Psychological Evaluation

Psychometric Evaluation of the Thin-Ideal Internalization Scale (TIIS) for Brazilian Young Women

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Abstract: Internalization is an important dimension of body image, which can be assessed using the Thin-Ideal Internalization Scale (TIIS). This study aims to carry out the cross-cultural adaptation and psychometric assessment of the TIIS for young Brazilian women. A total of 448 young university women participated in the research (M_{age} = 21.4 years; SD = 2.91). Exploratory and confirmatory factor analysis, association with body dissatisfaction (Body Shape Questionnaire-8) and eating attitudes (Eating Attitudes Test-26), and assessment of reliability (internal consistency and test-retest) were performed. The instrument had its semantic, idiomatic, cultural and conceptual equivalences ensured. The factor analysis demonstrated the presence of three factors and satisfactory adjustment indexes. In addition, the scale showed adequate values for convergent validity and reliability. The final version of the TIIS (18 items) obtained adequate psychometric properties for the evaluation of the body-ideal internalization among Brazilian young women. We suggest new studies to prove the factor structure for other populations.

Keywords: body image, internalization, psychometrics, test validity

Avaliação Psicométrica da *Thin-Ideal Internalization Scale* (TIIS) para Jovens Brasileiras

Resumo: A internalização é uma importante dimensão da imagem corporal, que pode ser avaliada através da *Thin-Ideal Internalization Scale* (TIIS). O presente estudo teve como objetivo realizar a adaptação transcultural e a avaliação psicométrica da TIIS para jovens mulheres brasileiras. Participaram 448 jovens universitárias (M_{idade} = 21.4 anos; DP = 2.91). Foram realizadas análise fatorial exploratória e confirmatória, associação com a insatisfação corporal (*Body Shape Questionnaire-8*) e atitudes alimentares (*Eating Attitudes Test-26*), e avaliação da confiabilidade (consistência interna e teste-reteste). O instrumento teve asseguradas suas equivalências semântica, idiomática, cultural e conceitual. A análise fatorial revelou presença de três fatores e índices de ajustamento satisfatórios. Além disso, a escala apresentou valores adequados para a validade convergente e confiabilidade. A versão final da TIIS (18 itens) apresentou adequadas qualidades psicométricas para a avaliação da internalização de padrões corporais ideais entre jovens brasileiras. Sugerem-se novos estudos que comprovem a estrutura fatorial para outras populações.

Palavras-chave: imagem corporal, internalização, psicometria, validade do teste

Evaluación Psicométrica de la *Thin-Ideal Internalization Scale* (TIIS) para Mujeres Jóvenes Brasileñas

Resumen: La internalización es una dimensión importante de la imagen corporal, que puede evaluarse utilizando la *Thin-Ideal Internalization Scale* (TIIS). El presente estudio tiene como objetivo realizar la adaptación transcultural y la evaluación psicométrica de la TIIS para mujeres jóvenes brasileñas. Participaron 448 jóvenes universitarias (M_{edad} = 21.4 años; DP = 2.91). Se realizaron análisis factorial exploratorio y confirmatorio, asociación con insatisfacción corporal (*Body Shape Questionnaire-8*) y actitudes alimentarias (*Eating Attitudes Test-26*), y evaluación de la confiabilidad (consistencia interna y prueba-reprueba). El instrumento tuvo aseguradas sus equivalencias semánticas, idiomáticas, culturales y conceptuales. El análisis factorial reveló la presencia de tres factores e índices de ajuste satisfactorios. Además, la escala mostró valores adecuados de validez convergente y confiabilidad. La versión final de la TIIS (18 ítems) obtuvo propiedades psicométricas adecuadas para la evaluación de la internalización del cuerpo ideal entre las jóvenes brasileñas. Se sugieren nuevos estudios para probar la estructura factorial a otras poblaciones.

Palabras clave: imagen corporal, internalización, psicometría, validación de test

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Body image involves the representation individuals have about their own body as well as feelings related to these characteristics and the parts that constitute it. Among its dimensions, the internalization of beauty ideals has been highlighted as an important predictor of body dissatisfaction and disordered eating, and refers to how much the individual accepts and expresses the desire to achieve socially propagated ideals of physical appearance, generating thoughts and behaviors that aim to meet these ideals that, in most cases, are unattainable (Schaefer, Burke, & Thompson, 2019). This construct plays a central

role in sociocultural models on the etiology and maintenance of eating disorders (EDs), being one of the main aspects addressed in preventive interventions with the purpose of reducing risk as well as assisting in the treatment of EDs (Stice, Rohde, Shaw, & Gau, 2020).

Among the instruments available to assess internalization, the Ideal Body Stereotype Scale (IBSS) can be mentioned, proposed by Stice, Ziemba, Margolis and Flick (1996), which assesses internalization of the thinness ideal. Recently, the authors of the scale proposed a new version, called the Thin-ideal Internalization Scale (TIIS), with 20 items, seeking to bring the questions closer to the contemporary beauty standard (Stice et al., 2017). These two versions (IBSS and TIIS) have been widely used in the evaluation of preventive programs for EDs, particularly *The Body Project* (Stice et al., 2020), being translated into many languages and used in different cultural contexts such as with adolescents from the United Kingdom (Halliwell & Diedrichs, 2014), Polish women (Czepczor-Bernat, Kościcka, Gebauer, & Brytek-Matera, 2017), Chinese women (Luo, Jackson, Stice, & Chen, 2020), and American women of Spanish and Asian descent (Rodriguez, Marchand, Ng, & Stice, 2008). It is worth mentioning that most studies that assess the effectiveness of *The Body Project* program use one of the versions of this scale to assess the internalization of appearance ideals (Stice, Marti, Spoor, Presnell, & Shaw, 2008), and the TIIS has been used in the most recent studies (Stice et al., 2017).

Despite being a widely used scale (Diedrichs, 2017), information about psychometric qualities of the IBSS/TIIS is limited, not including, for example, the analysis of its factor structure. The most recent version (TIIS) showed adequate internal consistency ($\alpha = .75$; Stice et al., 2017). In addition, the authors point out that the original scale (IBSS), with which the TIIS shares most items, proved to be stable in the test-retest with an interval of two weeks ($r = .80$) in addition to predictive validity for the development of bulimia symptoms and sensitivity to detect the effects of *The Body Project* program (Stice et al., 2008, 2017).

Considering the relevance and wide use of TIIS, the fact that there are no more robust data on its psychometric qualities, including its dimensional structure, is deemed an important limitation. In particular, it is worth providing adequate instruments for the assessment of internalization, given its importance in the etiology of EDs as well as its role in preventive interventions and in the treatment of these pathologies. Within the Brazilian context, it is worth highlighting that *The Body Project* program, a preventive intervention that uses this scale to assess one of its main outcomes, has already been adapted for the Brazilian population of young women (Hudson, Amaral, Stice, & Ferreira, 2021), further justifying the availability of TIIS for this population. Hence, the present study aimed to carry out the cross-cultural adaptation and psychometric assessment of the Thin-Ideal Internalization Scale (TIIS) for Brazilian young women.

Method

The present study is described in two stages. The first concerns the cross-cultural adaptation of TIIS, whose adopted procedures followed the recommendations of Beaton, Bombardier, Guillemin and Ferraz (2000). Subsequently, a psychometric evaluation of the scale (factorial structure, convergent validity, and reliability) was carried out, according to the procedures recommended by Swami and Barron (2019).

The procedures adopted for the cross-cultural adaptation of TIIS are shown in Figure 1. After obtaining authorization from the author of the original scale, who shared the most up-to-date and expanded version of the scale, consisting of 20 items, its translation (from English into Brazilian Portuguese) was performed by two independent translators, fluent in English. Then, a synthesis of the two translations was performed, which was back-translated (from Brazilian Portuguese into English) by two native English-speaking translators.
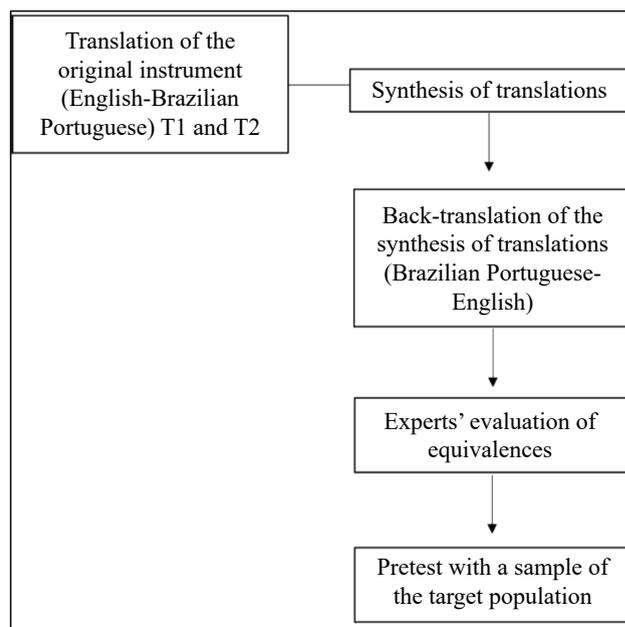

Figure 1. Steps of the cross-cultural adaptation of TIIS.

The produced materials (translations, synthesis of translations, and back-translations) were forwarded to nine experts in the field of body image, all fluent in English, to analyze the semantic, idiomatic, cultural, and conceptual equivalences (Swami & Barron, 2019) of each topic of the instrument, including the title, instructions, items, and answer options, ranging from -1 (inadequate) to 1 (extremely adequate). The suggestions given by the experts were carefully analyzed and the suggested changes were made, resulting in the TIIS version that was submitted to pretest. In the pretest, the scale was applied to 31 women from the target population, who assessed the verbal comprehension of the instructions and of each of the items on the scale. To do so, the participants rated the item from 0 (I did not understand anything) to 5 (I understood everything and I

have no doubts). Items with average scores concerning verbal comprehension above three (3) were considered adequate, and scores four (4) and five (5) were considered excellent (Alexandre & Coluci, 2011).

Participants

Young university students, aged between 18 and 30 years, students from three higher education institutions in the state of Minas Gerais, Brazil, who signed an Informed Consent Form, were included in the study. Questionnaires from women who reported a diagnosed eating or mental disorder and/or incomplete questionnaires were excluded.

A total of 485 university students completed the questionnaires. Of these, 16 were excluded for reporting a previous diagnosis of eating or mental disorders, and another 21 were excluded for not corresponding to the age group established for this research. Thus, the final sample consisted of 448 young university students (M_{age} = 21.4 years, SD = 2.91; M_{BMI} = 22.38 kg/m^2, SD = 3.46), randomly divided into Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). The subsamples used for EFA and CFA showed no differences in relation to sociodemographic variables ($p > .05$)

Instruments

Thin-Ideal Internalization Scale (TIIS). The TIIS version generated after the pretest was used at this stage of the study. The scale consists of 20 items, with response options ranging from one (strongly disagree) to five (strongly agree). The total score is calculated by the sum of the responses to the items, divided by the number of items, with higher values indicating greater internalization of the ideals of physical appearance.

Sociocultural Attitudes Towards Appearance Questionnaire-4 - SATAQ-4 (Schaefer et al., 2015). The SATAQ-4 assesses the internalization of the lean/low-fat body ideal and the muscular and athletic ideal and pressure from family, peers, and the media. This questionnaire contains 22 items, answered on a Likert scale, ranging from one (totally disagree) to five (totally agree). The score is calculated by adding up the answers, ranging from 22 to 110. The higher the score, the greater the sociocultural influence. The used version was adapted and validated by Barra, Silva, Marôco and Campos (2019), who verified adequate validity (χ^2/df = 8.39; CFI = .98; TLI = .98; RMSEA = .08) and reliability (Cronbach's alpha = .84-.95) in a sample of Brazilian university students. In this research, in addition to having verified the association between TIIS and SATAQ-4 altogether, the correlation of the scale with the items referring to internalization was also verified (items 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10).

Body Shape Questionnaire-8 - BSQ-8 (Evans & Dolan, 1993). The BSQ-8 assesses dissatisfaction with body shape and size. The version consisting of eight items was used, answered on a Likert scale ranging from one (never) to six (always), which represent the factor "self-perception of body shape." The final score corresponds to the sum of

the answers and ranges from 8 to 46, with higher values indicating greater body dissatisfaction. This instrument was adapted for Brazilian university students by Silva, Dias, Marôco and Campos (2014), presenting adequate validity indices (AIC = 84.07, BIC = 157.75, BCC = 84.46) and invariance between independent samples ($\Delta\chi2\lambda(7)$ = 5.06, $\Delta\chi2Cov(8)$ = 5.11, $\Delta\chi2Res(16)$ = 19.30).

Eating Attitudes Test-26 - EAT-26 (Garner, Olmsted, Bohr, & Garfinkel, 1982). The EAT-26 consists of 26 items and six response options. Points are scored for each answer option (3: always; 2: usually; 1: often; 0: rarely, almost never, and never). The total score is calculated by the sum of points, with higher values indicating more disturbed eating attitudes. Scores above 21 are considered indicative of risk for EDs. The version used in this study had its psychometric qualities confirmed for Brazilian university students by Nunes, Camey, Olinto and Mari (2005), who found sensitivity values of 40% and specificity of 84% over a period of four years, in addition to internal consistency of .75

Sociodemographic questionnaire. Participants informed their age, weight, and height, in addition to a previous diagnosis of some type of eating or mental disorder, in such a way to assess the inclusion criteria.

Procedures

Data collection. After obtaining authorization from the institutions located in the cities of Barbacena, Juiz de Fora, and Governador Valadares, in the state of Minas Gerais, the questionnaires were applied in groups, in classrooms. There was no time limit for filling out the questionnaires and the average time spent by the participants was 15 minutes. For the analysis of the TIIS test-retest, 30 young women were selected, by convenience sampling, for the reapplication of the instrument, with an interval of two weeks between applications (Thompson, 2004).

Data analysis. Data presented normal distribution (asymmetry < 3; kurtosis < 10), indicated for the use of parametric techniques for data analysis. Descriptive analyses, assessment of convergent validity and internal consistency were performed using the entire sample. For EFA, the significant Bartlett's test of sphericity ($p < .05$) and Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) greater than 0.80 were used as satisfactory criteria for factoring the data (Hair, Black, Babin, Anderson, & Tatham, 2009). For data extraction, the Principal Axis Factoring method and the direct oblimin rotation were adopted, as the factors are expected to correlate with each other. To identify the number of factors to be retained, the method of parallel analysis was used. Items that had a factor load greater than or equal to .40 were considered to belong to a specific factor (Hair et al.).

For CFA, considering the ordinal characteristic of data derived from the Likert scale, the diagonally weighted least squares technique was used as an estimation method. To assess the goodness of fit of the model, the following fit indices were considered: Chi-Square Test (χ^2/df), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Incremental Fit

Index (IFI), Parsimony Normed Fit Index (PNFI), and Root Mean Square Error of Approximation (RMSEA). Model respecifications were adopted for a better adjustment of the data by modification indices, aiming to reach a better factor solution (Hair et al., 2009).

The assessment of convergent validity was performed using Pearson's correlation (*r*) between the TIIS scores and the internalization of the ideals of appearance and sociocultural influence (SATAQ-4 and subscale), dissatisfaction with weight and body shape (BSQ), and eating attitudes (EAT-26). Coefficients were classified as weak (0 to .3), moderate (between .4 and .6), or strong (between .7 and .9; Hair et al., 2009), with 95% significance ($p < .05$). For these correlations, the hypothesis is that there are positive correlations, of moderate to strong magnitudes, between the TIIS and SATAQ-4, BSQ, and EAT-26 scores.

As the responses to the TIIS are given on a Likert scale of points (ordinal data), the McDonald's omega (ω) was used to assess the reliability of both the factors and the instrument altogether, with values above .80 considered as good and values above .90 considered as excellent (Swami & Barron, 2019). Conversely, in the test-retest, the intraclass correlation coefficient (ICC) between the measurements obtained at the two moments was verified, as well as the evaluation of the existence of differences between the mean scores obtained by the participants at the two moments, by the paired t-test. For descriptive analysis of data and inferential statistics, the SPSS v.21.0 software was used. For EFA and CFA, the JASP v.13.0 software was used.

Ethical Considerations.

The project was approved by the Human Research Ethics Committee of Universidade Federal de Juiz de Fora (CAAE: 02514616.3.0000.5147) and its development is in accordance with the standards of Ordinance 466/12 of the National Health Council (Brazilian Ministry of Health). Participants were verbally clarified about any doubts concerning the content of the scale and/or the research procedures. The researchers responsible for data collection were attentive to any signs of discomfort and highlighted that participants could discontinue participation at any time. No emotional discomfort was noticed among the study participants while answering the questionnaires.

Results

Cross-cultural adaptation of the IBSS-R

The instrument was considered easy to translate and to understand, showing more similarities than divergences in translations and back-translations. Experts suggested some semantic adjustments: in the title, it was decided to keep the acronym of the original instrument (TIIS) to facilitate the recognition of the scale; in the instructions, the word "*marque*" (Portuguese verb for "to mark") was chosen,

allowing the most appropriate answer to be circled, underlined or marked with an X; the answer option "Neutral" was replaced with "I neither agree nor disagree"; in items 4, 8, 9, and 14, the word "*definido/a/s*" (Portuguese word for "lean") was added together with the word "*torneado/a/s*" (Portuguese word for "well-toned"); in item 6, the word "curvy" was replaced with "with curves"; in items 10 and 13, the words "*chapada*" (Portuguese adjective for having a "flat stomach") and "*saboneteira*" (Portuguese word for "collar bones"), respectively, were included; in item 15, the experts indicated the maintenance of the expression "slender shoulders", instead of "thin shoulders"; in item 18, the word "pronounced" was replaced with "prominent". Consensus among experts was observed, and most items on the scale were considered adequate or extremely adequate (scores 0 and 1, respectively). In the pretest, the participants answered how much they understood each item, and no changes were suggested. It was verified that the average score was greater than 4.5 points for all items, indicating that the scale showed excellent verbal comprehension, after the process of cross-cultural adaptation.

Psychometric Assessment of TIIS

The Bartlett's test of sphericity was significant ($X^2 = 11525.621$, $df = 190$, $p < .001$) and the Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = 0.93$) indicated that the TIIS items were adequate for EFA. The scale presented a factor structure composed of three factors, which explained 52.7% of the variance. The first factor, "Internalization of facial features that highlight thinness," included seven items that evidence thinness and parts of the face (items 11, 13, 15, 16, 17, 18, and 20). The second, "Internalization of the ideal body considered sexy and attractive," comprised seven items that refer to sensuality, that is, aspects that reinforce a sexy and attractive body (items 4, 6, 9, 10, 12, 14, and 19). The third factor, "Internalization of the general attractiveness ideal," gathered four items that refer to characteristics related to general attractiveness (1, 2, 3, and 7). Item 4 ("Women with toned [lean] bodies are more attractive") presented a factor load greater than .40 in factors 2 and 3. It was decided not to exclude this item, keeping it as factor 2 in the following analyses, considering that all other items that refer to toned (lean) body parts were grouped into this factor. Items 5 and 8 were excluded for not presenting significant loads in any of the factors. As expected, the factors correlated with each other ($r > .62$). The TIIS factor structure, containing the factor loads of each item, is shown in Table 1.

For CFA, the three factors derived from EFA were considered as latent variables and, as observed variables, the remaining 18 items of TIIS were considered. The obtained adjustment values were considered satisfactory and can be verified in Table 2.

The total TIIS score showed a significant correlation, both with the total score of the SATAQ-4, and with the internalization subscale, in addition to association with the scores of body dissatisfaction (BSQ-8) and eating attitudes (EAT-26), as demonstrated in Table 3.

Table 1
TIIS factor loading matrix (n = 230)

Item (original language and translated into Brazilian Portuguese)	Factor1	Factor 2	Factor3
1. Slender women are more attractive *1. Mulheres esbeltas são mais atraentes*			.775
2. Women who are in shape are more attractive *2. Mulheres que estão em forma são mais atraentes*			.712
3. Tall women are more attractive *3. Mulheres altas são mais atraentes*			.520
4. Women with toned (lean) bodies are more attractive *4. Mulheres com corpos torneados (definidos) são mais atraentes*		**.480**	.490
5. Women with long legs are more attractive *5. Mulheres com pernas longas são mais atraentes*			
6. Curvy women are more attractive *6. Mulheres com curvas são mais atraentes*		.537	
7. Slim women are more attractive *7. Mulheres magras são mais atraentes*			.508
8. Women with toned arms are more attractive *8. Mulheres com braços torneados (definidos) são mais atraentes*			
9. Women with toned legs are more attractive *9. Mulheres com pernas torneadas (definidas) são mais atraentes*		.687	
10. Women with a flat stomach are more attractive *10. Mulheres com barriga reta (chapada) são mais atraentes*		.547	
11. Women with full lips are more attractive *11. Mulheres com lábios carnudos são mais atraentes*	.448		
12. Women with white teeth are more attractive *12. Mulheres com dentes brancos são mais atraentes*		.438	
13. Women who have visible collar bones are more attractive *13. Mulheres que têm ossos da clavícula (saboneteira) visíveis são mais atraentes*	.610		
14. Women with a full butt are more attractive *14. Mulheres com o bumbum torneado (definido) são mais atraentes*		.864	
15. Women with slender shoulders are more attractive *15. Mulheres com ombros finos são mais atraentes*	.663		
16. Women with large eyes are more attractive *16. Mulheres com olhos grandes são mais atraentes*	.718		
17. Women with a small nose are more attractive *17. Mulheres com nariz pequeno são mais atraentes*	.562		
18. Women with pronounced cheekbones are more attractive *18. Mulheres com as maçãs do rosto proeminentes são mais atraentes*	.657		
19. Women with large breasts are more attractive *19. Mulheres com seios grandes são mais atraentes*		.512	
20. Women with thighs that don't touch are more attractive *20. Mulheres que possuem espaço entre as coxas são mais atraentes*	.547		

Note. Factor 1 = Internalization of facial features that highlight thinness; Factor 2 = Internalization of the ideal body considered sexy and attractive; Factor 3 = Internalization of the general attractiveness ideal.

Table 2
Adjustment indices for the TIIS factor structure (n = 218)

Adjustment index	Obtained value	Reference value
χ^2/df	.612	Acceptable up to 3.0
CFI	1,000	> 0.9
TLI	1,009	> 0.9
IFI	1,008	> 0.9
PNFI	0.852	> 0.6
RMSEA	0.000	Admitted up to 0.1

Table 3
TIIS Convergent Validity (n = 448)

Instrument	Spearman's Correlation Coefficient
TIIS x SATAQ-4	0.388*
TIIS x Internalization (SATAQ-4)	0.471*
TIIS x BSQ-8	0.285*
TIIS x EAT-26	0.301*

Note. $*p < .001$.

The internal consistency of the scale was .94, deemed excellent, and the values found for each of the factors were considered good, with factors 1 and 3 presenting $\omega = .88$ and factor 2, $\omega = .89$. The test-retest also presented satisfactory values, with $ICC = .951$ ($p < .001$) and no difference between the scores in the two moments ($p = .106$).

Discussion

This study described the process of cross-cultural adaptation and psychometric assessment of the Thin-Ideal Internalization Scale for Brazilian university students. This scale assesses the internalization of socially established ideals of physical appearance. Considering that internalization has a central role in sociocultural theory and is used as an agent of change in preventive interventions for EDs, especially those based on cognitive dissonance (Stice et al., 2020), TIIS is a useful tool for researchers in the evaluation of programs for the prevention and treatment of EDs and other disorders related to body image (Stice et al., 2017).

The instrument was considered easy to translate and understand, with meanings being easily identified and having equivalent terms in the Portuguese language. The experts' analysis indicated some unusual terms for the Brazilian reality and suggested their replacement. According to the recommendations of Swami and Barron (2019), the words should correspond as much as possible to those of the original instrument, but they can be altered to guarantee the idiomatic equivalence of the instrument. Thus, the changes made aimed at maintaining the idiomatic and cultural equivalence of the TIIS items, without modifying the concept and meaning of the terms provided for in the original instrument. Furthermore, the instructions, response options, and all items presented satisfactory values of verbal comprehension (means greater than 4.5), indicating that the new instrument was easily understood by the target population (Alexandre & Colucci, 2011).

After the cross-cultural adaptation step, the final version of the TIIS, consisting of 20 items, was submitted to EFA. As the analysis of the factor structure was not performed in the development of the original instrument (Stice et al., 1996), there is no comparison parameter for these results. Likewise, we found no other study that verified the factor structure of TIIS. Thus, the following paragraphs are intended to present and discuss the dimensions pointed out by the EFA in this study, justifying them, based on theory, according to the content of the items.

The EFA results demonstrated the presence of three factors, which explained 52.7% of the variance of the scale. Overall, the total explained variance value greater than 40% is considered satisfactory (Hair et al., 2009). Regarding the distribution of items, the first factor refers to items that show thinness and parts of the face, being called "Internalization of facial features that highlight thinness." Fardouly and Rapee (2019) verified that women who were more dissatisfied with their facial appearance were more motivated to change other aspects of physical appearance, such as hair and skin, reinforcing the association between dissatisfaction with the face and general appearance. In addition, it is estimated that up to 70% of women want to be thinner and to have a smaller body size (Ponte, Fonseca, Carvalhal, & Fonseca, 2019), illustrating the impact of the search for thinness on body image. Indeed, it can be stated that the internalization of the ideal of thinness is promoted by the mass media and represents a risk factor for the development of EDs (Stice et al., 2020).

The second factor, in turn, refers to sensuality and was called "Internalization of the ideal body considered sexy and attractive." According to Betz and Ramsey (2017), there is a diversity of body ideals, which include thin, curved, and athletic bodies, which reflect different aspects of attractiveness and have the potential to harm body image. These characteristics are covered by the items in this factor. Item 10, "Women with a flat stomach are more attractive," was also grouped into factor 2, this result being justified by the fact that, although the appearance of the belly is part of the characteristics related to thinness, it is directly related to the attractive body standard among women. Moreover, the grouping of item 12, "Women with white teeth are more attractive," in this factor is justified, as facial beauty and attractiveness are closely related (Fardouly & Rapee, 2019). Item 4 had a significant and similar factor load (.48 and .49) in factors 2 and 3; however, as the item concerns the attractiveness of women with toned (lean) bodies, we decided to keep it in the second factor, as this characteristic is related to sensuality and also considering that all other items that concern toned (lean) body parts have been grouped in factor 2.

Conversely, the third factor refers to characteristics related to general attractiveness, such as "slender," "fit," "tall,"

and "thin" women, and it was called "Internalization of the general attractiveness ideal." On the ideals of attractiveness, Wood-Barcalow, Tylka and Judge (2021) highlight the change in the beauty standard over time, going from very thin bodies to bodies that reflect the athletic ideal (fit body) and with curves. The four items belonging to this factor highlight these characteristics more broadly, justifying their grouping.

In addition, according to EFA, items 5 and 8 did not present significant loads in any factor. Item 5, "Women with long legs are more attractive," which regards the length of the legs, is a characteristic that, alone, may not be an aspect desired by women. Perhaps women generally consider height more important than just the length of the legs. Item 8, "Women with toned arms are more attractive," concerns the upper limbs, a characteristic most sought after by men, and not very desirable among women (Wood-Barcalow et al., 2021). Hence, Brazilian young women may not have identified these aspects as related to the internalization of the ideal of beauty, a construct assessed by TIIS. Therefore, the two items were excluded from subsequent analyses, and the version evaluated in the CFA consisted of the remaining 18 items.

The CFA results showed satisfactory values, considering that all the adjustment indices reached the reference values, corroborating the relationships between the items and the factors previously investigated in the EFA (Hair et al., 2009). We can state, therefore, that there was a good adjustment of the structure composed of three factors for the studied sample. As the CFA tests how well the real data fit a theoretical model, the results jointly obtained from EFA and CFA prove the construct validity of the TIIS for Brazilian university students. It is noteworthy that Swami and Barron (2019) attest the importance of considering both analyses (EFA and CFA) in the assessment of instruments, taking into account samples that are independent and proportional to the number of items on the scale. This was performed in the present study.

The convergent validity of TIIS was also confirmed, as there was a significant correlation with both the SATAQ-4 and its internalization subscale as well as an association with scores of body dissatisfaction (BSQ-8) and eating attitudes (EAT-26). The internalization of the beauty ideal has been associated with aspects such as the adoption of risky diets and eating attitudes as well as body dissatisfaction (Schaefer et al., 2019). It is worth highlighting that the study for creating the original version of the IBSS-R, the scale from which the TIIS originated, also showed a significant correlation with the measure of body dissatisfaction ($r = .32$; $p < .001$; Stice et al., 1996).

The reliability assessment showed equally satisfactory results. There were no differences between the scores in the two test-retest applications, and a high ICC value was obtained. This assessment demonstrates that the measurement remained stable during the time interval evaluated (two weeks). In addition, the internal consistency of the scale was excellent ($\omega = .94$), higher than that found in the assessment of the original version of the scale among young American university students ($\alpha = .75$; Stice et al., 2017). In the present study, the internal consistency of each factor

was also separately evaluated, with omega values greater than .88, indicating good internal consistency.

This study had some limitations that should be highlighted. The first concerns the choice of institutions by convenience sampling to compose the sample. This can make it difficult to generalize the results, as data were collected in three cities in a single Brazilian state. However, despite this limitation, it is noteworthy that the number of participants required for the analyses of this research was reached. Moreover, it is observed that recent studies of cross-cultural adaptation of instruments have been carried out with samples from a single city (Barra et al., 2019). Another limitation was the collection of self-reported anthropometric data (body mass and height). It is possible that this information was under- or overestimated by the participants. However, due to its ease of obtainment, researchers usually resort to the use of self-reported measures to provide data on nutritional status in investigations with a large sample size, as well as in psychometric evaluation studies, which is a recurrent practice in studies of the area (Barra et al., 2019).

The process of cross-cultural adaptation of instruments is extremely important, in such a way that these instruments can be used in other cultures, with characteristics that differ from the place where they were previously developed. Furthermore, the relevance of this process is highlighted, insofar as cross-culturally adapted instruments enable an important analysis of the comparison of phenomena in different cultures. Nevertheless, in the case of TIIS, it is noteworthy that comparisons with other studies must be made with caution. First, because the number of items in the Brazilian version is different from the original version. Nevertheless, as the scale evaluation is made by the average of the answers given to each item, this limitation is minimized. Second, this is the first study to present the assessment of the dimensionality of the TIIS, and it is not possible to compare it to other versions of the scale. Conversely, this can be considered one of the main contributions of the present study, which proposes a factor structure for this scale, which in turn is widely used in the field of body image and EDs (Diedrichs, 2017).

All in all, the final version of the TIIS, consisting of 18 items, obtained adequate psychometric qualities and, therefore, we deem that it can be used to collect accurate information for the development of prevention and treatment programs for EDs and other disorders related to body image, based on the assessment of the internalization of ideal body standards. Future studies should evaluate the factor structure obtained in this study in different samples to prove its dimensionality.

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