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Body image, assertiveness, self-criticism, and self-esteem in women with a eutrophic nutritional status

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Abstract

Background

The presence of body dissatisfaction in women is widely reported in the literature. Evaluating the interaction between body image, self-esteem, self-criticism, and assertiveness in eutrophic women provides relevant contributions to understanding the impact of these variables on women's quality of life.

Objectives

This study investigated whether eutrophic women present body image dissatisfaction and tested whether this variable is associated with Body Mass Index (BMI), self-criticism, self-esteem, and assertiveness measures.

Method

A total of 203 women aged between 20 and 40 years, with a eutrophic nutritional status and residing in the Amazon region, Brazil, participated. The participants answered the Stunkard Figure Rating Scale, the Rosenberg Self-Esteem Scale, the Forms of Self-Criticism and Self-Reassurance Scale, and the Assertion Inventory to assess body image, self-esteem, self-criticism, and assertiveness, respectively.

Results

The mean age of participants was 26.5 ± 5.14, with a mean BMI of 22.27 ± 1.81 kg/m², and most (72.4%; n = 147) reported body image dissatisfaction. Greater body image dissatisfaction was associated with higher levels of self-critical behaviors (r = 0.170; p = 0.015), while higher self-esteem was associated with body image satisfaction (r=-0.179; p = 0.010). No correlation was found between assertiveness and participants' body image (r=-0.125; p = 0.076).

Conclusion

Body image dissatisfaction is related to self-critical behaviors and low self-esteem but is not associated with assertive behaviors in eutrophic women.

1. Introduction

Body image can be understood as a multidimensional concept, composed of the representation of one's own body, encompassing the individual's perception, feelings, thoughts, and actions related to their own appearance. Its construction includes evaluative aspects that result in either satisfaction or concern with

appearance (1). Thus, characteristics of a distorted body self-image include the presence of negative feelings such as dissatisfaction, disgust, or frustration regarding weight and body shape. Body image distortion can be assessed by the difference between the ideal body image and the perceived body image (2).

The female population is constantly exposed to information related to beauty, such as magazine covers and reports about weight loss, in comparison to the type of information aimed at men (3), which makes body image concerns more frequent in women (4). Agents such as the media, family members, and peers disseminate beauty standards that are often unattainable (5) and are associated with thin, slender, and toned bodies (6). Thinness, which is often unattainable, results in a sense of failure on the part of the individual, especially in women, leading to negative perceptions of self-esteem (7), since body image in women holds more meaning for their “self” and their self-esteem than it does for men (8).

Self-esteem can be understood as a subjective self-evaluation related to how an individual sees and evaluates themselves (9). Low self-esteem is a potential factor for the occurrence of eating disorders, anxiety, and negative affect (10). Conversely, when positive self-esteem is present, positive affect is observed and acts as a protective factor against the development of risk behaviors (11). Dissatisfaction with appearance and body self-perception can influence self-esteem (12). Among women, appearance is observed to be an important component of the broader concept of self-esteem (13).

Comparison with others is an important component of body self-image. In this process, a negative comparison and evaluation of one’s own body may occur, followed by a positive evaluation of the other’s body (14), thus leading to severe self-criticism (15). Self-criticism can be defined as excessive evaluations and judgments, often triggered by mistakes in performing certain behaviors or by the desire to change certain characteristics (16). These comparisons underlie the socially valued body standards, since a body that conforms to these standards generates approval, praise, and acceptance by the social group (17). Currently, social media intensify this process as they provide metrics that amplify values such as likes, shares, and comments (18).

Individuals whose bodies differ from idealized and promoted standards, in addition to potentially presenting low self-esteem and severe self-criticism, may also exhibit low assertiveness. For example, Correia et al. (19) observed that women with a nutritional status related to obesity displayed less assertive behavior when compared to women who were not within that BMI range, compounded by prejudiced stereotypes related to excess weight.

Assertiveness is considered an important social skill characterized by the emission of verbal behaviors such as expressing feelings, stating opinions, agreeing or disagreeing with something, making, accepting, and refusing requests, dealing with criticism, among others (20). The consequences of displaying this behavior can be reinforcing for the individual, as it increases the chances of achieving their goals. However, assertive behavior may generate social approval or disapproval, depending on the context in which the individual is inserted (21).

Literature reviews on body image indicate that women report body image dissatisfaction (22–24). Furthermore, regarding the nutritional status of eutrophy, studies indicate that girls report body image dissatisfaction. Lira et al. (25) interviewed 212 Brazilian adolescents aged 15 to 19 years and found that most (65.1%) had a eutrophic nutritional status and still reported the desire for a smaller silhouette. The same was found by Teixeira et al. (26) in their study with 575 Portuguese adolescents aged 11 to 18 years. The eutrophic participants expressed a “desire to be thinner.”

Brytek-Materta et al. (27) conducted a study with 246 individuals of both sexes, in which 123 participants had normal weight and 123 participants were overweight. The main objective was to evaluate the role of emotional eating and the desire to avoid social situations related to eating and body exposure. Participants completed the Three-Factor Eating Questionnaire (TFEQ) and the Body Image Avoidance Questionnaire (BIAQ). The results showed that even individuals with normal weight displayed avoidance behavior in social situations related to eating and body exposure, indicating that the pursuit of fitting into propagated beauty standards seems to be present across different nutritional statuses.

Given the above, it is suggested that external factors such as media, family, and culture propagate socially accepted beauty standards and that women appear to be more strongly affected by these agents compared to men. Although studies have already investigated the relationship between the variables of body image, self-esteem, self-criticism, and assertiveness in women, no studies were found in the databases searched that jointly assessed the interaction of these variables in women with a eutrophic nutritional status.

In this sense, we can assume that even women considered thin and with a nutritional status within the eutrophic range show dissatisfaction with their body self-image. This may be explained by the influence of widely disseminated aesthetic standards, which contribute to a distorted perception of one’s own body, excessive self-criticism, low self-esteem, and deficits in assertive behavior.

Thus, the present study aimed to describe the socioeconomic and demographic profile of eutrophic women and to identify whether there was (dis)satisfaction with body image. Additionally, it aimed to test whether there is an association between BMI measures, self-criticism, self-esteem, and assertiveness with the participants body image.

2. Materials and Methods

Study type and ethical aspects

This is a cross-sectional, descriptive, analytical study with a quantitative approach. It was conducted in the metropolitan region of Belém, Pará, Brazil. The research was approved by the Research Ethics Committee on Human Subjects of the Tropical Medicine Center of the Federal University of Pará under opinion no. 6.485.551, meeting the legal requirements in accordance with Resolution 466 of December 12, 2012, of the National Health Council and the Declaration of Helsinki. Participant consent was obtained through the signing of the Free and Informed Consent Form (FICF).

Participants

The G*Power software, version 3.1.9.7 (28), was used to determine the minimum sample size required to test the study hypotheses. An independent t-test was used with the following parameters: (a) effect size (f = 0.5), (b) α = 0.05, (c) power = 0.8. The sample size indicated was 128 participants.

Women included in the study were residents of the metropolitan region of Belém, aged between 20 and 40 years, with at least a high school education, and a nutritional status classified as eutrophic according to BMI (29). Volunteers were excluded if they reported a history or current clinical diagnosis of eating disorders or comorbidities, if they were pregnant or postpartum, professional high-performance athletes, and/or used weight-loss medication, or did not meet the inclusion criteria for the research. Participants were recruited in public areas of the metropolitan region of Belém, such as squares, parks, and higher education institutions.

Instruments

A sociodemographic questionnaire was used, which contained sections on socioeconomic aspects and participant information, such as family income, years of education, marital status, occupation, ethnicity, among others. To assess nutritional status, participants self-reported their weight and height for BMI calculation (kg/m²). This index was classified according to the categorization proposed by the World Health Organization (29). Thus, participants with a BMI between 18.5 and 24.9 kg/m² were considered eutrophic, that is, within the recommended weight range.

To assess assertiveness, the Assertive Skills Inventory developed and validated by Teixeira (30) for the female population was used. It is composed of five indicators that allow identifying the frequency, discomfort, effectiveness, social adequacy, and personal adequacy of assertive responses. In this study, only the 19 questions related to the frequency indicator were applied, with responses on a Likert-type scale ranging from never or rarely to always or almost always. The scores indicate the repertoire of assertive skills, as follows: deficient repertoire of assertive skills (0 to 16 points); average repertoire of assertive skills (17 to 32 points); good repertoire of assertive skills (33 to 48 points); and elaborated repertoire of assertive skills (49 to 64 points).

To assess self-criticism, the Forms of Self-Criticism and Self-Reassurance scale (16), translated and validated into European Portuguese by Castilho and Gouveia (31), was used. The scale has 22 items that assess self-criticism and the ability to reassure oneself in the face of setbacks. It consists of three subscales: the Inadequate Self, Hated Self, and Reassured Self subscales. Responses are given on a 4-point Likert scale, with the options: I am not like this (0), I am a little like this (1), I am moderately like this (2), I am very much like this (3), I am extremely like this (4). In this study, only the self-criticism scale was used, in which the level of self-criticism is calculated by summing the “Inadequate Self” and “Hated Self” subscales.

To assess self-esteem, the Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1989), translated and validated for the Brazilian population by Hutz (32), was used. The scale is Likert-type, with the options: strongly disagree (1), disagree (2), agree (3), strongly agree (4), referring to 10 statements. Of these, five assess positive feelings of the individual toward themselves, and the other five assess negative feelings. The values of the positive statements are reversed and added to the values of the negative items. Scores range from 10 to 40 points, with higher scores indicating higher respondent self-esteem.

To assess body image, the Figure Rating Scale (33), adapted by Scagliusi et al. (34), was used. It presents nine figures to assess satisfaction with body image. The silhouettes are organized into four categories: 1 – thin, 2 to 5 – normal, 6 to 7 – overweight, and 8 to 9 – obesity. Body satisfaction is analyzed by the difference between the silhouette the participant would like to have (ideal) and the one that represents them at the moment (current). The final score can range from − 8 to + 8, with higher differences indicating a greater degree of dissatisfaction with body self-image.

Procedure

Data collection was conducted in person between March and October 2024. After the invitee agreed to participate in the study, a screening protocol was applied to verify the inclusion criteria. Next, participants were asked to complete the sociodemographic questionnaire. Finally, they were asked to answer the following instruments in the described order: the Assertive Skills Inventory to assess assertiveness, the Self-Criticism Scale to measure self-criticism, the Rosenberg Self-Esteem Scale, and the Figure Rating Scale to assess body image satisfaction. To ensure uniformity in questionnaire administration among participants, a standardized data collection script was developed. The average participation time in the study was 15 minutes.

Data Analysis

The Statistical Package for Social Science (IBM® SPSS®) software, version 24.0, was used. Data were described using measures of central tendency and dispersion. Normality of the data was assessed using the Kolmogorov-Smirnov test. Chi-square tests were used to compare qualitative variables among participants. Spearman's correlation test was applied to assess the correlation between variables. Additionally, the Mann-Whitney test was used for group comparisons. Finally, binary linear regression was performed. A statistical significance level of $p \leq 0.05$ was considered.

3. Results

A total of 203 women participated in the study. Table 1 presents the participants' socioeconomic and demographic data. The participants had a mean age of 26.5 ± 5.14 years, and 51.2% ($p = 0.779$) had completed higher education. Most resided in the city of Belém (75.4%; $p < 0.001$) and self-identified as mixed-race (50.7%; $p < 0.001$). Regarding marital status, most participants were single (82.8%; $p < 0.001$). In terms of income, 63.5% ($p < 0.001$) reported a family income of 1 to 3 minimum wages.

Table 1
Socioeconomic and demographic characteristics of women without excess weight living in the metropolitan region of Belém, PA, Brazil.

		Mean/n	SD or frequency (± %)	*p-value**
Age (years)		26,5	± 5,14	
Education				
	Incomplete Higher Education	99	48,8%	0,779
	Complete Higher Education	104	51,2%	
Municipality				
	Ananindeua	35	17,2%	< 0,001
	Belém	153	75,4%	
	Castanhal	7	3,4%	
	Outros	8	4%	
Self-declared Race/Color				
	White	64	31,5%	< 0,001
	Mixed race	103	50,7%	
	Asian	10	4,9%	
	Black	26	12,8%	
Marital Status				
	Single	168	82,8%	< 0,001
	Married	24	11,8%	
	Cohabiting	9	4,4%	
	Divorced	2	1%	
Household Income**				
	01–03 minimum wages	129	63,5%	< 0,001
	04–06 minimum wages	42	20,7%	
	07–10 minimum wages	20	9,9%	
	More than 10 minimum wages	12	5,9%	

SD = Standard Deviation; *Chi-square test; **Minimum wage = R$1,412.00 (reference year: 2024).

Table 2 shows the means for nutritional status, assertive skills inventory scores, and body image satisfaction. Participants had a mean BMI of 22.27 kg/m² (± 1.81). The total mean score obtained in the Assertive Skills Inventory was 35.33 points (± 11.67), indicating a good repertoire of assertive skills. Regarding body image (dis)satisfaction, most participants (72.4%) reported being dissatisfied.

Table 2
Nutritional status, assertiveness, and body image of women without excess weight residing in the metropolitan region of Belém, PA, Brazil.

	Mean (minimum – maximum)	**SD**
BMI	22,27 (18,5–24,9)	± 1,81
Total Assertiveness Score	35,33 (9–71)	± 11,67
	Frequency	Percentage
Assertiveness Rating		
Deficient repertoire	7	3,4%
Average repertoire	78	38,4%
Good repertoire	90	44,3%
Developed repertoire	28	13,8%
(Dis)satisfaction with body image		
Satisfied	56	27,6%
Dissatisfied	147	72,4%

BMI=Body Mass Index; SD=Standard deviation.

Table 3 presents the correlation between the study variables. It can be observed that body image was correlated with participants' self-criticism (r^2=0.170; p = 0.015), indicating that the greater the body image dissatisfaction, the higher the display of self-critical behaviors. Furthermore, higher self-esteem was associated with body image satisfaction (r^2=-0.179; p = 0.010). No correlation was found between assertiveness and body image among the participants (r^2=-0.125; p = 0.076).

Table 3
Correlation between self-criticism, self-esteem, assertiveness, and body image in women without excess weight residing in the metropolitan region of Belém, PA, Brazil.

		Self-criticism	Self-esteem	Assertiveness
Body Image	r	0,170	-0,179	-0,125
	p	0,015	0,010	0,076

*Spearman's correlation test. Statistically significant associations, considering $p < 0,05$.

Table 4 presents the comparison between groups of women satisfied and dissatisfied with their body image and the variables of self-criticism, self-esteem, and assertiveness. For this purpose, the Mann-Whitney test was conducted. It was observed that self-criticism and self-esteem were correlated. Participants who were dissatisfied with their body image exhibited higher self-critical behaviors (p = 0.016), whereas participants satisfied with their body image showed higher self-esteem (p = 0.011). No statistically significant relationships were found between assertiveness and the groups of body image (dis)satisfaction.

Table 4
Relationship between Body Image Satisfaction Groups and Self-Criticism, Self-Esteem, and Assertiveness in Normal-Weight Women Living in the Metropolitan Region of Belém, PA, Brazil.

Body Image	**Satisfaction**		**Dissatisfaction**		
	Mean ± SD	**Median (P5 – P95)**	**Mean ± SD**	**Median (P5 – P95)**	***p-value****
Self-criticism	18,50 (± 10,07)	18,50 (3–42)	23,46 (± 12,53)	22,00 (2–54)	**0,016**
Self-esteem	29,48 (± 4,14)	29,00 (22–40)	27,76 (± 4,08)	27,00 (18–40)	**0,011**
Assertiveness	37,48 (± 11,46)	37,50 (15–61)	34,52 (± 11,68)	34,00 (9–71)	0,076

4. Discussion

This study aimed to assess body image satisfaction among young women and to test whether there is an association between body self-image and measures of self-criticism, self-esteem, and assertiveness. The findings showed that the majority of participants reported body image dissatisfaction. Furthermore, participants who expressed greater dissatisfaction with their body image reported higher self-critical

behaviors and lower self-esteem. Additionally, no correlations were found between body image and the participants' assertiveness measures. Body image dissatisfaction among women is a finding consistent with previous research conducted with Brazilian and non-Brazilian women (35–37). However, in these studies, participants' nutritional status was not controlled. When related to nutritional status, Boutté et al. (38) found that body image dissatisfaction can increase with higher BMI. The present study adds evidence to the literature by showing that body dissatisfaction occurs in women with a eutrophic BMI residing in the Amazon region in northern Brazil.

Frederick et al. (39) point out that media pressures and the ideal thinness standard are particularly significant for women with low BMI, as they exhibit heightened body monitoring in an attempt to conform to these standards. According to McComb and Mills (40), comparisons with idealized bodies on social media increase women's body dissatisfaction. Furthermore, Rodgers & Nowicki (41) note that social agents, such as the media, strongly influence the transmission and propagation of discourses that shape individuals' beliefs about their appearance. As highlighted by Oliveira and Hutz (42), the obsession with achieving the "perfect body" is notable among Brazilian women and has become a lifestyle.

Considering the historical context, it is noteworthy that prevailing beauty standards have undergone several changes across centuries and historical periods. During the Renaissance, for example, the valued female beauty ideal was characterized by rounded forms, seen as a sign of fertility and health, whereas a thin body was associated with hunger and disease (43,44). Currently, according to Anixiadis et al. (45), the propagated beauty ideal corresponds to a thin body, routinely displayed by the media, which can lead to appearance comparisons and body image dissatisfaction. Kaleji et al. (46) indicate that for women, feeling distant from social and cultural beauty standards can lead to frustration, self-criticism, and body aversion.

Participants in the present study who expressed greater body image dissatisfaction demonstrated higher self-critical behaviors. This finding corroborates other studies conducted with women (15,47). Kaleji et al. (48), in a study with adults using the same self-criticism form as in the present study, observed that self-criticism mediated feelings of shame regarding body image.

According to Gilbert et al. (16), self-criticism is related to a process of social comparison, in which evaluations and judgments about oneself occur. In a study conducted by Brown and Tiggemann (49) with young Australian women, participants had a mean BMI of 22.61 kg/m², and social comparison of body self-image with attractive images of celebrities and peers was observed, resulting in body image dissatisfaction and negative mood. Varaona et al. (50), in a study with Spanish adults, found that social media use, such as Instagram, was associated with higher self-criticism scores and greater body image dissatisfaction.

It was also observed that participants most dissatisfied with their body image exhibited lower self-esteem. This result aligns with findings by Laker and Waller (51) and Noser and Zeigler-Hill (52) in studies with young women. Regarding nutritional status, Göbel et al. (12) found that women with eutrophic weight displayed higher self-esteem compared to women with overweight.

In this regard, Noser and Zeigler-Hill (52) point out that self-esteem is contingent on appearance. In a study of young women, body shame mediated low levels of self-esteem. Similarly, Soo et al. (53) and Furnham et al. (54) suggest that body image is an indirect mediator of the self-esteem component. Krcmar et al. (55) indicate that young women believe that parents and friends place great importance on thinness, which results in lower self-esteem.

High self-esteem can be considered a protective factor against negative feelings, including body image dissatisfaction (56). According to Brechan and Kvalem (57), self-esteem and negative emotions are among the mediators of body image dissatisfaction. Carter and Vartanian (58) conducted a study comparing individuals of both sexes with higher and lower BMIs and observed that in both groups, the factor with the greatest impact was perceived weight, such that the higher the perceived weight, the greater the body shame.

Participants had a mean score of 35.55 points on the Assertive Skills Inventory, indicating a good repertoire of assertive behaviors. This result partially replicates those found by Proença (59) and Silva (60), in which participants in both studies demonstrated average to good assertive skills repertoires. No studies were found in the databases consulted that tested correlations between assertive skills and body image in women with eutrophic nutritional status. Thus, although the present study did not observe correlations between assertive skills and body image, it contributes to the literature by providing an unprecedented investigation on the topic.

A study conducted in the 1990s (61) with women of eutrophic and overweight status found that eutrophic participants exhibited a greater repertoire of social skills compared to overweight participants. However, in that study, social skills were analyzed in general, not specifically assertive behavior, as in the present research.

Considering assertive behavior in relation to nutritional status, Correia (19) conducted a study with Brazilian women with obesity-related BMI and found that participants showed deficits in assertive skills, particularly related to eating. The author suggests that women with excess weight may be concerned about weight-related discrimination. In line with this reasoning, it is assumed that in the present study, as participants had a eutrophic nutritional status, they were less concerned about this issue, despite expressing body image dissatisfaction.

In a study conducted by Bandeira et al. (62) with Brazilian university students, a positive correlation between assertiveness and self-esteem was identified. Individuals with higher assertiveness scores exhibited higher self-esteem compared to those with lower repertoires. In the present study, no statistically significant correlations were found between these variables. These differences in results may be related to methodological differences between the studies. Future research could further explore the interaction between assertiveness and self-esteem while controlling for variables that may account for the discrepant findings.

It should be noted that the results obtained and the resulting interpretations are limited by the characteristics of the study design, considering that data collection was based exclusively on participant self-report, and the cross-sectional nature of the study does not allow for establishing temporal relationships or causality. Additionally, although BMI is the standard for classifying nutritional status, it does not consider an individual's body composition, which may affect body self-perception. Future research using longitudinal designs or variable manipulation could enhance understanding of the mediators of body image (dis)satisfaction, self-criticism, self-esteem, and assertiveness in women with eutrophic nutritional status.

5. Conclusion

The findings of this study contribute to the literature regarding the occurrence of body image dissatisfaction. The majority of participants reported body image dissatisfaction, even though they were eutrophic. Those with greater dissatisfaction exhibited behaviors indicative of higher self-criticism. Conversely, participants with greater body image satisfaction reported higher self-esteem. The fact that women were dissatisfied with their body image despite having a nutritional status within the recommended range suggests the influence of socially propagated beauty ideals on the construction of self-image. Together, these findings highlight the importance of investigating women's health and identifying behaviors that may become dysfunctional, with the aim of preventing complications such as body image disorders.

Declarations

Ethics approval and consent to participate

The study was approved by the Human Research Ethics Committee of the Federal University of Pará under protocol number 6.485.551, complying with legal requirements as per National Health Council Resolution 466 of December 12, 2012, and the Declaration of Helsinki. All participants signed a Free and Informed Consent Form (FICF).

Participants who agreed to volunteer were informed of the research objectives. Only those who read, agreed to, and signed the FICF were included. Data from the research were archived and used exclusively for scientific purposes. No invasive methods were employed for data collection; only questionnaires were administered. Potential risks were related to the disclosure of confidential data. To mitigate this, participants were identified by alphanumeric codes to ensure privacy. If the length of the questionnaires or the nature of the questions caused discomfort, such as fatigue, participants were free to temporarily or permanently withdraw from the study without detriment.

Although data collection occurred in public spaces, it was conducted as discreetly as possible to ensure participant comfort and privacy. Additionally, the questionnaire items were solely intended to gather information on the investigated variables, aiming to avoid embarrassment.

The data collection assessed participants' eating attitudes, self-esteem, self-criticism, and body image, as well as social, demographic, and economic aspects of the studied population. These results may serve as a reference for future research and contribute to providing information on women's health.

Consent for publication

Not applicable.

Availability of data and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Competing interests

All authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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Author contributions

TMM contributed to conceptualization, methodology, formal analysis, writing – original draft preparation, writing – review and editing, resources and project administration. LRS contributed to methodology and writing - original draft preparation; RAMS contributed to methodology and writing - original draft preparation; DLG contributed to conceptualization, methodology, formal analysis, writing – review and editing and project administration. CCPP contributed to conceptualization, methodology, formal analysis, writing – review and editing, funding acquisition and project administration.

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