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Articles

Negative Body Image and Negative Eating Attitudes as Predictors of
Depressive Symptoms in Women

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Abstract

Objective: This study aimed to examine the latent associations among negative body image (NBI), negative eating attitudes (NEA), and depressive symptoms in adult Ecuadorian women. Specifically, it sought to assess the predictive value of NBI and NEA on depression, and to explore the mediating role of NEA in the relationship between NBI and depressive symptoms through Structural Equation Modelling (SEM).

Method: A cross-sectional design was employed with a non-probabilistic sample of 964 Ecuadorian women (M = 29.74, SD = 11.93). Participants completed three validated self-report measures: the Body Shape Questionnaire (BSQ-21), the Eating Attitudes Test (EAT-18), and the Beck Depression Inventory-II (BDI-II). CFA and SEM analyses were conducted using R, employing the DWLS estimation method due to the ordinal nature of the data and non-normal multivariate distribution.

Results: NBI and NEA were found to be significant positive predictors of depressive symptoms, jointly explaining 40.1% of the variance. NEA partially mediated the relationship between NBI and depression. Notably, the mediation was identified as competitive/suppressor in nature, whereby the indirect effect acted in the opposite direction to the direct effect, enhancing the explanatory power of the model.

Conclusion: The findings contribute to theoretical, methodological, and practical understanding of depressive symptomatology in women, especially within under-researched Latin American populations. The results emphasise the relevance of addressing distorted body image and maladaptive eating attitudes in preventive and clinical interventions and demonstrate the value of SEM in revealing complex psychological mechanisms.

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1. Introduction

Depression is a multifaceted mental attribute, conceptualised variably as a mood state, symptom, syndrome, or clinical diagnosis (Hankin, 2019). It is characterised by a persistent state of unhappiness or hopelessness, with cognitive symptoms (feelings of worthlessness or excessive guilt, reduced ability to think or concentrate, recurrent thoughts of death) and physical manifestations including changes in sleep, weight loss, and diminished sexual pleasure, among others (American Psychiatric Association [APA], 2022). Moreover, it is the most prevalent mental disorder worldwide, affecting approximately 5% of the global population (World Health Organization [WHO], 2023). In Ecuador, depression is the second most prevalent mental disorder, with 719.1 cases per 100,000 inhabitants. Gender differences have been observed (Moreta-Herrera et al., 2024); for instance, 4.8% of women and 3.1% of men being affected (Institute for Health Metrics and Evaluation [IHME] & Global Burden of Disease, 2021).

The causes of depression involve a range of biological, psychological, and social factors. Biologically, these include alterations in the hypothalamic–pituitary–adrenal axis and neurotransmitter systems (Nedic Erjavec et al., 2021; Wang et al., 2021); psychologically, negative thinking patterns, low self-esteem, maladaptive emotion regulation strategies, and adverse childhood experiences (Kupferberg & Hasler, 2023; Xu, 2023); and socially, interpersonal experiences, sociocultural constructions of gender and socioeconomic context (Merlyn et al., 2025; Remes et al., 2021), with a particular emphasis on gender, mainly due to the higher prevalence of depression in women compared to men (Gao et al., 2022; Luo et al., 2021). In this regard, specific factors, particularly relevant to female dynamics, may contribute to the emergence of depressive symptoms in women. Among these aspects, two socially salient attributes are central to the present study: body image and eating attitudes.

Body image (BI) is a multidimensional construct encompassing individual perceptions, subjective attitudes, and personal experiences related to the size, shape, and appearance of the body (APA, 2022; Tylka & Wood-Barcalow, 2015). BI develops from childhood and is shaped by factors including parental relationships, peer pressure, appearance-based comparisons, and social standards, which have a significant impact on its formation, especially among adolescents and women (Mulgrew & Hinz, 2024). A healthy BI exists when there is congruence between what is perceived and the actual body characteristics; its distortion refers to the discrepancy between one's perception of their body and the objective reality of its size, shape, or appearance. This construct involving cognitive components (thoughts and beliefs about the body's shape and appearance), perceptual components (assessment of body size and shape), and affective (feelings towards the body) components (APA, 2022; Dakanalis et al., 2016). Furthermore, an essential component of BI is the subjective evaluation of one's own body in terms of satisfaction

or dissatisfaction. When there is a discrepancy between one's actual and idealised BI, 'body dissatisfaction' arises. This dissatisfaction may lead to unhealthy behaviours aimed at weight control, such as starving or restricting food intake, excessive exercise, drug use (Yong et al., 2021), or the development of eating disorders such as anorexia and bulimia (Nieri & Fuentes Cuiñas, 2020), among others. Research on BI in Latin American has consistently identified that the internalization of sociocultural body ideals and media use are associated with increased body dissatisfaction and pathological eating attitudes (Andres et al., 2024; Thornborrow et al., 2022), while body appreciation has been shown to act as a significant protective factor against these risks (Thornborrow et al., 2022). Beyond media influence, qualitative studies emphasize that contextual and proximal factors (such as family, peers, and community) exert a fundamental influence on the complex construction of BI (Johnson-Munguia et al., 2024; Stein et al., 2017). Consequently, systematic reviews call for more longitudinal and experimental studies that diversify samples beyond the predominant contexts of Brazil and Mexico (Andres et al., 2024). In parallel, negative eating attitudes (NEA) encompass perceptions, emotions, and behaviours related to eating that may compromise mental and physical health. Emotional states have been identified as key determinants in shaping negative eating behaviour patterns. Emotional responses such as stress, depression, loneliness, and boredom are associated with increased food consumption, commonly, referred to as 'emotional eating' (Ljubičić et al., 2023; Sze et al., 2021). Consequently, maladaptive eating attitudes and behaviours constitute a form of emotional regulation (Brytek-Matera, 2021), albeit an inadequate one. Moreover, negative attitudes towards one's gender identity or gender role expectations are associated with NEA; for instance, gender dissatisfaction has been linked to increased carbohydrate intake and unhealthy eating behaviours among children (Cao et al., 2023). Mental rumination (a cognitive process marked by repetitive and intrusive thoughts) acts as a partial mediator in the relationship between dieting and both uncontrolled and emotional eating (Walilko et al., 2021); similarly, lower cognitive distress tolerance increases the vulnerability to eating disorders (Iasonidou et al., 2023). Specific personality traits, such as neuroticism (positively associated) and conscientiousness (negatively associated), have been linked to emotion- and stress-related eating and identified as strong predictors of such eating behaviors (Klanduchova & Adamovska, 2025). In addition, other psychosocial factors, such as parental psychological control, may also be associated with NEA (Pace et al., 2018).

In sum, both BI and NEA play a significant role in the dynamics of positive and negative mental health, particularly among women. Hence, it is crucial to study and monitor these attributes in the development and progression of symptoms 'especially depression' to which women are particularly susceptible due to sociocultural, biological, and psychological factors.

1.1 Depression, Body Image, and Eating Attitudes

As previously mentioned, depression is a common condition that primarily affects women. Given the central role of body-related factors and eating behaviours in self-esteem (Ruiz-Turrero et al., 2022), personal development (Linardon et al., 2023), and overall well-being (Hutchinson & Cassidy, 2022; Linardon et al., 2023), it is therefore crucial to examine the processes through which they interact, including co-occurrence, mutual influence, and potential mediation mechanisms. These domains are closely interrelated and have therefore been examined jointly in several studies (Gallucci et al., 2023; Natarijadi & Hadiati, 2021; Sedova et al., 2021) given that maladaptive patterns in these domains adversely affect mental health. In fact, in Westernised settings, BI and eating behaviours have been associated with a cultural fixation on physical appearance (Deek et al., 2025). Thus, personal, familial, and societal pressures to conform to these ideals can lead to emotional distress and compromise overall health.

In this sense, although the evidence is limited, studies indicate that negative body image is associated with a range of depressive symptoms, indicating that negative body image is related to both the presence and worsening of depressive symptoms (Edlund et al., 2022; McLean et al., 2022). Furthermore, when negative body image develops during adolescence, it may have long-term consequences in adulthood (Bornioli et al., 2021), highlighting its relevance in the course of depression chronicity. Similarly, an association has been identified between maladaptive eating attitudes and depressive symptoms. Emotional eating is a potential factor associated with the onset and exacerbation of depressive symptoms (Yuan, 2024); individuals with maladaptive eating attitudes report higher levels of depression, with a greater prevalence in women than in men (Konttinen et al., 2019; Sze et al., 2021; Tayfur & Evrensel, 2020), underscoring their relevance alongside negative BI.

Taken together NBI, NEA, and depression are interconnected through shared mechanisms. However, current findings remain limited, as research has not yet examined situations involving multiple influences or analyse these constructs within Latin American contexts, particularly in Ecuador.

1.2 The Present Study

As noted, NBI and NEA are central to understanding depression and play an important role in individuals' daily functioning and overall health. These factors are interrelated (Gallucci et al., 2023; Natarijadi & Hadiati, 2021; Sedova et al., 2021), illustrating how the degree of body satisfaction shapes attitudes toward eating behaviour (Ayran et al., 2021; O'Dea & Abraham,

2000). It is therefore plausible that these factors jointly predict depression in women. However, studies conducted within the region (and particularly in Ecuador) are notably scarce, revealing a significant regional research gap. Furthermore, the limited available evidence shows methodological limitations that must be addressed to advance understanding of the course of depression and its associated factors.

Further research is needed to explore relationships among these variables beyond the simple identification of correlations, which has been the predominant approach thus far. From this perspective, the predictive potential of NBI and NEA on depression (whether independently or jointly through a multiple-predictor-model) remains unclear. No studies to date have examined depression while simultaneously modelling NBI and NEA as exogenous predictors using regression-based approaches. For this reason, the proposal of a more complex model would contribute to a deeper and more comprehensive understanding of depressive processes in women. Additionally, no analyses have examined the concurrent direct effects of NBI and NEA non depression, nor the indirect effects mediated by a third variable using mediation models in paired relationships. In other words, the dynamics of the interaction third-variable interactions remain unknown, as does whether they can diminish the direct effect (classical mediation) or, conversely, reinforce it (suppressive or competitive mediation). In this second case, such effects may even emerge in the presence of hidden or masked relationships, as can happen in situations like depression, where certain strategies (rumination, avoidance, etc.) can generate opposing indirect effects (Aldao et al., 2010). Thus, broad theoretical and methodological gaps persist, which require more rigorous and in-depth research.

Based on the above, the present study aims to: a) identify the latent associations among NBI, NEA, and depression in a sample of adult women in Ecuador; b) estimate the multiple predictive potential of NBI and NEA on depression using Structural Equation Modelling (SEM); and c) demonstrate the existence of a direct effect of NBI on depression, as well as an indirect effect through NEA using a structural mediation analysis. In line with this, it is hypothesised that NBI, NEA, and depression present latent correlates and form an overall adequately fitting model for adult women in Ecuador (H_1); that NBI and NEA are multiple predictors of depression (H_2); and that NBI exerts both a direct and indirect effect on depression through NEA as a mediating variable (H_3).

2. Method

2.1 Design

This study employed a descriptive, mediation-based, and cross-sectional methodology (Ato et al., 2013), aimed at analysing the mediating role of NEA in the relationship between NBI and depressive symptoms in a sample of adult women from Ecuador.

2.2 Participants

A total of 964 Ecuadorian women ($M = 29.74$ years, $SD = 11.93$) were recruited through incidental convenience sampling. Participants met the following inclusion criteria: self-identification as female, age ≥ 18 years, Ecuadorian nationality, and voluntary participation by means of informed consent; conversely, those who did not meet these criteria (male, under 18 years old, non-Ecuadorian, or failed to provide informed consent) were excluded. The demographic profile of the sample showed a predominance of single (71.6%) and married (19.4%) women, with university education (76.7%), either employed (46.4%) or students (40.7%). Most participants reported monthly incomes in the 0–120 USD range (40.1%), were from the Sierra region (91.4%), identified as participants of mixed racial/ethnic background (93.8%), adhered to the Catholic religion (54.9%) or had no religious affiliation (32.4%), and identified as heterosexual (85.5%).

2.3 Instruments

2.3.1 Body Shape Questionnaire

Body Shape Questionnaire (BSQ; Cooper et al., 1987), in its Spanish-translated and shortened 21-item version (BSQ-21; Nieri & Fuentes Cuiñas, 2020), was used to assess NBI. The 21 items are grouped into two dimensions: a) Weight Concerns (WC), comprising 11 items, and b) Body Dissatisfaction (BD), comprising 10 items. Responses are given on a six-point Likert scale, where 0 corresponds to “never” and 5 to “always”.

Regarding psychometric properties, the reference study reported internal consistency scores of $\alpha(\text{WC}) = .90$ and $\alpha(\text{BD}) = .85$, indicating high and adequate internal consistency, respectively (Nieri & Fuentes Cuiñas, 2020). In the present study, internal consistency values were $\omega = .943$ [.938 – .948] and $\omega = .923$ [.916 – .930], reflecting high reliability.

2.3.2 Eating Attitudes Test

Eating Attitudes Test (EAT; Garner et al., 1982), in its reduced 18-item Spanish version (EAT-18; Fischer & Prieto, 2017), was used to assess the negative component of eating attitudes through a unidimensional measure. Items are answered using a three-point Likert scale, where 1 corresponds to “almost never” and 3 to “almost always”.

In terms of psychometric properties, the EAT-18 provides evidence of adequate validity based on Item Response Theory, with a PSR value of .76 (Fischer & Prieto, 2017). In the current study, the internal consistency index was $\omega = .929$ [.922 – .936], interpreted as high reliability.

2.3.3 Beck Depression Inventory II

Beck Depression Inventory II (BDI-II; Beck et al., 1996), in its Spanish-adapted version (Maldonado-Avenidaño et al., 2023), was used to assess depressive symptomatology. The BDI-

II comprises 21 items representing specific symptoms of depression, answered on a four-point Likert scale, where 0 indicates total absence of the symptom and 3 indicates a marked presence. With regard to psychometric properties, the scale is configured as a unidimensional model. The reference study reported internal consistency of $\alpha = .91$ (Maldonado-Avenidaño et al., 2023); while at the present study is $\omega = .944$ [.938 – .949], indicating high reliability.

2.4 Procedure

The instruments used in this study were part of a questionnaire developed using the Google Forms application for subsequent online dissemination, as part of a broader investigation into the hyper sexualisation of culture, self-sexualisation, and mental health in women, although the two first variables are irrelevant to the current study. Data collection took place over an eight-month period in 2024. Participants were contacted via email and social media, with an invitation to voluntarily participate in the study. Prior to participation, they were informed of the study's objectives, the nature of their involvement, and the measures in place to ensure protection and well-being. Those interested subsequently signed an informed consent form. Following the data cleaning and systematization -which included the removal of questionnaires with incomplete or inconsistent data-, statistical analyses were conducted, hypotheses were tested, conclusions were drawn, and the corresponding research reports were written. It should be noted that the study adhered to the protocols and ethical standards outlined in the Helsinki Declaration for research involving human subjects and received approval from the institutional ethics committee.

2.5 Data Analysis

The present study was conducted in three stages of analysis. The first involved descriptive analyses of the psychological attributes measured by the scales. These results are presented using measures of central tendency such as the arithmetic mean (M) and adjusted mean (Mp); measures of dispersion such as the standard deviation (SD); and distribution indicators including skewness (g_1) and kurtosis (g_2). In addition, the assumption of multivariate normality was evaluated using Mardia's test (1970), which is considered fulfilled when the multivariate skewness (g_1) and kurtosis (g_2) coefficients are non-significant ($p > .05$).

The second stage involved Confirmatory Factor Analysis (CFA) of the measures of interest, aiming to establish the validity of the internal structure of the BSQ, EAT-18, and BDI instruments, based on a sample of adult women in Ecuador, as a preliminary step to structural analysis. In the CFA (see Table 1), each measure was assessed using a polychoric correlation matrix and the Diagonally Weighted Least Squares (DWLS) estimation method, selected primarily due to the ordinal nature of the items, which is commonly associated with a lack of multivariate normality (Li, 2016). Model fit was evaluated based on absolute fit indices such as the Chi-square (χ^2) and the Standardised Root Mean Square Residual (SRMR); relative fit indices

such as the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI); and the non-centrality-based fit index, namely the Root Mean Square Error of Approximation (RMSEA). Model fit was considered acceptable when the χ^2 value was non-significant ($p > .05$)—although this test is sensitive to sample size—CFI and TLI exceeded the .95 threshold, and SRMR and RMSEA (or the lower bound of its confidence interval) were below .08, with a maximum of .09 (Brown, 2015; Byrne, 2008; Jak et al., 2021; Moreno-Montero et al., 2023; Moreta-Herrera et al., 2021; Wolf et al., 2013).

The third stage involved structural analyses using SEM techniques. The first part of this section addresses the analysis of latent relationships among the investigated variables (NBI, NEA, and depressive symptoms). A general model of fit was specified for this purpose (see Figure 1). Once model fit and covariances among latent variables were confirmed, a latent mediation model was established. First, a multiple structural regression analysis was conducted to determine whether NBI and NEA functioned as predictors (independent variables) of depressive symptoms (dependent variable), as well as to estimate the percentage of explained variance and regression effect size (Ferguson, 2015). Subsequently, a mediation analysis was conducted using SEM. In this model, NBI was defined as the independent variable (X), depressive symptoms as the dependent variable (Y), and NEA as the mediating variable (M). Both the direct effect of NBI on depressive symptoms (c') and the indirect effect (ab) through NEA were analysed. Mediation is considered present when the indirect effect (ab) is statistically significant ($p < .05$). Moreover, if the total effect (c)—the sum of c' and ab —is not significant ($p > .05$), this indicates full mediation; otherwise, it is interpreted as partial mediation. It is important to highlight that the significance level ($p < .05$) is calculated using asymptotic standard errors based on the Sobel method. (Gunzler et al., 2013; Lange et al., 2021; Moreta-Herrera et al., 2023). Furthermore, when the value of the direct effect (c') is greater than the total (c), then the mediation is considered to be suppressive since the indirect effect is negative ($-ab$), so in this situation the presence of a masked or hidden effect is considered, which increases the total explained variance (MacKinnon et al., 2000)

Finally, all statistical analyses were conducted using R (version 4.2.2; R Core Team, 2023) within the RStudio integrated development environment. The following packages were used: *foreign*, *lavaan*, *MBESS*, and *MVN*.

3. Results

3.1 Descriptive Analysis of the Measures

Table 1 presents the descriptive analysis results based on participants' responses. In general, mean values indicated a moderate to low presence of NBI, with weight concerns being more pronounced than body dissatisfaction. Regarding NEA, the results reflected a moderate

presence. Lastly, depressive symptoms were reported at low levels. With respect to multivariate normality, results from Mardia's test indicated that this assumption was not met, as the coefficients for multivariate skewness (g_1) and multivariate kurtosis (g_2) were statistically significant ($p < .05$).

Table 1

Results from Descriptive Analyses

| <i>Measures</i> | <i>Descriptive analyses</i> | | | | | <i>Mardia's test</i> | |
|---------------------------|-----------------------------|-----------|-----------|----------------------|----------------------|----------------------|----------------------|
| | <i>M</i> | <i>Mp</i> | <i>SD</i> | <i>g₁</i> | <i>g₂</i> | <i>g₁</i> | <i>g₂</i> |
| Weight concerns (WC) | 31.37 | 2.85 | 15.05 | 0.61 | -0.65 | 13.89*** | 198.25*** |
| Body dissatisfaction (BD) | 21.19 | 2.12 | 11.77 | 1.41 | 1.26 | 32.56*** | 214.69*** |
| Eat Attitude (EAT-18) | 29.89 | 1.66 | 8.86 | 0.84 | -0.01 | 29.55*** | 437.44*** |
| Depression (BDI-II) | 14.31 | 0.68 | 11.70 | 1.20 | 1.45 | 53.14*** | 666.61*** |

Note: *** $p < .001$; M: arithmetic mean; Mp: fit mean; SD: Standard Deviation; g_1 : skewness; g_2 : Kurtosis

3.2 Confirmatory Factor Analysis of the Measures

Table 2 presents the CFA conducted on the measures used in the subsequent structural analyses. In all cases, the DWLS estimation method was applied, given the lack of multivariate normality and the ordinal nature of the items. The results indicated that all three measures achieved acceptable fit indices, supporting the validity of their internal structure.

Table 2

Fit Indices from the CFAs conducted on BSQ, EAT-18 y BDI

| <i>Measures</i> | χ^2 | <i>df</i> | <i>CFI</i> | <i>TLI</i> | <i>RMSEA IC95%</i> | <i>SRMR</i> |
|-------------------------|-----------|-----------|------------|------------|--------------------|-------------|
| BSQ (two dimensions) | 810.7*** | 188 | .997 | .996 | .059 [.055 - .063] | .047 |
| EAT-18 (unidimensional) | 1205.1*** | 135 | .985 | .983 | .091 [.086 - .095] | .079 |
| BDI (unidimensional) | 616.7*** | 189 | .995 | .995 | .048 [.044 - .053] | .044 |

Note: *** $p < .001$; χ^2 : chi-square; df: degrees of freedom; CFI: Comparative Fit Index; TLI: Tucker-Lewis Index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Squared Residual

3.3 General Model Fit

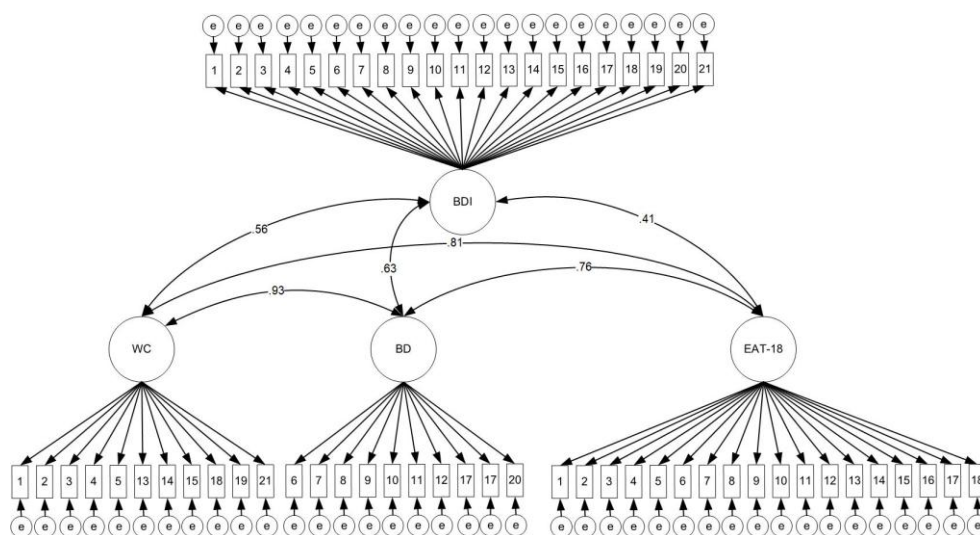
Given that acceptable fit indices were observed, it was deemed appropriate to conduct latent structure analysis using SEM techniques, with the aim of examining covariances and influences among latent variables.

Figure 1 displays the covariances among the variables of interest, obtained through the general model fit using SEM. As shown in the figure, the dimensions *Weight Concern* (WC) and *Body Dissatisfaction* (BD), corresponding to NBI, exhibited a positive and moderately strong relationship with depressive symptoms. A similarly positive and moderate—though slightly

weaker—covariance was observed between NEA and depressive symptoms. In contrast, NBI showed a strong and positive correlation with NEA. Regarding the overall model, the various fit indices indicated a satisfactory model fit, supporting the validity of the proposed structure and allowing for statistical inferences to be made in the population of adult women in Ecuador. Following the confirmation of significant covariances among the latent variables of interest, it was considered appropriate to proceed with regression and structural mediation analyses using SEM techniques.

Figure 1

General Structural Model of the Relationships Between Body Image, Eating Attitudes, and Depressive Symptoms



$\chi^2 = 8131.3$; $p < .001$; $df = 1704$; $CFI = .988$; $TLI = .987$; $RMSEA = .063$ [.061 - .064]; $SRMR = .068$

Note: *** $p < .001$; χ^2 : chi-square; df : degrees of freedom; CFI: Comparative Fit Index; TLI: Tucker-Lewis Index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Squared Residual; WC: Weight concerns; BD: Body dissatisfaction; BDI: Beck Depression Inventory II; EAT-18: 18-items Eat Attitude Test

3.4 Structural Mediation Model

Figure 2 presents the mediation model of NEA in the relationship between NBI and depressive symptoms using SEM. Prior to this, both NBI and NEA were identified as significant predictors of depressive symptoms. Together, these constructs explained 40.1% of the variance in depressive symptoms.

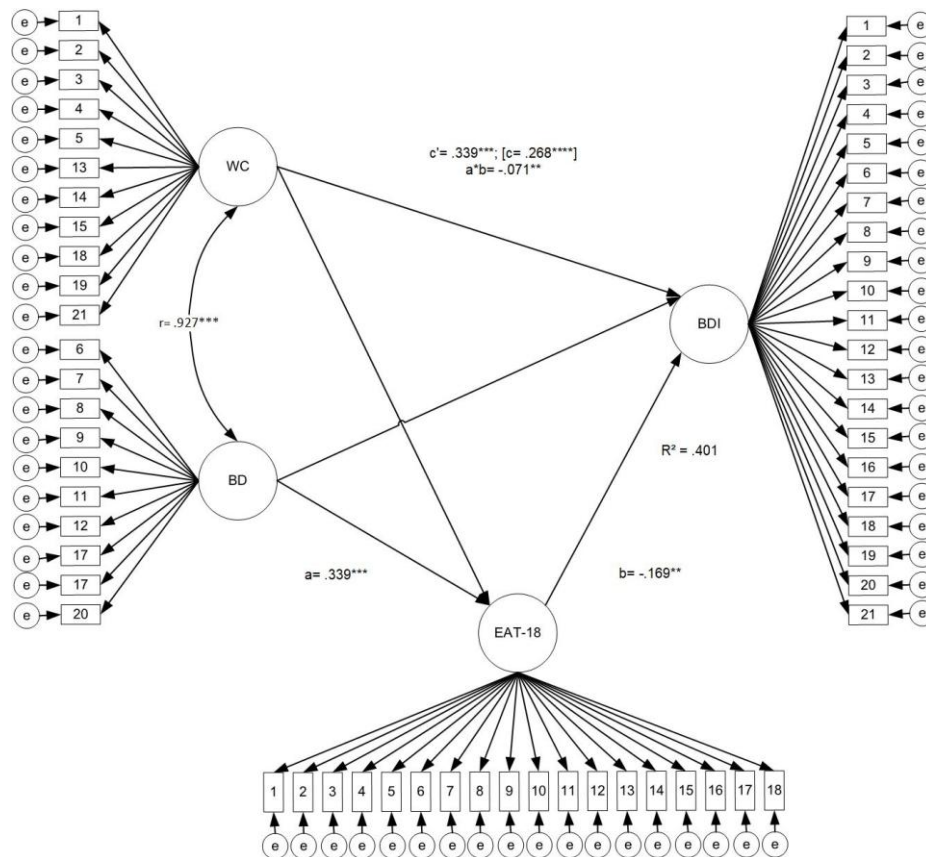
In the mediation analysis, NBI (X) had a significant direct effect (c') on depressive symptoms (Y) ($p < .05$), while also exerting an indirect effect (ab) through the mediation of NEA (M).

Thus, NEA played a mediating role in the relationship between NBI and depressive symptoms, as the mediation effect was statistically significant ($p < .05$), indicating partial mediation. Additionally, since $c < c'$ (and the indirect effect ab had the opposite sign), the mediation was interpreted as competitive or suppressor, suggesting that the indirect effect partially masked the total effect. This finding may indicate that NEA exerts a complex psychological influence, operating in a direction opposite to the primary predictor.

Finally, the fit indices for the structural mediation model showed an adequate fit, allowing for statistical inferences to be drawn for the population of adult women in Ecuador.

Figure 2

Partial Mediation Model of Negative Eating Attitudes in the Relationship Between Negative Body Image and Depressive Symptoms



$\chi^2 = 8368.7$; $p < .001$; $df = 1706$; $CFI = .987$; $TLI = .987$; $RMSEA = .064$ [.062 - .065]; $SRMR = .069$

Note: *** $p < .001$; χ^2 : chi-square; df : degrees of freedom; CFI: Comparative Fit Index; TLI: Tucker-Lewis Index; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Squared Residual; WC: Weight concerns; BD: Body dissatisfaction; BDI: Beck Depression Inventory II; EAT-18: 18-items Eat Attitude Test

4. Discussion

The present study aimed to identify the latent correlates of NBI, NEA, and depression, as well as to explore the predictive potential of NBI and NEA on depression. Additionally, it investigated the mediating effect of NEA on the relationship between NBI and depression in a sample of adult women in Ecuador.

Regarding the variables of interest, a positive and moderately strong association was found between NBI and depressive symptoms among adult women in the sample. Specifically, a distorted perception of BI was associated with higher levels of depressive symptomatology, with this relationship being particularly strong in the *Body Dissatisfaction* dimension measured by the BSQ. These findings are consistent with previous studies conducted in other geographical contexts, which have reported similar results (Bornioli et al., 2021; Edlund et al., 2022; McLean et al., 2022). This outcome highlights the psychological relevance and vulnerability of individual body perception. When such perception does not align with socially reinforced appearance standards, it can negatively impact mental health (Deek et al., 2025), manifesting as psychological symptoms such as depression, as observed in this study.

A moderately strong positive association was also found between NEA and depressive symptoms. NEA were linked to a higher presence of depressive symptoms. This finding is in line with previous research that reports a similar pattern (Kontinen et al., 2019; Sze et al., 2021; Tayfur & Evrensel, 2020), and suggests that certain cognitive and emotional patterns (such as emotional eating) may influence how eating is interpreted and regulated, and are thus related to symptom indicators such as depression (Yuan, 2024).

Finally, NBI was also found to be significantly associated with NEA, with a strong and positive relationship, particularly in the *Weight Concern* dimension. This result aligns with previous studies (Gallucci et al., 2023; Natarijadi & Hadiati, 2021; Sedova et al., 2021), which agree that general body dissatisfaction triggers cognitive and attitudinal mechanisms that distort eating behaviours (Ayran et al., 2021; O'Dea & Abraham, 2000), promoting behaviours aimed at weight loss, food restriction, or other less healthy practices (Yong et al., 2021). This dynamic may constitute a risk factor for the development of eating disorders in the future (Nieri & Fuentes Cuiñas, 2020).

Taken together, these findings reinforce the understanding of the close interconnection between these constructs, to the extent that they can be integrated into a well-fitting general model using SEM, supporting their applicability and interpretation in adult women in Ecuador.

Regarding the prediction analyses carried out using SEM, both NBI and NEA were identified as positive predictors of depressive symptoms. Together, these variables explained 40.1% of the variance in depression levels, with NBI emerging as the strongest predictor, indicating a

substantial effect size (Ferguson, 2015). It is important to note that predictive models of this nature have not previously been documented in this population context, and thus these results should be interpreted with caution. Nevertheless, our findings reinforce the conclusion that the combination of cognitive and perceptual patterns related to BI and eating contributes significantly to the increase in depressive symptomatology among women (Kupferberg & Hasler, 2023; Xu, 2023), with important implications for mental health more broadly (Deek et al., 2025).

Delving into...” me resulta algo extraño en un artículo científico este inicio narrativo. Mi propuesta sería: “Results from the mediation analysis demonstrated that NBI exerted a significant direct effect on depressive symptoms and an indirect effect through NEA, thereby confirming the mediating role of NEA. However, since the total effect (c) of the model remained significant ($p < .05$), the mediation was classified as partial: the inclusion of the mediating variable (NEA) did not completely eliminate the direct link (c') between NBI and depressive symptoms. Moreover, the product of the indirect path (ab) was negative, indicating a competitive or suppressor mediation: the indirect path attenuates the positive relationship between NBI and depression, such that the direct impact of NBI appears stronger when controlling for NEA. As is well known, in a conventional mediation model, the inclusion of the mediator (M) typically reduces the proportion of variance in the dependent variable (Y) explained directly by the independent variable (X). However, in cases of competitive or suppressor mediation, the inclusion of M does not decrease but rather increases the total explained variance (MacKinnon et al., 2000). This pattern should not be interpreted as a statistical error but as evidence that the mediating variable both transmits part of the effect and compensates for a previously obscured direction in the X–Y relationship (Zhao et al., 2010).

This dynamic suggests the presence of a complex psychological process. One possible explanation is that maladaptive attitudes—and even behaviours—related to eating may, in some cases, function as emotional regulation mechanisms, albeit inadequate ones. While these behaviours might offer temporary relief from psychological distress, they also produce long-term harm, generating seemingly contradictory or counterintuitive responses (Brytek-Matera, 2021). However, this finding warrants further exploration in future research, as current evidence does not report previous studies identifying mediation effects between the variables examined here and depressive symptoms—much less competitive or suppressor mediations. In this regard, the findings reported here represent a novel and meaningful contribution to understanding the phenomenon, by linking BI perception and eating attitudes to mental health from a structural and complex perspective.

At the theoretical level, this study makes a substantial contribution to the development of an interpretative model of depression in women by integrating, for the first time, the combined interaction between NBI and NEA. This approach has not previously been addressed in the literature and paves the way for a deeper future understanding of the aetiology and manifestation of depressive symptoms. Additionally, these findings help bridge both theoretical and population gaps by focusing on a group that has been scarcely studied—adult Ecuadorian women.

At the methodological level, the findings highlight the utility of advanced analytical methodologies such as SEM, which enable the identification of complex relationships and latent structures that are not easily accessible through conventional techniques. The discovery of a competitive or suppressor mediation—rarely reported in the literature—reinforces the innovative nature of the approach, allowing for a more nuanced interpretation of psychological processes that may involve apparent ambivalence.

And, at the practical level, this study offers relevant, evidence-based criteria for the prevention and intervention of depressive symptoms in women, emphasizing the need to address distortions in BI and NEA. Specifically, as NBI emerged as the strongest predictor of depressive symptoms, prevention should prioritize actively cultivating body appreciation alongside challenging harmful perceptual patterns. The established mediating role of NEA implies that interventions for depression must necessarily integrate components aimed at dismantling maladaptive eating behaviors. Crucially, the competitive mediation detected suggests that NEA may serve as an inadequate, temporary emotional regulator. Therefore, therapeutic protocols must not merely aim to eliminate NEA, but primarily equip individuals with alternative, adaptive coping mechanisms (e.g., distress tolerance and emotional regulation skills). This highlights that cognitive-based interventions, such as those focused on cognitive restructuring and emotional regulation techniques, are essential for optimizing clinical outcomes in this population.

Finally, regarding the tested hypotheses, the results both confirm Hypothesis 1 and support the notion that the variables form a theoretical construct that can be empirically verified in the analyzed sample. Hypothesis 2 was confirmed, showing that NBI and NEA are multiple and positive predictors of depression symptoms. However, in the case of Hypothesis 3, while NEA does mediate between NBI and depression, this mediation is partial and suppressive or competitive.

5. Limitations

One of the main limitations of this study lies in its methodological approach. Although it provides significant evidence regarding the predictive role of NBI and NEA on depressive

symptoms, the results do not allow for causal inferences due to the cross-sectional nature of the design. Therefore, future research should consider incorporating longitudinal or experimental designs that would allow for the observation of the temporal evolution of these variables and a more precise determination of potential causal links among them. Additionally, it would be valuable to replicate this model in different sociocultural contexts in order to assess its external validity and enrich the understanding of the phenomenon from a broader and more diverse perspective.

Several methodological constraints must be considered when interpreting these findings. First, the intentional convenience sampling methodology restricts the generalizability of the results, underscoring the need for further confirmatory studies. Specifically, the overrepresentation of women with high university education and residents in Ecuador's Sierra region may influence the interpretation of results. This demographic bias suggests the sample might exhibit greater exposure to Western body ideals, potentially amplifying the observed associations between body image variables and symptomatology. However, research in Latin America also indicates that these phenomena affect rural samples, suggesting the issue is not exclusive to highly educated, urban populations (Thornborrow et al., 2022). Furthermore, the exclusive reliance on self-report measures carries the inherent risk of social desirability bias. Most critically, the online data collection method, without formal clinical screening, limits the study's ability to discriminate between subclinical symptoms and clinically significant psychopathology. Consequently, these findings are best interpreted within the spectrum of symptom severity and psychological vulnerability, rather than generalized to clinical populations diagnosed with severe disorders.

Ethical approval

The research was approved by the Human Research Ethics Committee of the Pontifical Catholic University of Ecuador (CEISH-244-2024), based on the ethical guidelines of the institutional regulations and the Helsinki Convention for research involving human subjects.

Informed Consent Statement

The participants provided written informed consent before participating in this study.

Data Availability Statement

The data associated with these results are available upon request from the corresponding author. It is important to note that their use is restricted exclusively to research and academic purposes and shall not, under any circumstances, be used for commercial purposes.

Conflict of interest statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

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Authors’ Contribution

Conceptualization: M-FM, RMH, ED; Data curation: M-FM, ED, CO; Formal Analysis: RMH, TCR, JAR; Funding acquisition: M-FM, ED, CO; Investigation: M-FM, ED, CO; Methodology: RMH, TCR, JAR; Project administration: M-FM, ED, CO; Resources: M-FM, ED, CO; Software: RMH; Supervision: M-FM, BTG, JAR; Validation: RMH, TCR, BTG; Visualization: RMH, JRA; Writing – original draft: M-FM, RMH, ED, CO, JAR, TCR, BTG; Writing – review & editing: M-FM, RMH, ED, CO, JAR, TCR, BTG.

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