



Mediating role of Emotion Regulation in the association between Body Shape Concerns and Depressive Symptoms among Undergraduate Students

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Received: 10 June 2025. Revised: 20 July 2025. Accepted: 02 August 2025.

ARTICLE INFO

Keywords:

Emotion regulation,
body image dissatisfaction,
higher education,
intervention,
mental health.

ABSTRACT

Depression remains a significant mental health concern among university students worldwide, with Nigerian undergraduates particularly vulnerable due to academic, social, and cultural stressors. Body shape concerns – a component of body image dissatisfaction, has emerged as a psychological risk factor for depression, and emotion regulation is thought to mediate this relationship. Grounded in Beck's Cognitive Theory of Depression, this study examined whether cognitive reappraisal and expressive suppression mediate the link between body image concerns and depression among Nigerian undergraduates. Using a cross-sectional correlational design, 350 students (138 males, 212 females; aged 16–30 years, $M = 20.80$, $SD = 2.37$) from the University of Nigeria, Nsukka, were selected through convenience sampling. They completed the Body Shape Questionnaire (BSQ-8C), the Center for Epidemiologic Studies Depression Scale–Revised (CESD-R), and the Emotion Regulation Questionnaire (ERQ). Data analysis employed SPSS version 25 and Hayes' PROCESS macro (Model 4) with 10,000 bootstrap resamples for parallel mediation. Results revealed significant relationships among all variables. Body shape concerns positively predicted symptoms of depression. Cognitive reappraisal was associated with reduced depressive symptoms while expressive suppression predicted increased symptoms of depression. Both cognitive reappraisal ($B = .08$, 95% $CI = .010, .146$) and expressive suppression ($B = .09$, 95% $CI = .013, .189$) mediated the body shape concerns-depressive symptoms relationship. Findings support the theoretical model, highlighting cognitive reappraisal and expressive suppression as key mediators. These results emphasize the importance of promoting adaptive emotion regulation and reducing maladaptive strategies in university-based mental health interventions targeting students with body image concerns.

Introduction

Depression is among the most prevalent mental health concerns facing undergraduate students worldwide (Garba et al. 2025; Agyapong-Opoku et al. 2024; Rabby et al., 2023; Sheldon et al., 2021) due to developmental transitions, academic stress, financial strain, and social pressures (Mofatteh, 2020; Nway et al., 2023; Deng et al., 2022; Setiadi et al., 2021). It is characterized by persistent sadness, low energy, loss of interest, feelings of worthlessness or guilt, social withdrawal, and impaired functioning across academic and personal domains (Quinn et al., 2023; Maj, 2023; Savelieva et al., 2020; Incze, 2019). Unaddressed, these challenges can escalate from mild symptoms to severe depressive disorders, with implications for long-term well-being. Prevalence depression ranges from 24% to 34% across

studies (Yang et al., 2024; Moreno-Agostino et al., 2021; Tung et al., 2018), with rates reaching up to 67.9% in African settings (Wang et al., 2020). Depression prevalence rates in Nigeria vary widely depending on the population studied, region, and assessment methods. While some institutional reports cite rates as high as 49.5% (Alatishe et al., 2022; Cui et al., 2022), most large-scale studies and meta-analyses find lower, but still significant prevalence rates typically ranging from 12% to 28% in the general and student populations (Ogunlade, et al., 2025; Alinnor & Okefor, 2023; Oderinde et al., 2018), with certain subgroups and regions experiencing higher rates (Anas et al., 2025; Butawa et al., 2024; Adedeji et al., 2023; Ladi-Akinyemi et al., 2023; Enyidah et al.,

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2020). Such statistics reveal a substantial mental health burden among Nigerian undergraduates, necessitating contextually sensitive adaptive coping strategies.

Among the emerging psychological risk factors for depression is body image dissatisfaction, defined as a negative subjective evaluation of one's physical appearance (Hong & Ahmad, 2024). It often arises from a discrepancy between perceived and ideal body image, typically influenced by sociocultural appearance standards (Forrest & Stuhldreher, 2007; Banik, 2023). Body shape concerns is a component of body image dissatisfaction which focuses particularly on worries or preoccupation with body shape (e.g., thinness, muscularity). In clinical psychology research, body image concerns refer to the degree of concern, dissatisfaction, and emotional distress someone feels about their body shape and size, especially perceived fatness. Although the broader term of body image dissatisfaction is used in parts of this study because of its popularity in the literature (Linardon et al., 2022; McCormack et al., 2025; Shen et al., 2024), the present research focuses on assessing participants' level of concern with their body shape. Hence, we use body image concerns where methodological precision and specificity is needed.

For many undergraduates, especially in image-conscious environments, dissatisfaction with body shape or weight can evoke shame, anxiety, and low self-esteem, thereby increasing vulnerability to depression (Artyukhov, 2022; Edlund et al., 2022; Hong & Ahmad, 2024; Karna & Sivaraman, 2023). Research has confirmed the association between body image dissatisfaction and depressive symptoms across different regions and populations (Blundell et al., 2024; Chen & Chang, 2023; Cushman et al., 2024; Galhardo et al., 2024; Roberts et al., 2022; Solorzano et al., 2022). However, limited attention has been given to the psychological mechanisms underlying this association in existing research, particularly in African contexts.

Emotion regulation, the process by which individuals monitor, evaluate, and modify emotional responses (Zaid et al., 2025), has emerged as a potentially protective factor in mental health (Gross, 2013). Emotion regulation encompasses both adaptive and maladaptive strategies that differentially impact mental health outcomes (Aldao et al., 2010; Boemo et al., 2022). Adaptive emotion regulation strategies include cognitive reappraisal, which involves reinterpreting emotional situations to alter their emotional impact, and problem-solving, which focuses on addressing the source of emotional distress through constructive action (Vitolo et al., 2022; McRae & Gross, 2020; Gross & John, 2003). These strategies are linked to better emotional functioning, reduced psychological distress, and enhanced psychological well-being (Polizzi & Lynn, 2021; Braunstein et al., 2017). In contrast, maladaptive emotion regulation strategies encompass expressive suppression, which involves inhibiting the outward expression of emotions while continuing to experience them internally (Muñoz-Navarro, et al.,

2022; Pop et al., 2025; Nolen-Hoeksema et al., 2008; Gross & John, 2003). These maladaptive approaches are associated with increased vulnerability to depressive outcomes, heightened emotional distress, and impaired social functioning (Gökdağ et al., 2024; Zhang et al., 2021; McRae & Gross, 2020; Ward-Smith et al., 2024; Boudriga et al., 2024).

Research within African contexts has begun to establish the relationship between emotion regulatory capacities and mental health, with Ward-Smith et al. (2024) highlighting that adaptive emotion regulation skills can protect against mental health conditions among adolescents in South Africa. While there is limited mental health prevalence data and little understanding of the associations between mental health conditions and emotion regulation among African youths, emerging evidence suggests that difficulties in regulating emotions may amplify psychological distress arising from various stressors, increasing the likelihood of depressive symptoms (Keskiner et al., 2024; Rodhiyah & Djuwita 2023; Paiča et al., 2020). Emotion regulation has emerged as a potentially mediating variable with effective emotion regulation playing a protective factor in mental health when adaptive strategies are employed effectively (Gross, 2015). Prior research has identified cognitive processing mechanisms as key mediators in the link between body dissatisfaction and depressive symptoms. Cognitive reappraisal has been shown to mediate the relationship between psychological stressors such as body dissatisfaction and depressive symptoms serving as a protective regulatory process (Troy et al., 2010; Murray et al., 2024) unlike cognitive fusion (Trindade et al., 2018) that exacerbate against negative mental health outcomes.

On the contrary, difficulties in regulating emotions may amplify the psychological distress arising from body image concerns, increasing the likelihood of depressive symptoms (Keskiner et al., 2024; Rodhiyah & Djuwita, 2023). Recent cross-cultural research has demonstrated that expressive suppression serves as a maladaptive emotion regulation strategy linking various psychological concerns to depressive outcomes, with longitudinal studies showing that expressive suppression mediates the relationship between social anxiety and depression among university students (Gökdağ et al., 2024), systematic reviews identifying overreliance on expressive suppression as characteristic of both social anxiety disorder and major depressive disorder (Dryman & Heimberg, 2018), and cross-cultural investigations revealing that expressive suppression is positively associated with depressive symptoms across different cultural contexts (Kalibatseva & Leong, 2018; Su et al., 2013).

Theoretically, Beck's cognitive theory of depression (Beck, 1967; Beck et al., 1979), posits that depression results from persistent negative thinking patterns and cognitive distortions, particularly about the self, the world, and the future, a conceptual triad often referred to as the negative cognitive triad. These distorted cognitions arise from dysfunctional core beliefs, or

schemas, that are typically activated in response to stressors. Once activated, they give rise to automatic negative thoughts that reinforce depressive affect and maladaptive behaviours. In the context of body image dissatisfaction, students with rigid or perfectionistic beliefs about physical appearance may develop negative self-schemas, such as "I am only worthy if I am attractive" or "My value depends on how others see my body" (Beck, 2002). When these schemas are triggered by perceived flaws, weight gain, or social comparison, they elicit automatic thoughts like "I'm ugly" or "I will never be loved," which, over time, contribute to feelings of worthlessness and hopelessness central to depression (Disner et al., 2011). Beck's proposition as applied in this study, is empirically supported by Disner et al.'s (2011) neuroimaging research, which demonstrated that individuals with body image concerns show similar patterns of cognitive bias and schema activation as those observed in clinical depression.

Emotion regulation also plays a central role in this cognitive framework. Poor emotion regulation impairs one's ability to manage distressing emotions elicited by negative thoughts, leading to a reinforcing cycle: negative appearance-related cognitions trigger dysregulated emotions (shame, anxiety), which intensify depressive thinking and reduce motivation to engage in adaptive behaviours (Joormann & Stanton, 2016). Conversely, adaptive emotion regulation strategies, such as cognitive reappraisal - which involves reframing negative thoughts, can interrupt this cycle by promoting more realistic, compassionate self-evaluations (Gross, 2015). In this way, emotion regulation may act as a mediating mechanism, influencing the strength and outcome of the cognitive-depressive process initiated by body image concerns. Therefore, Beck's model provides a comprehensive framework for understanding how body image dissatisfaction can lead to depression, particularly when mediated by emotion regulation. In extending the application of Beck's theory to body image concerns and emotion regulation processes, the parallel mediation pathway proposed in this study addresses how negative self-schemas related to appearance may activate both cognitive (impaired reappraisal) and behavioural (increased suppression) responses that collectively contribute to depressive symptomatology.

Despite the theoretical relevance of emotion regulation in the body image concerns-depression link, empirical studies exploring this mediating relationship, especially among African undergraduates, remain limited. Given the unique cultural norms surrounding appearance, emotional expression, and the prevalent mental health stigma in Nigerian society, a contextualized understanding is essential. This study seeks to fill this gap by investigating whether emotion regulation mediates the relationship between body image concerns and depression among Nigerian undergraduates; and would potentially offer insights for culturally sensitive mental health interventions and enriching the existing literature. This study, therefore, addresses critical gaps by investigating whether emotion regulation mediates the relationship

between body image dissatisfaction and depression among Nigerian undergraduates. The findings are expected to contribute both to theoretical models of emotional risk and to the design of culturally appropriate interventions for depression.

Grounded in Beck's cognitive theory of depression and based on the empirical literature, the study tested the following hypotheses: (1) Body image concerns will be significantly related to depressive symptoms among undergraduates. (2) Cognitive reappraisal will be negatively related to depressive symptoms among undergraduates. (3) Expressive suppression will be positively related to depressive symptoms among undergraduates. (4) Cognitive reappraisal will mediate the relationship between body image concerns and depressive symptoms among undergraduates. (5) Expressive suppression will mediate the relationship between body image concerns and depressive symptoms among undergraduates.

Method

Participants and procedure

A cross-sectional correlational design was employed. A total of 350 students (39.4% male, 60.6% female) sampled through convenience sampling across five academic levels at the University of Nigeria, Nsukka, participated in the study. The sample consisted of 350 university students with ages ranging from 16 to 30 years ($M = 20.80$, $SD = 2.37$). Majority of participants were Christians (96.0%), with Muslims (1.4%) and adherents of other religious faiths (2.3%). By ethnic group, most participants were Igbo (86.5%) but there were Hausa (2.3%), Yoruba (2.0%) and people from other (8.0%) ethnic groups. Their level of education was first year (28.3%), second year (16.0%), third year (19.4%), fourth year (32.9%) and fifth year (2.9%).

Measures

Body image concerns was assessed using the 8-item Body Shape Questionnaire (BSQ-8C; Evans & Dolan, 1993). It measures Cognitive and emotional responses to body shape, body-related avoidance and comparison behaviours, an impact of body shape concerns on mood and self-worth (Evans & Dolan, 1993). Sample items include: "Have you been afraid that you might become fat (or fatter)?" and "Has feeling full (e.g., after eating a large meal) made you feel fat?" Responses ranged from 1 (never) to 6 (always), with higher scores indicating greater dissatisfaction. The internal consistency for the current sample was $\alpha = .71$. This instrument has been previously used with Nigerian samples, such as in Adenike (2024) who examined its relevance among university students and reported meaningful applications in the local context.

Depressive symptoms was measured using the Center for Epidemiologic Studies Depression Scale - Revised (CESD-R; Radloff, 1977), a 20-item scale designed to assess symptoms of depression experienced in the past week. Sample items include: "I could not shake off the blues" and "I felt like a bad person."

Responses were on a 4-point Likert scale from 1 (rarely) to 4 (most of the time), with higher scores indicating more severe depressive symptoms. The internal consistency in the present study was $\alpha = .91$. Prior Nigerian research has demonstrated strong psychometric properties for the CESD-R, including a high internal consistency (McDonald's $\omega = .94$; GLB = .96) and a stable factorial structure among university students (Kokou-Kpolou et al., 2022).

Emotion regulation was assessed using the 10-item Emotion Regulation Questionnaire (ERQ; Gross & John, 2003), which measures two strategies: cognitive reappraisal (6 items) and expressive suppression (4 items). Sample items include: “*When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about*” and “*I control my emotions by not expressing them.*” Responses were rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Internal consistency in the present study was $\alpha = .77$ for cognitive reappraisal and $\alpha = .81$ for expressive suppression. Previous Nigerian validation studies support the use of this scale (e.g., Chukwuorji et al., 2017; Chukwuorji et al., 2019; Ifeagwazi et al., 2019; Nwifo et al., 2017) reported acceptable internal consistency reliability values in a previous Nigerian study.

Data Analyses

Data were analysed using SPSS Version 25. Descriptive statistics and Pearson correlations were used to examine relationships among variables. Model 4 of the Hayes (2022) PROCESS macro for SPSS was used to test the parallel mediating roles of cognitive reappraisal and expressive suppression in the

relationship between body shape concerns and depression, with 5,000 bootstrap resamples and 95% confidence intervals. Assumptions of normality, linearity, and homoscedasticity were confirmed prior to analysis. We tested a parallel mediation model in this study, such that the mediators (cognitive reappraisal and expressive suppression) are permitted to covary but are assumed to operate independently in terms of causal influence. In a parallel mediation model, there are two (or more) mediators, both of which function between the predictor and outcome, but without any relationship of the two mediators with each other (Kane & Ashbaugh, 2017). The mediation is significant when the 95%CI does not contain zero in-between the lower and upper values (Hayes, 2022).

Table 1 shows the means, standard deviations, and correlations among study variables. Body shape concerns were significantly positively correlated with expressive suppression ($r = .14, p < .01$) and depression ($r = .51, p < .001$), and negatively with cognitive reappraisal ($r = -.12, p < .05$). Cognitive reappraisal was significantly negatively correlated with depression ($r = -.48, p < .05$).

Results

Table 1. Mean, standard deviation and correlations of the variables.

Variables	Mean	SD	1	2	3	4	5
1 Age	20.08	2.37	-				
2 Gender	--	.74	-.07	-			
3 Cognitive Reappraisal	26.74	8.27	-.01	-.01	-		
4 Expressive Suppression	25.62	8.60	.07	-.04	-.33**	-	
5 Body image concerns	17.22	7.54	.20	.20	-.12*	.14**	-
6 Depression	18.97	13.25	.05	-.04	-.48*	.40*	.51**

Note. *** $p < .001$; ** $p < .01$; * $p < .05$. Gender (0 = male, 1 = female). SD = Standard Deviation.

Table 2. Hayes PROCESS macro results for parallel mediation analysis.

Outcome	Predictor	B	SE	t	p	LLCI	ULCI	R ²	F
CogR	Body Shape	-.03	.01	-37.48	.000	-.03	-.03	.23	(1, 348) = 1404.74
ExpS	Body Shape	.03	.01	43.78	.000	.03	.04	.16	(1, 348) = 1916.92
Depression	Body Shape	.19	.03	7.22	.000	.14	.25	.26	(3, 346) = 2779.27
	Cognitive Reappraisal	-2.94	1.01	-2.91	.006	-5.10	-.91		
	Expressive Suppression	2.71	.99	2.73	.009	.71	4.70		

Note. CogR = Cognitive Reappraisal. ExpS = Expressive Suppression

The parallel mediation analysis in Table 2 revealed significant relationships among all study variables. Body shape concerns significantly predicted both mediators: negatively predicting cognitive reappraisal and positively predicting expressive suppression. In the final model predicting depression, body shape concerns and expressive suppression had positive

associations with depressive symptoms, while cognitive reappraisal had a negative association with depressive symptoms. The total model explained 26% of the variance in depression [$R^2 = .26, F(3, 46) = 2779.27, p < .001$]. The total effects model was significant, $B = .37$.01, $SE = 66.24, p < .001, [95\%CI = .36, .38]$.

Table 3. Specific indirect effects through mediators.

Indirect Effect Pathway	B	SE	LLCI	ULCI
Total Indirect Effect s	.17	.03	.13	.23
	.08	.03	.01	.15
BIC → ExpS → Depressive symptoms	.09	.04	.01	.19

Note. BIC = Body Image Concerns; CogR = Cognitive Reappraisal. ExpS = Expressive Suppression

Both indirect pathways were statistically significant (see table 5). The indirect effect through cognitive reappraisal was significant [95%*CI*= .01, .15], indicating that body shape concerns may contribute to depressive symptoms by reducing cognitive reappraisal. The indirect effect through expressive suppression was also significant, [95% *CI* = .01, .19], showing that body shape concerns increase depressive symptoms by promoting expressive suppression. The total indirect effect was significant, $B = .17$ [95% *CI*= .13, .23].

Discussion

This study examined whether cognitive reappraisal and expressive suppression mediate the link between body image concerns and depression among Nigerian undergraduates. We first tested the direct association of the predictor and the mediators with depressive symptoms. We found a positive relationship between body image concerns and depression, which indicates that negative self-perceptions about physical appearance may constitute a significant risk factor for depressive symptomatology among university students. Thus, the hypothesis which stated that body image concerns would be significantly related to depressive symptoms among undergraduates was supported. Our findings align remarkably well with previous studies (e.g., Hamurcu, 2023; Riesco-González et al., 2022; Azhaar et al., 2020) that have reported positive association between body image dissatisfaction and depression.

However, our findings show a slightly stronger association than some Western studies, potentially reflecting the intensified impact of appearance-related concerns within collectivist cultures like Nigeria, where social validation and conformity to group standards carry particular significance. This cultural amplification hypothesis is supported by Abdoliet al.'s (2020) finding that collectivist cultural values moderated the relationship between body image concerns and mental health outcomes, with stronger associations observed in more collectively oriented societies. This strong relationship suggests that mental health professionals working with Nigerian students should routinely assess body image satisfaction as part of depression screening protocols, as body image concerns may serve as an early warning sign for developing depressive episodes. University counselling centres should develop integrated screening protocols that assess body image satisfaction alongside traditional depression measures, enabling early identification of at-risk students before severe symptoms develop.

From a theoretical perspective, this relationship aligns seamlessly with Beck's cognitive theory of depression. Body image dissatisfaction represents a manifestation of negative self-schemas, deeply held beliefs about one's worth and acceptability that become activated when appearance-related triggers are encountered. Students harbouring thoughts such as "I am only valuable if I look perfect" or "My worth depends on others'

approval of my appearance" are particularly vulnerable to developing the negative cognitive triad that characterizes depression.

We also found a negative relationship between cognitive reappraisal and depressive symptoms. The second hypothesis which stated that cognitive reappraisal would be negatively related to depressive symptoms among undergraduates.

Our findings strongly corroborate Stover et al.'s (2024) meta-analytic review, which identified cognitive reappraisal as one of the most consistent protective factors against depression. The strength of this association between cognitive reappraisal and depressive symptoms falls within the range reported by Joormann and Stanton's (2016) research among North American college students, reinforcing the robustness of cognitive reappraisal as a protective mechanism. Cognitive reappraisal represents a sophisticated emotion regulation strategy that involves consciously altering the cognitive interpretation of emotional stimuli to change their emotional impact. Students skilled in cognitive reappraisal can transform thoughts like "I look terrible in this outfit, everyone must be judging me" into more balanced perspectives such as "Most people are focused on their own concerns, and my worth isn't determined by one outfit choice."

There was a positive association between expressive suppression and depressive symptoms, indicating that students who engaged in expressive suppression of emotion reported greater depressive symptoms severity. The third hypothesis which stated that expressive suppression would be positively related to depressive symptoms among undergraduates was supported. Students who respond with expressive suppression create internal conflicts that intensify rather than resolve emotional distress. Hence, expressive suppression as an emotion regulation strategy amplifies psychological distress and students who habitually suppress emotional expression face substantially elevated risks for depressive symptoms. Our findings align closely with Aldao et al.'s (2010) influential meta-analysis, which identified expressive suppression as a consistent risk factor for depression. Expressive suppression involves consciously inhibiting the outward expression of emotions while experiencing them internally. Within the Nigerian cultural context, this may be particularly problematic due to cultural norms emphasizing emotional restraint for male and female students.

The mediation analysis confirms that cognitive reappraisal serves as a significant pathway through which body dissatisfaction influences depressive symptoms. Hence, the fourth hypothesis which stated that cognitive reappraisal will mediate the relationship between body image concerns and depressive symptoms among undergraduates was supported. Our findings align closely with those of Trindade et al. (2018), who demonstrated that chronic illness-related cognitive fusion significantly mediated the relationship between body dissatisfaction and depressive symptoms in breast cancer patients, accounting for 59% of the variance in depressive symptomatology. While cognitive fusion

reflects maladaptive over-identification with negative thoughts, our identification of cognitive reappraisal as a protective mediator underscores complementary mechanisms on opposite ends of the cognitive flexibility spectrum. Similarly, Troy et al. (2010) found that cognitive reappraisal ability moderated the stress–depression link, with higher reappraisal associated with reduced depressive symptoms under high stress, reinforcing reappraisal's protective role. Most directly, Murray et al. (2024) found that the link between body satisfaction and mental health outcomes was strongest among individuals low in cognitive reappraisal, suggesting that reappraisal may buffer against the negative effects of body dissatisfaction.

Taken together, these findings converge on the role of cognitive processing mechanisms—both adaptive and maladaptive—as key mediators in the pathway from body dissatisfaction to depression. Body image dissatisfaction may trigger schema activation, leading to automatic negative thoughts about appearance, self-worth, and social acceptability. These cognitive responses then interact with emotion regulation capabilities to determine psychological outcomes. Students with strong reappraisal skills can challenge and modify negative automatic thoughts, preventing them from developing into persistent depressive patterns. There was a negative relationship between body image concerns and cognitive reappraisal in this study, revealing that students experiencing greater body image concerns may be less likely to employ adaptive cognitive strategies, and thereby creating a self-perpetuating cycle where appearance-related distress compromises the very cognitive skills needed to manage that distress effectively.

This mechanistic understanding is supported by McRae & Gross's (2020) comprehensive review of emotion regulation processes, which demonstrated how cognitive reappraisal operates through prefrontal control systems that can be strengthened through targeted interventions. Furthermore, Braunstein et al.'s (2017) multi-level framework research showed that explicit emotion regulation strategies like cognitive reappraisal can be effectively taught and implemented, providing optimism for intervention development.

Given these findings, mental health professionals should prioritize cognitive reappraisal training through culturally adapted techniques incorporating Nigerian values, religious beliefs, and social contexts. Such interventions should include thought disputation, evidence examination, and alternative perspective generation. Universities should implement preventive programs teaching emotion regulation skills as part of student orientation or wellness curricula, with workshops on cognitive reappraisal techniques and emotional literacy training that promote critical thinking and cognitive flexibility.

The results further showed that expressive suppression mediated the relationship between body image concerns and depressive symptoms. The fifth hypothesis which stated that expressive suppression would mediate the relationship between

body image concerns and depressive symptoms among undergraduates was supported. This mediation pathway is strongly supported by previous research demonstrating expressive suppression as a maladaptive strategy linking psychological distress to depression. Gökdağ et al. (2024) found that expressive suppression mediated the relationship between social anxiety and depression in a six-month longitudinal study of 369 university students, providing temporal evidence for similar mediation mechanisms across different psychological concerns. Similarly, Dryman & Heimberg's (2018) systematic review demonstrated that both social anxiety and depression are characterized by overreliance on expressive suppression, directly supporting our observed mediation pathway.

Cross-cultural evidence further supports these findings, with past research showing that expressive suppression predicted depressive symptoms among both Chinese American and European American college students (Kalibatseva and Leong (2018). However, Su et al. (2013) found that while expressive suppression generally associated with higher depressive symptoms, cultural factors may moderate this relationship's strength, suggesting the need for cultural considerations in interpreting our findings.

In our study, there was also a positive relationship between body image concerns and expressive suppression suggesting that appearance-related distress particularly promotes suppressive responses. Students experiencing body dissatisfaction may feel compelled to hide their emotional struggles due to shame, fear of judgment, or beliefs that appearance-related distress is trivial. These findings indicate that reducing suppressive behaviours should be a high-priority treatment goal. Emotionally focused interventions should include emotional awareness training, acceptance-based approaches, and guided emotional expression exercises that consider cultural norms while helping students find healthy ways to process and communicate feelings within culturally appropriate contexts.

The parallel mediation approach adopted in this study represents a methodological advancement over previous studies that typically examined single mediators. Our findings extend the work of researchers (e.g., Yang et al., 2023; Momeñe et al., 2023) by demonstrating how multiple regulation strategies can simultaneously influence mental health outcomes through independent pathways. The parallel mediation model therefore indicates that interventions should address both the enhancement of adaptive strategies and the reduction of maladaptive ones simultaneously. Mental health professionals should assess both cognitive reappraisal deficits and expressive suppression patterns when addressing depression and body image concerns, with treatment protocols including both cognitive restructuring techniques to enhance reappraisal abilities and emotional expression training to reduce suppressive behaviours. This comprehensive approach is particularly important given the high prevalence of depression among university students worldwide, with rates ranging from 24% to 34% across studies (Sheldon et al.,

2021; Garba et al., 2025; Agyapong-Opoku et al., 2024; Rabby et al., 2023), and the specific vulnerabilities faced by students in transitional developmental periods. Student support services should receive training on the relationships between body image, emotion regulation, and mental health, including cultural competency components that address Nigerian-specific factors. Campus counselling Centres should develop intervention protocols that systematically target both emotion regulation pathways identified in this study.

Limitations of the Study and Future Research Directions

The study's limitations include its cross-sectional, convenience-sample design, which prevents definitive causal or developmental interpretations about body image dissatisfaction, emotion regulation, and depressive symptoms. All measures were self-report and collected in a single session, raising concerns about common-method bias. Furthermore, the sample lacked gender balance and cultural diversity, limiting confidence in generalizing the findings across males, religiously and socioeconomically varied groups, or outside Nigerian undergraduate populations.

Flowing from the limitations above, several future research directions are essential to build on this foundation with a view to advancing both theoretical understanding and practical applications. Longitudinal research designs represent the most critical next step, enabling examination of causal relationships and developmental processes by tracking students across their university years to determine whether body image dissatisfaction predicts changes in emotion regulation strategies and subsequent depression development. Other important next steps include: randomized controlled trials; testing culturally-adapted emotion regulation interventions targeting cognitive reappraisal enhancement and expressive suppression reduction; comparative cross-cultural studies examining how the parallel mediation model operates across different Nigerian ethnic groups and international contexts, and mechanism exploration investigating additional mediators (rumination, social comparison, self-compassion, perfectionism) and moderators (gender, religiosity, socioeconomic status, social support) that could explain the other variances in depressive symptoms.

Furthermore, cultural beliefs about appearance, emotional expression, gender roles, and social relationships all contribute to the formation of appearance-related schemas and the development of preferred emotion regulation strategies. Understanding these cultural influences is crucial for developing culturally sensitive interventions and treatment approaches. Methodological advances should incorporate objective measures of emotion regulation through physiological indicators, behavioural observations, and experimental paradigms, while mixed methods approach combining quantitative analyses with qualitative interviews would provide richer insights into students' subjective experiences and inform the development of more comprehensive theoretical models and targeted interventions.

Conclusion

The mental health crisis among university students demands urgent attention, and this research offers a definitive answer to a critical question: Can we identify the specific psychological mechanisms that transform body image concerns into clinical depression? The evidence presented here demonstrates that we can. The dual pathway model revealed in this study fundamentally challenges the prevailing assumption that depression among students with body image concerns is simply a direct consequence of appearance dissatisfaction. Instead, depression emerges through identifiable, measurable, and crucially, modifiable emotion regulation processes. Students do not spiral into depression merely because they dislike their appearance; they develop depression because they lack the cognitive tools to reframe their negative thoughts and simultaneously resort to suppressing their emotions -a toxic combination that amplifies rather than alleviates psychological distress. Universities that implement emotion regulation training programs may witness measurable reductions in depression rates among their students. Mental health professionals who assess and target both cognitive reappraisal deficits and expressive suppression patterns may achieve superior treatment outcomes.

Depression among university students with body image concerns is not an intractable problem but a solvable challenge. One solution to the problem may lie not just in attempting to eliminate body image concerns, an unrealistic goal in appearance-focused societies, but in systematically building cognitive reappraisal capabilities while dismantling maladaptive suppression patterns. The cultural context of this Nigerian sample amplifies rather than diminishes the universal applicability of these findings, as the mechanisms identified here represent fundamental human psychological processes that transcend cultural boundaries while requiring cultural adaptation in their application. Universities, mental health professionals, and policymakers now possess the empirical foundation necessary to implement evidence-based interventions that can prevent students from experiencing the devastating impacts of depression.

Declarations

Acknowledgement: The authors would like to thank various departments for the permission given to us to carry out the study

Declaration of interest Statement: The authors report there are no competing interests to declare.

Informed Consent: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2000 (5). Informed consent was obtained from all students for being included in the study.

Funding details: No funding was received by the authors for this study

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