putting emotion regulation in context. *Current Opinion in Psychology*, 3, 100–107. <https://doi.org/10.1016/j.copsy.2015.03.022>
- Aldao, A., Nolen Hoeksema, S., & Schweizer, S. (2010). Emotion regulation strategies across psychopathology: A meta analytic review. *Clinical Psychology Review*, 30(2), 217–237. <https://doi.org/10.1016/j.cpr.2009.11.004>
- Aldao, A., Sheppes, G., & Gross, J. J. (2015). Emotion regulation flexibility. *Cognitive Therapy and Research*, 39(3), 263–278. <https://doi.org/10.1007/s10608-014-9662-4>
- Beaumont, J., Putwain, D., Gallard, D., Malone, E., Marsh, H. W., & Pekrun, R. (2023). Students' emotion regulation and school-related well-being: Longitudinal models juxtaposing between- and within-person perspectives. *Journal of Educational Psychology*, 115(5), 949–966. <https://doi.org/10.1037/edu0000811>
- Berking, M., & Wupperman, P. (2012). Emotion regulation and mental health. *Current Opinion in Psychiatry*, 25(2), 128–134. <https://doi.org/10.1097/YCO.0b013e3283503669>
- Boemo, T., Nieto, I., Vázquez, C., & Sánchez López, Á. (2022). Relations between emotion regulation strategies and affect in daily life: A systematic review and meta analysis of studies using ecological momentary assessments. *Neuroscience & Biobehavioral Reviews*, 136, 104616. <https://doi.org/10.1016/j.neubiorev.2022.104616>
- Brewer, S., Zahniser, E., & Conley, C. (2016). Longitudinal impacts of emotion regulation on emerging adults: Variable- and person-centered approaches. *Journal of Applied Developmental Psychology*, 47, 1–12. <https://doi.org/10.1016/j.appdev.2016.09.002>
- Brockman, R., Ciarrochi, J., Parker, P., & Kashdan, T. (2017). Emotion regulation strategies in daily life: Mindfulness, cognitive reappraisal and emotion suppression. *Cognitive Behaviour Therapy*, 46, 113–91. <https://doi.org/10.1080/16506073.2016.1218926>
- Butler, E. A., Lee, T. L., & Gross, J. J. (2007). Emotion regulation and culture: Are the social consequences of emotion suppression culture-specific? *Journal of Personality and Social Psychology*, 93(1), 48–67. <https://doi.org/10.1037/0022-3514.93.1.48>

- Chervonsky, E., & Hunt, C. (2019). Emotion regulation, mental health, and social wellbeing in anxiety and depression. *Journal of Anxiety Disorders*, 62, 1–13. <https://doi.org/10.1016/j.janxdis.2018.11.005>
- Compas, B. E., Jaser, S. S., Bettis, A. H., Watson, K. H., Gruhn, M. A., Dunbar, J. P., Williams, E. K., & Thigpen, J. C. (2017). Coping, emotion regulation, and psychopathology in childhood and adolescence: A meta analysis and narrative review. *Psychological Bulletin*, 143(9), 939–991. <https://doi.org/10.1037/bul0000110>
- Cutuli, D. (2014). Cognitive reappraisal and expressive suppression strategies role in the emotion regulation: An overview on their modulatory effects and neural correlates. *Frontiers in Systems Neuroscience*, 8, Article 175. <https://doi.org/10.3389/fnsys.2014.00175>
- Doré, B. P., Silvers, J. A., & Ochsner, K. N. (2016). Toward a personalized science of emotion regulation. *Social and Personality Psychology Compass*, 10(4), 171–187. <https://doi.org/10.1111/spc3.12240>
- English, T., Lee, I. A., John, O. P., & Gross, J. J. (2017). Emotion regulation strategy selection in daily life. *Motivation and Emotion*, 41(2), 230–242. <https://doi.org/10.1007/s11031-016-9590-9>
- Ferschmann, L., Vijayakumar, N., Grydeland, H., Overbye, K., Mills, K. L., Fjell, A. M., Walhovd, K. B., Pfeifer, J. H., & Tamnes, C. K. (2020). Cognitive reappraisal and expressive suppression relate differentially to longitudinal structural brain development across adolescence. *Cortex*, 128, 78–95. <https://doi.org/10.1016/j.cortex.2020.03.029>
- Ford, B. Q., Lam, P., John, O. P., & Mauss, I. B. (2018). The psychological health benefits of accepting negative emotions. *Social Psychological and Personality Science*, 9(1), 98–107. <https://doi.org/10.1177/1948550616668187>
- Gross, J. J. (2002). Emotion regulation: Affective, cognitive, and social consequences. *Psychophysiology*, 39(3), 281–291. <https://doi.org/10.1017/S0048577201393198>
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, 26(1), 1–26. <https://doi.org/10.1080/1047840X.2014.940781>
- Gross, J. J., & Thompson, R. A. (2007). Emotion regulation: Conceptual foundations. In J. J. Gross (Ed.), *Handbook of emotion regulation* (pp. 3–24). Guilford Press.
- Haga, S. M., Kraft, P., & Corby, E. K. (2009). Emotion regulation: Antecedents and well-being outcomes of cognitive reappraisal and expressive suppression in cross-cultural samples. *Journal of Happiness Studies*, 10(3), 271–291. <https://doi.org/10.1007/s10902-007-9080-3>
- He, Z., Li, S., Mo, L., Zheng, Z., Li, Y., Li, H., & Zhang, D. (2023). The VLPFC-engaged voluntary emotion regulation: Combined TMS-fMRI evidence for the neural circuit of cognitive reappraisal. *The Journal of Neuroscience*, 43(35), 6254–6265. <https://doi.org/10.1523/JNEUROSCI.1692-22.2023>
- Hong, F., Tarullo, A., Mercurio, A., Liu, S., Cai, Q., & Malley-Morrison, K. (2018). Childhood maltreatment and perceived stress in young adults: The role of emotion regulation strategies, self-efficacy, and resilience. *Child Abuse & Neglect*, 86, 136–146. <https://doi.org/10.1016/j.chiabu.2018.09.014>
- Hu, T., Zhang, D., Wang, J., Mistry, R., Ran, G., & Wang, X. (2014). Relation between emotion regulation and mental health: A meta-analysis. *Psychological Reports*, 114(2), 341–362. <https://doi.org/10.2466/03.20.PR0.114k22w4>

- Iuga, I., & David, O. A. (2024). Emotion regulation and academic burnout among youth: A quantitative meta analysis. *Educational Psychology Review*, 36, 46. <https://doi.org/10.1007/s10648-024-09867-0>
- Iuga, I., Fodor, L., & David, O. (2025). Cognitive emotion regulation strategies and academic burnout dimensions in children and adolescents: A network analysis approach. *Current Psychology*. Advance online publication. <https://doi.org/10.1007/s12144-025-06472-7>
- Jamieson, J. P., Black, A. E., Pelaia, L. E., Graveling, H., Gordils, J., & Reis, H. T. (2021). Reappraising stress arousal improves affective, neuroendocrine, and academic performance outcomes in community college classrooms. *Journal of Experimental Psychology: General*, 150(6), 1089–1105. <https://doi.org/10.1037/xge0000960>
- John, O. P., & Gross, J. J. (2004). Healthy and unhealthy emotion regulation. *Journal of Personality*, 72(6), 1301–1334. <https://doi.org/10.1111/j.1467-6494.2004.00298.x>
- Joormann, J., & Stanton, C. H. (2016). Examining emotion regulation in depression. *Behaviour Research and Therapy*, 86, 35–49. <https://doi.org/10.1016/j.brat.2016.06.008>
- Juang, L., Moffitt, U., Kim, S., Lee, R., Soto, J., Hurley, E., Weisskirch, R., Blozis, S., Castillo, L., Huynh, Q., & Whitbourne, S. (2016). Cognitive reappraisal and expressive suppression. *Journal of Adolescence*, 53, 21–33. <https://doi.org/10.1016/j.adolescence.2016.08.012>
- Kalia, V., & Knauff, K. M. (2020). Emotion regulation strategies modulate the effect of adverse childhood experiences on perceived chronic stress with implications for cognitive flexibility. *PLOS ONE*, 15(6), e0235412. <https://doi.org/10.1371/journal.pone.0235412>
- Kobylińska, D., & Kusey, P. (2019). Flexible emotion regulation. *Frontiers in Psychology*, 10, 72. <https://doi.org/10.3389/fpsyg.2019.00072>
- Larionow, P., Mudło-Głagolska, K., & Preece, D. (2025). Latent Structure and Profiles of Emotion Regulation. *Journal of Clinical Medicine*, 14. <https://doi.org/10.3390/jcm14020587>
- Liu, S., Xu, J., Cao, H., An, Y., Li, Y., Li, Z., Gao, M., & Han, Z. (2024). Changes in emotion regulation strategies during the pandemic. *Journal of Child Psychology and Psychiatry*. <https://doi.org/10.1111/jcpp.14027>
- Liu, Y., Yu, H., Shi, Y., & Ma, C. (2023). The effect of perceived stress on depression in college students. *Frontiers in Psychology*, 14, 1133543. <https://doi.org/10.3389/fpsyg.2023.1133543>
- McCullen, J. R., Counts, C. J., & John-Henderson, N. (2022). Childhood adversity and emotion regulation strategies as predictors of psychological stress and mental health in American Indian adults during the COVID-19 pandemic. *Emotion*, 22(7), 1432–1444. <https://doi.org/10.1037/emo0001035>
- McRae, K., Jacobs, S. E., Ray, R. D., John, O. P., & Gross, J. J. (2012). Individual differences in reappraisal ability. *Emotion*, 12(2), 381–391. <https://doi.org/10.1037/a0026350>
- Miu, A. C., Szentágotai Tătar, A., Balázsi, R., Nechita, D. M., Bunea, I., & Pollak, S. D. (2022). Emotion regulation as mediator between childhood adversity and psychopathology. *Clinical Psychology Review*, 92, 102127. <https://doi.org/10.1016/j.cpr.2021.102127>
- Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2008). Are expressive suppression and cognitive reappraisal associated with stress related symptoms? *Behaviour Research and Therapy*, 46(9), 993–1000. <https://doi.org/10.1016/j.brat.2008.05.001>

- Moore, S. A., Zoellner, L. A., & Mollenholt, N. (2021). Emotion regulation and stress recovery. *Behaviour Research and Therapy*, 136, 103756. <https://doi.org/10.1016/j.brat.2020.103756>
- Mouatsou, C., & Koutra, K. (2021). Emotion regulation in relation with resilience in emerging adults. *Current Psychology*, 40(10), 4820–4830. <https://doi.org/10.1007/s12144-019-00417-6>
- Nadeem, A., Umer, F., & Anwar, M. J. (2023). Emotion regulation as predictor of academic performance in university students. *Journal of Professional & Applied Psychology*, 4(1), 82–91. <https://doi.org/10.52053/jpap.v4i1.157>
- Ochsner, K. N., Silvers, J. A., & Buhle, J. T. (2012). Functional imaging studies of emotion regulation. *Annals of the New York Academy of Sciences*, 1251, E1–E24. <https://doi.org/10.1111/j.1749-6632.2012.06752.x>
- Öztekin, G. G., Gómez-Salgado, J., & Yıldırım, M. (2025). Future anxiety, depression and stress among undergraduate students. *Frontiers in Psychology*, 16, 1432086. <https://doi.org/10.3389/fpsyg.2025.1432086>
- Park, C., Williams, M., Hernandez, P., Agocha, V., Lee, S., Carney, L., & Loomis, D. (2020). Development of emotion regulation across the first two years of college. *Journal of Adolescence*, 84, 230–242. <https://doi.org/10.1016/j.adolescence.2020.09.009>
- Park, G., Vasey, M. W., Van Bavel, J. J., & Thayer, J. F. (2019). Emotion regulation and academic engagement. *Emotion*, 19(4), 653–667. <https://doi.org/10.1037/emo0000462>
- Preece, D. A., Becerra, R., Robinson, K., & Gross, J. J. (2021). Emotion regulation questionnaire: Network analysis. *Journal of Personality Assessment*, 103(5), 663–675. <https://doi.org/10.1080/00223891.2020.1766892>
- Riepenhausen, A., Wackerhagen, C., Reppmann, Z. C., Deter, H. C., Kalisch, R., Veer, I. M., & Walter, H. (2022). Positive cognitive reappraisal in stress resilience, mental health, and well-being. *Emotion Review*, 14(3), 163–180. <https://doi.org/10.1177/17540739221091799>
- Salimzadeh, R., Hall, N., & Saroyan, A. (2020). Stress, emotion regulation, and well-being among Canadian faculty members. *Social Sciences*. <https://doi.org/10.3390/socsci9120227>
- Sánchez-Sánchez, H., Schoeps, K., & Montoya-Castilla, I. (2025). Emotion regulation strategies and psychological well-being in emerging adulthood. *Behavioral Sciences*, 15. <https://doi.org/10.3390/bs15070929>
- Schäfer, J. Ö., Naumann, E., Holmes, E. A., Tuschen-Caffier, B., & Samson, A. C. (2017). Emotion regulation strategies across psychopathology. *Clinical Psychology Review*, 57, 64–82. <https://doi.org/10.1016/j.cpr.2017.07.002>
- Seligowski, A. V., Lee, D. J., Bardeen, J. R., & Orcutt, H. K. (2015). Emotion regulation and stress symptoms. *Cognitive Behaviour Therapy*, 44(2), 87–102. <https://doi.org/10.1080/16506073.2014.980753>
- Sikka, P., Stenberg, J., Vorobyev, V., & Gross, J. J. (2022). The neural bases of expressive suppression. *Neuroscience & Biobehavioral Reviews*, 137, 104642. <https://doi.org/10.1016/j.neubiorev.2022.104642>
- Southward, M. W., Altenburger, E. M., Moss, S. A., Cregg, D. R., & Cheavens, J. S. (2014). Flexible emotion regulation in daily stress. *Journal of Social and Clinical Psychology*, 33(8), 738–761. <https://doi.org/10.1521/jscp.2014.33.8.738>

- Sun, Y., & Nolan, C. (2021). Emotion regulation strategies and stress in Irish college students and Chinese international college students in Ireland. *Journal of International Students*, 11(3), 650–671. <https://doi.org/10.32674/jis.v11i3.2592>
- Suri, G., Whittaker, K., & Gross, J. J. (2015). Emotion regulation and stress physiology. *Emotion*, 15(5), 610–621. <https://doi.org/10.1037/emo0000069>
- Troy, A. S., & Mauss, I. B. (2011). Resilience in the face of stress. *Journal of Personality and Social Psychology*, 100(2), 337–348. <https://doi.org/10.1037/a0021643>
- Troy, A. S., Wilhelm, F. H., Shallcross, A. J., & Mauss, I. B. (2010). Seeing the silver lining. *Journal of Abnormal Psychology*, 119(4), 783–795. <https://doi.org/10.1037/a0020262>
- Vally, Z., & Ahmed, K. (2020). Emotion regulation strategies and psychological wellbeing. *Neurology, Psychiatry and Brain Research*, 38, 100–107. <https://doi.org/10.1016/j.npbr.2020.10.003>
- Vinter, K., Aus, K., & Arro, G. (2020). Academic burnout and cognitive emotion regulation strategies. *Educational Psychology*, 41, 1061–1077. <https://doi.org/10.1080/01443410.2020.1855631>
- Visted, E., Vøllestad, J., Nielsen, M. B., & Schanche, E. (2018). Emotion regulation in current and remitted depression. *Frontiers in Psychology*, 9, 756. <https://doi.org/10.3389/fpsyg.2018.00756>
- Waizman, Y. H., Sedykin, A. E., Guassi Moreira, J. F., Saragosa-Harris, N. M., Silvers, J. A., & Peris, T. S. (2023). Emotion regulation strategies and beliefs about emotions predict psychosocial outcomes. *Affective Science*, 4(3), 266–279. <https://doi.org/10.1007/s42761-023-00187-0>
- Webb, T. L., Miles, E., & Sheeran, P. (2012). Dealing with feeling. *Psychological Bulletin*, 138(4), 775–808. <https://doi.org/10.1037/a0027600>
- Young, K. S., Sandman, C. F., & Craske, M. G. (2019). Positive and negative emotion regulation in adolescence. *Brain Sciences*, 9(4), 76. <https://doi.org/10.3390/brainsci9040076>
- Yu, Z., Woodward, K., Hamill, T., Qureshi, F., & Wang, L. (2025). Positive childhood experiences and flourishing among young adults in China. *Research in Nursing & Health*. <https://doi.org/10.1002/nur.70025>
- Zahniser, E., & Conley, C. S. (2018). Interactions of emotion regulation and perceived stress in predicting emerging adults' subsequent internalizing symptoms. *Motivation and Emotion*, 42(5), 671–681. <https://doi.org/10.1007/s11031-018-9690-1>
- Zilverstand, A., Parvaz, M. A., & Goldstein, R. Z. (2017). Neuroimaging cognitive reappraisal in clinical populations. *NeuroImage*, 148, 1–26. <https://doi.org/10.1016/j.neuroimage.2016.12.012>
- Zimmermann, P., & Iwanski, A. (2014). Emotion regulation across development. *Child Development Perspectives*, 8(4), 233–238. <https://doi.org/10.1111/cdep.12096>
- Zou, X., Lv, Y., Tang, Q., Wang, S., Liu, X., Zhang, L., Tao, Y., & Zhou, J. (2025). Examining the influence of two emotion regulation strategies on anxiety in Chinese college students. *BMC Psychology*. Advance online publication. <https://doi.org/10.1186/s40359-025-02388-7>