

Impact of Perceived Stress and Emotional Regulation on Eating Patterns Among Young Adults: A Cross-Sectional Study from an Indian University Setting

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ABSTRACT

Background: Eating behaviour among young adults is increasingly shaped by psychological stress and the strategies individuals use to regulate emotion, yet few Indian studies have examined perceived stress and emotional regulation together as joint predictors of eating patterns in a single non-clinical sample.

Aim: were to explore the relationship between perceived stress, emotional regulation (cognitive reappraisal and expressive suppression) and eating patterns (cognitive restraint, uncontrolled eating and emotional eating) among young adults.

Method: The present study employed a cross-sectional, exploratory design with 273 young adults (18–25 years) recruited through simple random sampling from Santosh Medical College, Ghaziabad. Perceived stress was assessed with the Perceived Stress Scale (PSS-10), emotional regulation with the Emotion Regulation Questionnaire (ERQ), and eating patterns with the Three-Factor Eating Questionnaire-Revised 18 (TFEQ-R18). Spearman's Rank Correlation and multiple linear regression were used to analyse data and significance was taken at $p < 0.05$.

Results: The mean perceived stress score was 20.25 (SD = 6.15); 68.5% of participants reported moderate stress. Perceived stress was positively correlated with uncontrolled eating ($\rho = .599, p < .05$) and emotional eating ($\rho = .499, p < .05$), and negatively correlated with cognitive restraint ($\rho = -.119, p < .05$) and cognitive reappraisal ($\rho = -.282, p < .05$). Expressive suppression was positively correlated with uncontrolled eating ($\rho = .281, p < .05$) and emotional eating ($\rho = .208, p < .05$). Perceived stress was the strongest predictor of both uncontrolled eating (model $R^2 = 42.2\%$) and emotional eating (model $R^2 = 30.4\%$).

Conclusion: Coping through cognitive reappraisal was protective for eating regulation, while expressive suppression and perceived stress were risk factors for uncontrolled and emotional eating, suggesting that stress-management and adaptive emotion-regulation training may help reduce maladaptive eating among young adults.

Keywords: perceived stress, emotional regulation, cognitive reappraisal, expressive suppression, eating patterns, emotional eating, uncontrolled eating, young adults, India

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INTRODUCTION

Food fulfils more than physiological hunger. Among young adults in particular, eating habits are shaped not only by nutritional need but by emotional experience, stress, shifting lifestyles and environmental influence, and maladaptive patterns such as emotional eating, binge eating and meal skipping have become increasingly common^{1,2}. Young adulthood is a developmental stage of substantial biological, psychological and social change^{3,4}, and academic competitiveness, career uncertainty and financial instability have intensified pressures on this age group⁵, compounded by the pervasive presence of social media and digital technology⁶.

Perceived stress refers to the degree to which individuals appraise their circumstances as unpredictable, uncontrollable or overwhelming, a subjective appraisal that is a stronger determinant of psychological and physical outcomes than the stressful events themselves⁸. The Transactional Model of Stress and Coping frames stress as an interaction between external demands and an individual's appraisal of the resources available to meet them⁹. Prolonged perceived stress has been linked with anxiety and depression¹⁰, and with cumulative wear on physical and mental health over time¹¹. Eating behaviour is among the lifestyle domains most responsive to stress, which commonly produces irregular meal patterns, overeating or a shift

toward calorie-dense food¹³. Highly palatable foods can transiently relieve distress through the brain's reward system, a pattern often termed stress-induced eating¹⁴, a response that varies considerably between individuals¹⁵, while chronic activation of the hypothalamic-pituitary-adrenal axis stimulates appetite and alters glucose metabolism¹⁶ and disrupts hunger-satiety signalling¹⁷. Emotional regulation refers to the capacity to monitor, evaluate and modify emotional responses¹⁸. Gross's Process Model of Emotion Regulation distinguishes cognitive reappraisal — reframing a situation before its emotional impact unfolds — from expressive suppression, which inhibits outward emotional expression after the response has already been generated¹⁹ and is generally less effective, being associated with heightened psychological distress²⁰. Poor emotion regulation can leave young adults vulnerable to maladaptive coping, including emotional eating — the tendency to eat in response to affective states rather than physiological hunger^{22,23}. Individuals with stronger regulatory skills draw more on adaptive coping strategies that resolve distress without recourse to food, whereas poor regulation is associated with binge eating and emotional overeating^{24,25}, a pattern reinforced by shared neural circuitry governing both emotional regulation and reward-driven food choice^{26,27}.

The Transactional Model of Stress and Coping²⁸, Gross's Process Model²⁹, the Psychosomatic Theory of Eating³⁰ and Self-Regulation Theory³¹ together explain why identical stressors can produce divergent eating outcomes. International evidence supports this: higher perceived stress has been linked with greater intake of energy-dense comfort foods³², and the ability to manage stress moderates the link between stress and dietary choice³³. Daily hassles and individual eating style also shape food intake under stress³⁴, and reviews describe a consistent, though individually variable, drive toward increased eating under stress^{35,36}, a pattern observed even in children³⁸. Despite this evidence base, comparatively few studies have examined perceived stress and emotional regulation together as joint predictors of eating behaviour within a single non-clinical Indian sample³⁹, even as rapid urbanisation, academic competition and shifting lifestyles have transformed eating and stress patterns among Indian young adults.

Clarifying how perceived stress and emotional regulation jointly shape eating behaviour carries scientific and applied value: eating behaviour is best understood as a psychological phenomenon shaped by cognitive appraisal and emotional processing rather than a purely nutritional matter⁴⁰, implying that interventions targeting emotional regulation — such as dialectical behaviour therapy, shown to reduce binge eating by improving distress tolerance⁴¹ — may prove

more effective than dietary advice alone, particularly given that poor dietary practice remains a leading modifiable risk factor for non-communicable disease⁴² and psychological strain among young adults has intensified in recent years⁴³. The present study addresses this gap by examining the combined influence of perceived stress and emotional regulation on eating patterns among young adults.

Aim and Objectives

The purpose of this study was to explore the relationship between perceived stress, emotional regulation and eating patterns among young adults. Specific objectives were: (1) to examine the effect of perceived stress on eating patterns among young adults, and (2) to examine how emotional regulation influences eating patterns in young adults.

Research Question and Hypotheses

Research question: How do the level of perceived stress and emotional regulation affect eating patterns in young adults?

H1: There is a significant relationship between perceived stress and eating patterns among young adults.

H2: There is a significant relationship between emotional regulation and eating patterns among young adults.

H01: There is no significant relationship between perceived stress and eating patterns among young adults.

H02: There is no significant relationship between emotional regulation and eating patterns among young adults.

METHODS

The study adopted a cross-sectional, quantitative, exploratory design to investigate the links between perceived stress, emotional regulation and eating patterns among young adults. A cross-sectional approach permitted data to be collected from participants at a single point in time, enabling assessment of the prevalence and interplay of the study variables without manipulation of any variable.

Sample and Setting

The study was conducted at Santosh Medical College, Ghaziabad, Uttar Pradesh, during the 2025–2026 academic session. A total of 273 young adults (18–25 years) affiliated with the university were recruited using simple random sampling to increase representativeness and reduce selection bias. Sample size was determined in consultation with a statistician to ensure adequate power for correlation and regression analyses. Ethical clearance was obtained prior to data collection, and informed consent was taken from all participants.

Measures

Perceived Stress Scale (PSS-10): a 10-item scale developed by Cohen, Kamarck and Mermelstein⁸ measuring the degree to which situations in the past

month were appraised as stressful, unpredictable and overwhelming, rated on a 5-point scale (0 = Never to 4 = Very Often); total scores range from 0–40, with higher scores indicating greater perceived stress. Reported Cronbach's alpha ranges from 0.74 to 0.91.

Emotion Regulation Questionnaire (ERQ): a 10-item scale developed by Gross and John¹⁹ measuring habitual use of Cognitive Reappraisal (6 items) and Expressive Suppression (4 items), rated on a 7-point scale (1 = Strongly Disagree to 7 = Strongly Agree). Reported Cronbach's alpha ranges from 0.79–0.90 (Reappraisal) and 0.73–0.84 (Suppression).

Three-Factor Eating Questionnaire-Revised 18 (TFEQ-R18): originally developed by Stunkard and Messick⁵⁹ and revised by Karlsson and colleagues⁶⁰ into an 18-item, 4-point Likert-scale measure assessing Cognitive Restraint, Uncontrolled Eating and Emotional Eating, with higher scores reflecting greater expression of each dimension. Reported Cronbach's alpha ranges from 0.75–0.80 (Restraint), 0.85–0.87 (Uncontrolled Eating) and 0.78–0.85 (Emotional Eating).

Statistical Analysis

Descriptive statistics (frequency, percentage, mean, SD) characterised the sample and study variables. The Shapiro–Wilk test assessed normality; since most

Table 1. Descriptive Statistics of the Study Variables (N = 273)

Variable	Mean	SD	Minimum	Maximum
Perceived Stress (PSS)	20.25	6.15	3	38
Cognitive Reappraisal	28.35	3.36	19	39

Correlational Findings

Table 2 presents the Spearman's rank correlation results. Perceived stress was significantly and positively correlated with uncontrolled eating ($\rho = .599, p < .05$) and emotional eating ($\rho = .499, p < .05$), and negatively correlated with cognitive reappraisal ($\rho = -.282, p < .05$) and cognitive restraint ($\rho = -.119, p < .05$). Cognitive

Table 2. Spearman's Rank Correlation Matrix Among Perceived Stress, Emotional Regulation, and Eating Patterns (N = 273)

Variable	1	2	3	4	5	6
1. Perceived Stress	1					
2. Cognitive Reappraisal	-.282*	1				

variables deviated from normality, Spearman's Rank Correlation was used to examine relationships among the study variables, and multiple linear regression was used to identify predictors of uncontrolled and emotional eating. Significance was set at $p < 0.05$.

RESULTS

Data were obtained from 273 young adults (18–25 years). The mean age was 21.27 ± 2.21 years; 68.5% ($n = 187$) of participants were male and 31.5% ($n = 86$) female. Of the sample, 47.6% were undergraduates, 27.1% postgraduates and 25.3% graduates.

Descriptive Findings

Table 1 presents the descriptive statistics of the study variables. The mean perceived stress score was 20.25 ($SD = 6.15$); cognitive reappraisal ($M = 28.35, SD = 3.36$) was higher than expressive suppression ($M = 13.93, SD = 3.09$). Most participants (68.5%) reported moderate perceived stress, 17.2% high stress and 14.3% low stress. For emotional regulation, 73.3% reported moderate and 26.7% high cognitive reappraisal, while 31.5% reported low, 66.7% moderate and 1.8% high expressive suppression. For eating patterns, 86.1% reported moderate cognitive restraint, 57.1% moderate uncontrolled eating, and the majority (67.0%) reported low emotional eating.

Expressive Suppression	13.93	3.09	5	25
Cognitive Restraint	15.61	2.16	10	22
Uncontrolled Eating	19.99	4.26	10	34
Emotional Eating	5.91	1.70	3	11

reappraisal was negatively correlated with uncontrolled eating ($\rho = -.258, p < .05$); its correlation with emotional eating ($\rho = -.187$) was not statistically significant. Expressive suppression was positively correlated with both uncontrolled eating ($\rho = .281, p < .05$) and emotional eating ($\rho = .208, p < .05$).

3. Expressive Suppression	.262*	-.070	1			
4. Cognitive Restraint	-.119*	.053	-.132*	1		
5. Uncontrolled Eating	.599*	-.258*	.281*	-.147*	1	

6. Emotional Eating	.499 *	- .187	.208 *	- .128 *	.469 *	1
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*p < .05

Multiple regression analysis showed that perceived stress was the strongest predictor of both uncontrolled eating and emotional eating. The regression model for uncontrolled eating explained 42.2% of the variance, with expressive suppression also a significant positive predictor and cognitive reappraisal a marginal negative predictor. The regression model for emotional eating explained 30.4% of the variance, with perceived stress the only statistically significant predictor once emotion-regulation variables were accounted for.

DISCUSSION

Perceived Stress and Eating Behaviour

Perceived stress showed a significant positive relationship with uncontrolled eating and emotional eating, and a weaker negative relationship with cognitive restraint, and regression analysis confirmed stress as the strongest single predictor of both maladaptive eating dimensions. This suggests that under stress, young adults find it harder to regulate the amount or frequency of their food intake, and may turn to food for temporary relief from difficult emotions. This pattern is consistent with a systematic review and meta-analysis reporting that stress increases consumption of unhealthy food and decreases consumption of healthier food in otherwise healthy adults¹. The negative association between stress and cognitive restraint may reflect a reduction in deliberate, effortful control over eating when attentional resources are consumed by a stressful situation, particularly given that this developmental stage concentrates academic, financial and relational demands that can outstrip available coping resources.

Emotional Regulation and Eating Behaviour

Cognitive reappraisal was negatively associated with uncontrolled eating, and showed a similar but non-significant pattern with emotional eating, suggesting reappraisal functions as a moderately protective strategy by allowing individuals to reframe a stressful situation before it fully translates into distress and food-seeking behaviour. Expressive suppression, by contrast, was significantly and positively associated with both uncontrolled and emotional eating, consistent with the view that suppressing the outward expression of emotion does little to resolve the underlying distress, leaving eating as an alternative outlet. This pattern aligns with research linking emotion-regulation difficulties to emotional eating among undergraduates⁴⁸ and with meta-analytic evidence linking emotion-regulation difficulties to disordered eating, including loss-of-control and emotional eating, among adolescents and young adults⁵³. Notably, when perceived stress and emotion-regulation variables were

considered together in regression, perceived stress remained the dominant predictor of emotional eating, suggesting that the overall level of stress a young adult experiences may matter more for emotional eating than the specific regulation strategy used.

Findings in the Indian Context

These findings broadly align with Indian evidence linking emotional eating to poorer sleep quality, higher perceived stress and less healthy eating habits among Indian adults⁵⁷, and with research describing emotional eating in relation to stress and the wider academic and social environment among Indian students⁵⁸. Together, this body of evidence suggests that in the Indian context, as elsewhere, emotional eating among young people rarely occurs in isolation from perceived stress and broader lifestyle pressures.

CONCLUSION

Perceived stress and emotional regulation were both meaningfully related to eating patterns among young adults in this sample. Higher perceived stress was associated with greater uncontrolled and emotional eating and modestly reduced cognitive restraint, while expressive suppression was associated with greater uncontrolled and emotional eating and cognitive reappraisal showed a protective pattern for uncontrolled eating. Perceived stress emerged as the strongest overall predictor of maladaptive eating. These findings support the value of stress-management and adaptive emotion-regulation training — particularly cognitive reappraisal — as components of psychological and wellness programmes aimed at reducing stress-related eating among young adults. As the design was cross-sectional and relied on self-report measures within a single, education-affiliated setting, the findings indicate association rather than causation, and longitudinal and multi-centre research with more diverse samples is needed to clarify the direction of these relationships.

Practical and Future Implications

These findings suggest that programmes aiming to improve eating behaviour among young adults may be more effective when they integrate stress-management training with instruction in adaptive emotion-regulation strategies, particularly cognitive reappraisal, rather than relying on dietary advice alone. Colleges and universities are well positioned to embed such integrated wellness programming within existing student support structures. Future research should adopt longitudinal designs to clarify the direction of the relationships identified here, recruit larger and more gender-balanced samples across varied educational and occupational settings, and incorporate additional psychological correlates — including anxiety,

depressive symptoms, body image, sleep quality and coping style — that were outside the scope of the present study.

Limitations

Several limitations qualify these findings. The cross-sectional design permits only associative, not causal, conclusions. All data were obtained through self-report questionnaires, which may be subject to recall bias, differing interpretation of items, and social desirability bias. The sample was restricted to the 18–25 year age range and was drawn from a single institution with a male-dominant composition (68.5%), which may limit generalisability to other age groups, institutions, or more gender-balanced populations. Eating behaviour was assessed through self-report rather than dietetic observation and may not fully reflect participants' actual food intake.

Delimitations

Certain boundaries were deliberately set to keep the scope of this study well defined. The investigation was delimited to two core psychological constructs — perceived stress and emotional regulation — as predictors of eating patterns, with plausible correlates such as sleep quality, physical activity, body image, socioeconomic status, family environment and broader coping style deliberately left unmeasured so as to keep the investigation conceptually focused rather than attempting to model every contributing variable simultaneously. The study was further delimited to young adults aged 18–25 years recruited from a single academic health sciences institution in Ghaziabad, rather than a broader national or multi-site sample, in order to keep the study logistically feasible within its intended scope, and to standardised, validated self-report instruments (PSS-10, ERQ, TFEQ-R18) rather than behavioural or dietetic measures of eating.

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