

Fat phobia scale-short form and beliefs about obese persons scale: cross-cultural adaptation to Brazilian Portuguese

Gabriela Cristina Arces de Souza¹  · Maria Fernanda Laus^{2,3}  · Wanderson Roberto da Silva⁴  · Camila Cremonesi Japur¹ 

Received: 4 September 2023 / Accepted: 28 November 2023

Published online: 22 January 2024

© The Author(s) 2023 

Abstract

The Fat Phobia Scale-Short Form (FPS) and the Beliefs About Obese Persons Scale (BAOP) are scales developed to investigate fatphobia and beliefs about obese persons, respectively. The aim of the study was to carry out the cross-cultural adaptation of these scales to Brazilian Portuguese. The methodology was carried out in 5 stages: 1. translation, 2. synthesis of translations, 3. evaluation by the expert committee of semantic, idiomatic, experiential and conceptual equivalences, 4. discussion with the target population (health professionals and other areas), and 5. back-translation. The results of the judgment of equivalences evaluated by the specialists were presented in absolute and relative frequency, and the agreement of the results between the specialists was verified by the Kappa de Fleiss Coefficient (κ). The results showed excellent agreement for all equivalences in both scales, except for BAOP semantics, which was good ($\kappa = 0.67$). Suggestions from the target population (Brazilian adults) were considered to adapt the final version of the two scales, which were back-translated and approved by the original authors. It is concluded that FPS and BAOP are duly adapted to Brazilian Portuguese and ready to be tested for their psychometric qualities.

Keywords Obesity · Weight prejudice · Weight bias · Questionnaires

1 Introduction

Weight stigma is defined as the social devaluation of individuals due to their excess body weight, which can lead to negative attitudes, stereotypes, prejudice and discrimination [1]. Repercussions of weight stigma are present in different societal contexts, including family environments, schools, transportation, public and private spaces and even virtual environments [2].

Weight stigma can impact various aspects of the lives of individuals who are overweight, as it isolates them from engaging in healthy behaviors. This impact is particularly noticeable regarding well-being, leading to consequences

✉ Gabriela Cristina Arces de Souza, gabriela.cristina.souza@usp.br; Maria Fernanda Laus, ferlaus@gmail.com; Wanderson Roberto da Silva, wandersonroberto22@gmail.com; Camila Cremonesi Japur, camilajapur@usp.br | ¹Núcleos de Estudos, Pesquisa e Extensão em Obesidade e Comportamento Alimentar, Programa de Pós Graduação em Nutrição e Metabolismo, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brasil. ²Curso de Nutrição, Universidade de Ribeirão Preto, Campus de Ribeirão Preto, Ribeirão Preto, SP, Brasil. ³Programa de Pós Graduação em Psicobiologia, Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brasil. ⁴Programa de Pós Graduação em Alimentos, Nutrição e Engenharia de Alimentos, Faculdade de Ciências Farmacêuticas, Universidade Estadual Paulista, Campus Araraquara, Araraquara, SP, Brasil.



such as a tendency towards a sedentary lifestyle, challenges in losing weight, reduced functional ability, and increased physical discomfort [3].

Weight stigma manifests itself through discrimination, including reduced job opportunities, lower wages, social isolation, teasing, and humiliation. It also affects the ability to maintain relationships and reduces quality and stability in forming connections [4]. Finally, the psychological impact is evident through effects on health characterized by unhealthy eating habits, devaluation of physical appearance, decreased self-esteem, and heightened stress and anxiety [5].

The stress experienced by those who suffer from weight stigmatization and even the anxiety of anticipating such suffering can also have physiological consequences such as cardiovascular, lipid, and inflammatory metabolic dysregulations and increased cortisol levels. Thus, weight stigma is considered just as harmful to health as the complications that obesity itself can cause [6].

Weight stigma is a complex construct that interacts in a multilevel and bidirectional way with other constructs such as weight-based stereotypes (generalizations that individuals with obesity have negative characteristics only because of their weight), weight discrimination or explicit weight bias (prejudiced attitudes), internalized weight body image assessment, bias (self-blame and stigma of self-directed weight) and fatphobia (pathological fear of fat manifested by negative attitudes and stereotypes about people with obesity) [1, 7].

Currently, there are different scales in the international literature that measure constructs related to weight stigma, and they differ according to the specificity to be evaluated, including: weight stigma [8], internalized weight bias [9], attitudes [10], coping and/or rejection [11], measurement of concern about weight [12], weight stigma in the context of an Eating Disorder [13], fear of fat [14] and beliefs about weight [10]. It is worth mentioning that there are also scales that measure more than one construct related to weight stigma [15].

In Brazil, as far as we know, there are three culturally adapted scales to investigate aspects related to weight stigma: the Anti-Fat Attitudes Scale [16], which assesses negative attitudes towards individuals with obesity; the Obesity-Related Problems Scale [7], which measures the impacts of obesity on the psychosocial functioning of people with obesity; and the Internalized Weight Bias Scale, which aims to assess the internalization of weight stigma among the overweight or individuals with obesity [18].

In contexts where the native language is English, the Beliefs About Obese Persons Scale (BAOP) [11] is available for use. It was developed to investigate beliefs about people with obesity, configuring itself as a specific scale with potential contribution to studies on weight stigma. The BAOP consists of 8 items which assesses explicit beliefs about the causes of obesity. Each participant question indicates the extent of agreement or disagreement (+3–strongly agree to –3 strongly disagree) on a specific statement about the causes of obesity. Scores range from 0 to 48, and higher scores indicate stronger beliefs that obesity is not controllable. The scale has a unifactorial nature and when psychometrically tested, it presented satisfactory parameters of validity and reliability. Up to the present moment, the BAOP has been psychometrically adapted and assessed in Turkish [19] and Chinese [20] contexts.

Another scale available in English is the Fat Phobia Scale (FPS), also known as the F-Scale, which measures fatphobia understood as the pathological fear of fat manifested by stereotypes and discrimination towards people with obesity. The original scale, tested on American health professionals, has 6 factors, and within each factor there are sub-items with semantic adjectives that represent common beliefs related to people with obesity [21]. The reduced version of the FPS contains 14 pairs of antonymous adjectives and participants indicate their opinion about people with obesity by marking an (X) on the line between the pairs, in the place closest to the adjective that he believes best describes his feelings towards people with obesity. At the end, the score is added up and must be divided by 14. The score range is 1–5 and higher scores indicate greater fatphobia. [21]. This version has already been culturally adapted to German [22], where it showed excellent reliability, and to Hindi, where it showed good psychometric properties and was considered suitable for use in an Indian context [23].

Studies indicate that, in Brazil, weight stigma directly influences the exclusion of people who live with overweight and obesity from health care. That is because the therapeutic target of health professionals is often based on the individual's weight, even if the health issue raised has no direct relationship with nutritional status. Moreover, healthcare professionals notably present negative attitudes and prejudice toward individuals with obesity [24]. In addition, a recent study carried out by Macedo and colleagues (2023) showed that weight stigma significantly increases the likelihood of engaging in binge eating, food restriction, and purging among overweight individuals [25]. Therefore, adapting scales designed to explore facets associated with weight stigma within the Brazilian population can enhance our comprehension of how these constructs function in our society. Given the limited availability of scales assessing fundamental constructs linked to weight stigma in Brazil, the cross-cultural adaptation of the BAOP and FPS becomes pivotal for research and practical

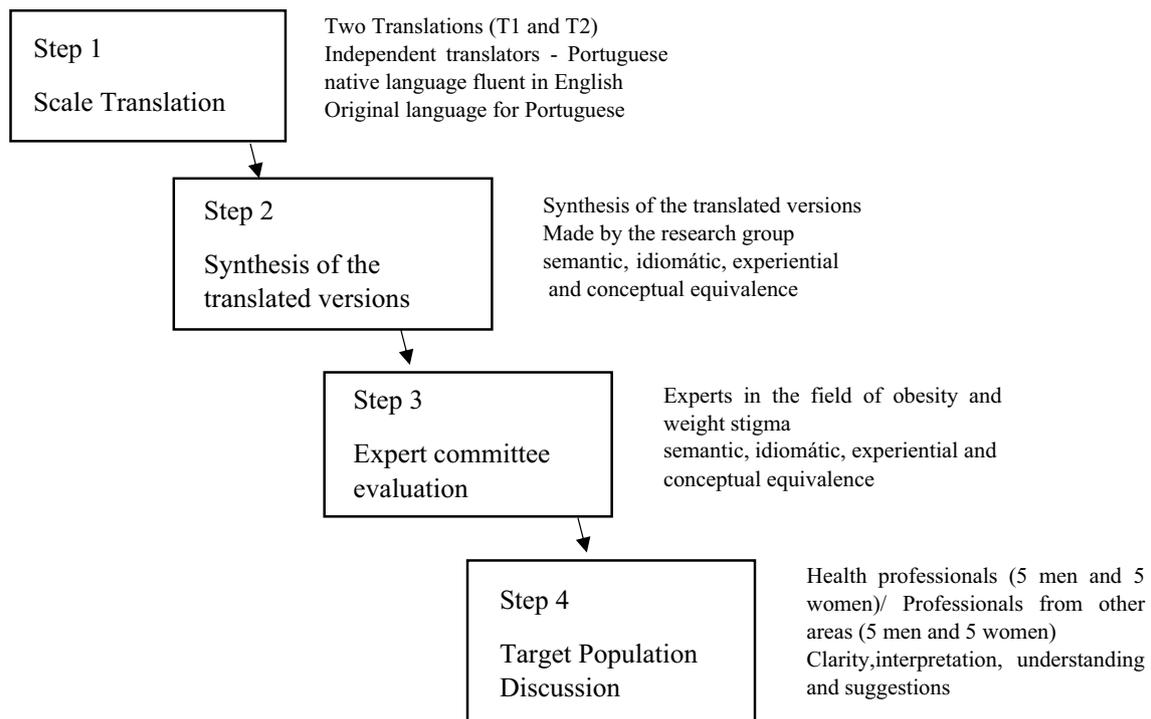


Fig. 1 Steps in the cross-cultural adaptation of BAOP and FPS into Brazilian Portuguese, [26]. Source: Adapted from Borsa et al. 26

use, aiming to evaluate, comprehend, and potentially intervene in the treatment of individuals with obesity in Brazil. Accordingly, this study aimed to carry out the transcultural adaptation of these scales into Brazilian Portuguese.

2 Methods

2.1 Study design and ethics statement

This is a methodological study with a quantitative and qualitative approach. It was carried out from August 2021 to September 2022 and was approved by the Research Ethics Committee of the Hospital das Clínicas da Faculdade de Medicina de Ribeirão Preto—USP (43226821.6.0000.5440), in accordance with Resolution CNS466/12. Initially, the original authors of the BAOP and FPS were contacted via email to request authorization to adapt the scales to Brazilian Portuguese. Permission was granted.

2.2 Cross-cultural adaptation of scales to Brazilian Portuguese

The adaptation process was carried out following the framework of Borsa et al. [26]. Figure 1 describes the steps covered in the methodology. In step 1, the scales were translated from English into Brazilian Portuguese by 2 independent translators (T1 and T2) whose native language is Brazilian Portuguese and who are fluent in English. Step 2 consisted of synthesizing the translated versions carried out by the research group that conducted the study, which evaluated the semantic, idiomatic, experiential and conceptual, equivalences as well as contextual differences to attain a single version of each scale.

Step 3 consisted of evaluating the synthesis of each instrument's translation by two committees of Brazilian experts. One was composed of four specialists who judged the translated version of the BAOP and the other of three other specialists who analyzed the FPS. All specialists were nutritionists or psychologists with a degree (master's and/or doctorate) in the areas of psychology, nutrition or psychobiology, and their line of research was obesity and/or weight stigma. The experts were contacted via email, where they received the Portuguese version of the scale and an evaluation form

prepared by the researchers. In this form, each scale item was evaluated separately in regards to semantic (i.e., word meaning in relation to vocabulary and grammar), idiomatic (i.e., meaning of expressions), cultural (i.e., suitability of context in the culture of the study's target audience) and conceptual (i.e., objective of maintaining the concept of the original instrument) equivalences. Each scale's title, completion instructions and items were judged on all these criteria using a score of -1 (inadequate, in need of reformulation), 0 (appropriate) or +1 (extremely adequate). The agreement between equivalence judgments among experts was assessed using the Fleiss Kappa Coefficient (κ). The reference values used were between 0.40 and 0.60: fair agreement; between 0.61 and 0.75: good agreement; and above 0.75: excellent agreement [27]. The experts participated voluntarily and signed an informed consent form. Their assessments were then compiled and an adjusted version was presented for testing and discussion with the target population.

Step 4 consisted of discussing the instruments with the target population. In this stage, 20 people between the ages of 18 and 60 participated through a non-probabilistic sample using the snowball technique. They were divided into four groups of five people each, organized as follows: Group 1: male health professionals (2 physicians, 1 nurse, 1 physical educator, 1 nutritionist); Group 2: female health professionals (1 physician, 2 nurses, 1 psychologist, 1 physiotherapist); Group 3: male professionals from areas other than health (3 administrators, 1 production engineer, 1 lawyer); and Group 4: female professionals from areas other than health (1 lawyer, 1 engineer, 1 beauty professional, 2 teachers). Each group participated in an online meeting, held on Google Meet, on a previously scheduled day and time. The participants received a document containing the scales with the items, the response options, and completion instructions via email. The objective was to evaluate and discuss, in depth, each of the scale items. The researcher responsible for conducting the sessions guided the participants to read and respond to the instruments and then to report any difficulties encountered in the interpretation and understanding of the scales, in filling them out, in the response options, and in the items. The participants were encouraged to provide suggested changes to improve/facilitate understanding and interpretation. Subsequently, the terms and expressions suggested by the groups were adapted. The main difficulties and suggestions presented were discussed with the authors of the original scales and changes were made, originating the corrected versions of each scale. The target audience's participation was also voluntary, and all participants signed the informed consent form.

Step 5 of the adaptation consisted of back-translating the scales. Thus, the corrected versions, in Brazilian Portuguese, were translated back into English by two independent professional translators whose native language is English and who are fluent in Brazilian Portuguese. The translators were unaware of the original instrument. After the synthesis of the back-translated versions was carried out by the research group that conducted the study, the back-translations were forwarded to and approved by the authors of the original scales.

3 Results

3.1 Beliefs about obese persons scale

Translation The translated versions of the BAOP were quite similar, with some punctual grammatical differences. Only item 4 presented a divergence that could interfere with its interpretation and understanding. The original version of the

Table 1 Relative and absolute frequency of judgment of adequacy of semantic, idiomatic, cultural and conceptual equivalence among specialists (n = 4) for the Brazilian version of the Beliefs About Obese People Scale (BAOP)

Items	Semantic equivalence	Idiomatic equivalence	Cultural equivalence	Conceptual equivalence
Title/instructions	100% (n = 4)	100% (n = 4)	100% (n = 4)	75% (n = 3)
Item 1	100% (n = 4)	100% (n = 4)	100% (n = 4)	100% (n = 4)
Item 2	100% (n = 4)	75% (n = 3)	100% (n = 4)	100% (n = 4)
Item 3	100% (n = 4)	75% (n = 3)	50% (n = 2)	100% (n = 4)
Item 4	50% (n = 2)	50% (n = 2)	100% (n = 4)	100% (n = 4)
Item 5	50% (n = 2)	50% (n = 2)	100% (n = 4)	100% (n = 4)
Item 6	50% (n = 2)	50% (n = 2)	100% (n = 4)	100% (n = 4)
Item 7	100% (n = 4)	75% (n = 3)	100% (n = 4)	100% (n = 4)
Item 8	100% (n = 4)	75% (n = 3)	75% (n = 3)	100% (n = 4)

items classified as 0 and +1 by experts were considered adequate. Source: Authors, based on work data

item (“Most obese people cause their problem by not getting enough exercise”) was translated by one of the translators as “Muitas pessoas obesas são responsáveis por seus problemas por não fazerem exercícios físicos suficientes.” and by another translator as “Na maioria das pessoas obesas a causa deste problema é por não fazer exercício suficiente”. The synthesis of the translations, conducted by the research team, was sent to the expert committee.

Expert committee evaluation This was presented in relative and absolute frequency, considering the sum of responses 0 (adequate) and + 1 (extremely adequate) (Table 1). The term “obese” in the statement and in items 4, 5 and 6 was pointed out as a semantic and idiomatic inadequacy, and it was suggested to change it to “pessoa com obesidade”. Items 3 and 8 were identified as containing idiomatic and cultural inadequacies due to the term “usualmente”, which was considered to be used infrequently by the general population. The suggestion was to change it to “geralmente”. Another point raised by an expert concerns item 7, which was considered difficult to understand. This item was reversed and presented in the summary as “Obesity is rarely caused by lack of willpower”.

Fleiss Kappa coefficient Semantic equivalence had good agreement among experts ($\kappa = 0.67$) and idiomatic ($\kappa = 0.87$), cultural ($\kappa = 0.86$) and conceptual agreement ($\kappa = 0.83$) showed excellent values among the experts.

Assessment of the target population It was possible to observe that there was a difference in the notes made by the groups of health professionals and professionals from other areas. Furthermore, the group of male health professionals considered item 2 problematic due to the word “alteração” in the term “alteração biológica”. According to the groups, the word is out of context and refers to genetic issues only. There was a suggestion to replace the term “alteração” with “desordem”. On the other hand, the groups of professionals from other areas did not point out a problem with the term and even reinforced that the word “desordem”, suggested by the previous group, had a very strong negative connotation, thus compromising the answer. These issues pointed out by the groups were discussed with one of the scale’s original authors, and it was decided to maintain the reverse item and the expression “alteração biológica”. The term “obeso” was replaced by “pessoa com obesidade”.

Afterwards, the version was back-translated by two independent professionals, synthesized by the researchers of the present study into a single version and approved by one of the original authors without further changes. Table 2: describes the qualitative synthesis of the cross-cultural adaptation process of the BAOP into Brazilian Portuguese.

3.2 Fat phobia scale

Translation The translated versions of the FPS were also quite similar and showed differences in only 2 items. Item 4 (“Good self-control/Poor self-control”) was translated by one translator as (“Tem auto-controle/ Não tem auto-controle”) and by the other as (“Bom auto-controle/Pouco auto-controle”). Item 9 (“Self-indulgent/Self-sacrificing”) was translated as (“Auto-tolerante/Altruísta”) by one and as (“Egocêntrico/Altruísta”) by the other. The research group, after discussion, selected the translation based on its semantic proximity to Portuguese and opted to keep item 4 as (“Bom auto- controle/Pouco auto-controle”) and item 9 as (“Egocêntrico/Altruísta”).

Expert committee evaluation The assessment results of equivalence adequacy by the three specialists are presented in Table 3. The scale title was considered inappropriate by all specialists in semantic equivalence. The translation used the term “fobia à gordura” and the suggestion was to replace it with gordofobia. Item 1 was also a point of observation of two specialists regarding idiomatic and conceptual equivalence. In the translation syntheses, the original item (“Lazy/Industrious”) was presented as “Preguiçoso/Ativo”, but the term “Ativo” was considered an inappropriate antonym of “Lazy”. One expert suggested changing it to “Trabalhador” and the other to “Energético”. Item 6, on the other hand, was considered inadequate in all equivalences by at least 1 specialist, and the semantic equivalence was considered inadequate by all. The original term (“Having endurance/Having no endurance”) was translated as “Tem resistência/frágil”, and everyone considered that “frágil” is not an antonym of “tem resistência”, suggesting it be replaced with “não tem resistência” or “baixa resistência”. Similarly, item 9 was considered, by at least one expert, to have inadequacies in each equivalence. The term “altruísta” was considered by one expert as difficult to understand, as it is not a word widely used by Brazilians, and by the other two as inappropriate because it does not represent the antonym of “egocêntrico”. It was suggested to replace the terms “individualista” and “generoso”. Due to the difficulty in understanding and in reaching a consensus on the terms, the scale’s author was contacted to clarify their meanings.

Fleiss Kappa coefficient The agreement analysis results among the experts revealed that the semantic ($\kappa = 1.00$), idiomatic ($\kappa = 0.97$), cultural ($\kappa = 0.90$) and conceptual ($\kappa = 1.00$) equivalences were attested against the excellent agreement among the evaluators.

Table 2 Qualitative synthesis of the cross-cultural adaptation process of the Beliefs About Obese Persons Scale (BAOP) into Brazilian Portuguese

Items	Original Version	Synthesis of translations	Final version in Portuguese	Abstract of back-translations
	Beliefs About Obese Persons Scale	Escala de crenças sobre pessoas obesas	Escala de crenças sobre pessoas com obesidade	Scale of beliefs about people with obesity
1-	Obesity often occurs when eating is used as a form of compensation for lack of love or attention	A obesidade geralmente ocorre quando a comida é usada como uma forma de compensação para a falta de amor ou atenção	A obesidade geralmente ocorre quando a comida é usada como uma forma de compensação para a falta de amor ou atenção	Obesity usually happens when food is used as a type of compensation for the lack of love or attention
2-	In many cases, obesity is the result of a biological disorder	Em muitos casos, a obesidade é o resultado de uma desordem biológica	Em muitos casos, a obesidade é o resultado de uma alteração biológica	In many cases, obesity is the result of a biological change
3-	Obesity is usually caused by overeating	A obesidade é usualmente causada por comer demais	A obesidade é comumente causada por comer em excesso	Obesity is usually caused by overeating
4-	Most obese people cause their problem by not getting enough exercise	Na maioria das pessoas obesas a causa deste problema é por não fazer exercício suficiente	A maioria das pessoas com obesidade causa seu problema por não fazer exercício físico suficiente	Most people with obesity cause their own problem by not getting enough exercise
5-	Most obese people eat more than non-obese people	A maioria das pessoas obesas come mais do que as pessoas não obesas	A maioria das pessoas com obesidade come mais do que as pessoas sem obesidade	Most people with obesity eat more than non-obese people
6-	The majority of obese people have poor eating habits that lead to their obesity	A maioria das pessoas obesas tem hábitos alimentares inadequados que causam sua obesidade	A maioria das pessoas com obesidade tem hábitos alimentares inadequados que causam sua obesidade	Most people with obesity have poor eating habits that cause their obesity
7-	Obesity is rarely caused by a lack of willpower	A obesidade raramente é causada por uma falta de força de vontade	A obesidade raramente é causada por uma falta de força de vontade	Obesity is usually caused by a lack of willpower
8-	People can be addicted to food, just as others are addicted to drugs, and these people usually become obese	Pessoas podem ser viciadas em comida, assim como outras são viciadas em drogas e estas pessoas usualmente se tornam obesas	Pessoas podem ser viciadas em comida, assim como outras são viciadas em drogas e estas pessoas geralmente desenvolvem obesidade	People can be addicted to food just as others are addicted to drugs and these people often develop obesity

Source: Authors, based on work data

Table 3 Relative and absolute frequency of judgment of adequacy of semantic, idiomatic, cultural and conceptual equivalences among specialists (n = 3) for the Brazilian version of the Fat Phobia Scale (F-Scale)

Items	Semantic equivalence	Idiomatic equivalence	Cultural equivalence	Conceptual equivalence
Title/ Instructions	0% (n=0)	100% (n=3)	100% (n=3)	100% (n=3)
Item 1	100% (n=3)	66,6% (n=2)	100% (n=3)	66,6% (n=2)
Item 2	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 3	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 4	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 5	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 6	0% (n=0)	66,6% (n=2)	33,3% (n=1)	66,6% (n=2)
Item 7	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 8	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 9	33,3% (n=1)	66,6% (n=2)	66,6% (n=2)	33,3% (n=1)
Item 10	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 11	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 12	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 13	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)
Item 14	100% (n=3)	100% (n=3)	100% (n=3)	100% (n=3)

Items classified as 0 and + 1 by experts were considered adequate. Source: Authors, based on work data

Assessment of the target population At this stage, the groups of male health professionals agreed with the expert committee regarding item 6 “Tem resistência/Frágil” and suggested changing “frágil” to “Não tem resistência”. They also considered item 11 (“Fora de forma/Em forma”) confusing, indicating that this item’s meaning was not very evident and that it was necessary to further specify which shape the item referred to, physical conditioning or beauty standard. The suggestion for item 11 was “Corpo bonito/Corpo feio”. As expected, item 9 was raised as problematic by the 4 groups of the target population, who considered the terms difficult to understand and unusual in Brazilian Portuguese. After this note, the author’s explanation was brought to the groups and, based on it, the groups suggested the terms: “Glutão/Comedido”, “Come para viver/ Vive para comer”. These suggestions were taken to the author, who complemented the initial explanation by clarifying that it would not be just related to food. From this contact, the researchers got together and proposed the terms “Permissivo consigo mesmo/Rígido consigo mesmo”. The suggestions raised by the expert committee and the target population were discussed with one of the original scale’s authors. After all these steps, the version was then back-translated by two independent professionals, synthesized by the researchers into a single version and approved by the author without other changes. Table 4: describes the qualitative synthesis of the FPS’s transcultural adaptation process into Brazilian Portuguese.

4 Discussion

The process of a scale’s transcultural adaptation does not consist only of translating it as it is a process that includes complex and sequenced steps [28]. In this study, the translation, synthesis and back-translation stages were carried out rigorously, as provided for in the chosen framework [26], by independent translators, with their specificities respected at each stage so that the context was correctly adapted, aiming to achieve equivalence that enables the future comparability of results. It is important to emphasize that in this case, the fact that the BAOP and FPS address issues related to weight stigma, a complex construct and in growing evidence, the discussion of the terms by a committee of experts in the area and by the target population was also essential to ensure the contextualization of the contents.

Both scales showed excellent agreement (all equivalences in the FSP and idiomatic, cultural and conceptual equivalences in the BAOP) and good agreement in idiomatic equivalence in BAOP, which points to similarity in the judgment of the expert committee evaluators for the analyzed terms. The suggestions made from this analysis were essential in the adaptation process carried out. Borsa et al. [26] state that expert evaluation is one of the most important stages of the process. This is corroborated by other references that claim it to be an effective method in detecting possible

Table 4 Qualitative synthesis of the process of cross-cultural adaptation of the Fat Phobia Scale (FPS) into Brazilian Portuguese

Items	Original Version	Synthesis of translations	Final version in Portuguese	Summary of back-translations
	Title	Escala de fobia a gordura	Escala de Gordofobia	Fat Phobia Scale
1-	Fat Phobia Scale Lazy/Industrious	Preguiçoso/Ativo	Preguiçoso/Trabalhador	Lazy /Hard Working
2-	No will power/Has will power	Não tem força de vontade/Tem força de vontade	Não tem força de vontade/Tem força de vontade	No willpower/Has willpower
3-	Attractive/Unattractive	Atraente/Não atraente	Atraente/ Não atraente	Attractive/Unattractive
4-	Good self-control/ poor self-control	Bom autocontrole/Pouco autocontrole	Bom autocontrole/ pouco autocontrole	Good self-control/Poor self-control
5-	Fast/Slow	Rápido/Lento	Rápido/Lento	Fast/Slow
6-	Having endurance/Having no endurance	Resistente/Frágil	Tem resistência/Não tem resistência	Resistant/Not resistant
7-	Active/Inactive	Ativo/Inativo	Ativo/Inativo	Active/Sedentary
8-	Weak/Strong	Fraco/Forte	Fraco/Forte	Weak/Strong
9-	Self-indulgent/Self-sacrificing	Egocêntrico/Altruista	Permissivo consigo mesmo/Rígido consigo mesmo	Indulges him/herself/Strict with him/herself
10-	Dislikes food/Likes food	Não gosta de comida/Gosta de comida	Não gosta de comida/Gosta de comida	Does not like food/Likes food ok
11-	Shapeless/Shapely	Fora de forma/Em forma	Corpo bonito/Corpo feio	Out of shape/In shape
12-	Undereats/Overeats	Come insuficiente/Come mais do que o suficiente	Come insuficientemente/Come mais do que o suficiente	Doesn't eat enough/Eats more than enough
13-	Insecure/secure	Inseguro/Seguro	Inseguro/Seguro	Insecure/Secure
14-	Low self-esteem/High self-esteem	Baixa autoestima/Alta autoestima	Baixa autoestima/Elevada autoestima	Low self-esteem/High self-esteem

Source: Authors, based on work data

errors in the translation stage, revealing inconsistencies and helping to guarantee content accuracy [28]. A study carried out in 2015, which aimed to evaluate the expert committee's contribution to the content and psychometric properties of a translated multidimensional questionnaire, showed that the adapted tool's quantitative accuracy and quality is better with the inclusion of the expert committee process [29].

The Turkish version of the BAOP had an expert committee that assessed the content validity, and no inconsistencies were reported [19]. In the German version of the FPS, the TRAPD (Translation, Revision, Adjudication, Pre-Test and Documentation) methodology was used, in which the expert committee stage is carried out by an adjudication judge who must be bilingual and a specialist in the scale's main subject [22, 30]. On the other hand, the Chinese adaptation of the BAOP and the Indian adaptation of the FPS did not have the expert committee stage. However, the articles state that there was constant dialogue among the researchers and the scales' original authors [31, 32].

In our study, important issues were raised by the expert committee. For instance, the use of the term "obese" throughout the BAOP scale. The experts stated that the term "obese" is stigmatizing in itself and that as obesity is a condition that a person is currently in, the term "obese" should not be used as an adjective or a brand. This stigmatizing communication is considered harmful as it discourages self-care and can have deleterious clinical effects. The scientific literature has proposed the use of the terms "pessoa que vive com obesidade" or "pessoa com obesidade". This change is justified because it is a more inclusive, empathetic term and contributes to reducing anxiety about the condition, thus helping with self-care and self-confidence as well as promoting more positive stereotypes [31]. For justification, the final version of the BAOP used the term "pessoa com obesidade".

In the FPS, the disagreement was about the scale's title, which in the translation was presented as "fobia à gordura". This term was considered inappropriate by specialists because it refers more to lipophobia than to fatphobia itself. Some references in the literature consider lipophobia and fatphobia as different words used to define the same concept, which would be "the fear of fat" [33]. However, in 2018 the authors Silva and Cantisani [34] proposed a differentiation between the terms. While lipophobia is defined as a generalized aversion to "fat itself", which can be translated into the person's own fear of gaining weight, fatphobia would be the discrimination against people with obesity based on associations of stereotypes such as lack of control, sloppiness, laziness, incapacity, illness, inadequacy and non-belonging [34]. Due to the meaning and more frequent use of the term in Brazil, the choice to use "gordofobia" was considered more appropriate.

Our study also included a test step with the target population. At this stage, the recommendation is that people who represent the group for which the scale is being adapted participate. This way it is possible to guarantee the clarity of the terms and according to the population's reality [26].

Because there are references that point to the problem of biomedical fatphobia [35], the adaptation process involved people from different professional areas (health and others). Biomedical fatphobia is the discriminatory bias practiced by health professionals, which has consequences in removing people with obesity from preventive and emergency care [35]. A consensus published by Nature in 2020 shows that weight stigma is being considered just as harmful to health as the complications that obesity itself can cause to the body [1]. It is important to emphasize that the Declaration of Human Rights gives the right to health to all citizens, and fatphobia is therefore a barrier that violates an inherent right of the citizen [36].

The importance of distinguishing professions was noticeable as each group brought specific concerns in the analysis of both scales, which may be related to terms more widely used in the Brazilian biomedical environment. Item 2 of the BAOP was an example of this as the term "desordem biológica" was considered problematic only by the group of male health professionals. According to them, it has a confusing and potentially stigmatizing semantic load. Thus, the proposed suggestion was accepted and approved by one of the scale's authors of the scale in the back-translation stage. At this stage, item 7 ("Obesity is rarely caused by a lack of willpower") was also discussed with the scale's author. Though it has the opposite content in relation to the others, its reversibility was preserved. The use of a reverse item is a means of controlling the effects of acquiescence, defined as a bias of common and frequent responses defined as a tendency to agree with the statement, regardless of its content, which may compromise the scale result [37]. Another way to control the effects of acquiescence is by using items with positive and negative expressions, that is, opposites, as a stimulus for a more careful reading of the items [38]. It is worth mentioning that using strategies, in the development of a scale, aimed at reducing the effects of acquiescence is not always fruitful as it can influence the formulation of theoretically non-existent subconstructs. Therefore, each scale needs a particular assessment regarding the concomitant presence of regular and reverse items.

In the FPS, the antonyms in item 6 ("Tem resistência/frágil") and item 11 ("Fora de forma/Em forma"), were perceived as confusing by the male health professionals for not specifying whether they were bodily or broader issues. In discussion, the scale's original author reported that item 6 would be better if "frágil" were replaced with the term "não tem resistência"

since the scale works with well-defined antonyms, and one side would be the desirable and the other the undesirable. Regarding item 11, the author stated that the concept is about physical appearance and having a good shape, beautiful curves, and an attractive body. The author proposed that “Corpo bonito/corpo feio” be included, and this suggestion was considered in the back-translation version.

The four target population groups raised an issue about item 9 in the FPS, which was previously pointed out by the expert committee as well and, as it was a controversial item at these stages, the group thought it pertinent to consult the original author. The concept that the author brought, which explains the meaning of this item, was that “self-indulgent” refers to a common stereotype in the United States of America that fat people eat a lot because they are self-indulgent, hedonistic and seek pleasure, especially through food, but not solely through act of eating. It is a person who allows themselves to give in and do exactly what they want, especially when it involves pleasure (of all kinds). On the other hand, “self-sacrificing” would mean a stereotype that represents someone contained, controlled and in control of themselves, which includes not eating too much. After the explanations, “permissivo consigo mesmo/rígido consigo mesmo” was incorporated in item 9.

As for the back-translation, if substantial differences or discrepancies are found between the original and the back-translated versions, there is a possibility of problems adapting the content, requiring re-evaluation [39]. Both scales in this article were approved in their back-translation, pointing out that the adaptations made to Brazilian Portuguese did not change the original proposal’s conceptual essence. Thus, the Brazilian Portuguese version of each scale adapted in the present study was considered adequate for use with adults in Brazil. However, it is essential to mention that the psychometric properties of each scale’s factorial model were not tested in this work with Brazilian adults, which is an important preliminary step before using the BAOP and FPS to screen for weight stigma, whether in a clinical or collective context or in research carried out in the future.

The study’s main limitation was the use of a non-probabilistic sample (for convenience) in the selection of the target population, which only contained people from the Southeast region of Brazil, but which was careful to include representatives of different genders and professional areas. As for strengths, the systematic use of standardized methodology for the cross-cultural adaptation process stands out, including evaluation stages by an expert committee and target population groups, necessary to guarantee content validity. It is also noteworthy that the choice of the BAOP (the only one so far available in the international literature to measure beliefs related to people with obesity) and the FSP (widely used to measure fatphobia) for translation into Brazilian Portuguese aims to contribute to future studies on weight stigma, thus increasing the country’s health promotion possibilities. It is important that future evaluations focus on investigating the validity and reliability properties of the data collected from the scales in different contexts, so that the constructs can be adequately captured. These psychometric validities are in progress by the research group.

Author contributions All authors have contributed substantially to the conception, specifically: Gabriela Cristina Arces de Souza- design, execution, analysis, interpretation and writing. Maria Fernanda Laus- design, execution, analysis, interpretation, final essay. Wanderson Roberto da Silva- analysis interpretation and final essay. Camila Cremonesi Japur- design, execution, analysis, interpretation, final essay.

Funding There is no funding source.

Data availability The datasets generated and analysed during the current study are not publicly available due the fact that they constitute an excerpt of research in progress but are available from the corresponding author on reasonable request.

Code availability Not applicable.

Declarations

Competing interests On behalf of all authors, the corresponding author states that there is no competing interests.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article’s Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article’s Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

References

1. Rubino F, Puhl RM, Cummings DE, Eckel RH, Ryan DH, Mechanick JI, et al. Joint International consensus statement for ending stigma of obesity. *Nat Med*. 2020;26(4):485–97. <https://doi.org/10.1038/s41591-020-0803-x>.
2. Jimenez MLJ. Lute como uma gorda: gordofobia, resistências e ativismos. Mato Grosso: UFMT; 2020.
3. Daly M, Sutin AR, Robinson E. Perceived weight discrimination mediates the prospective association between obesity and physiological dysregulation: evidence from a population-based cohort. *Psychol Sci*. 2019;30(7):1030. <https://doi.org/10.1177/0956797619849440>.
4. Blodorn A, Major B, Hunger J, Miller C. Unpacking the psychological weight of weight stigma: A rejection-expectation pathway. *J Exp Soc Psychol*. 2016;63:69–76. <https://doi.org/10.1016/j.jesp.2015.12.003>.
5. Himmelstein MS, Puhl RM, Quinn DM. Overlooked and understudies: health consequences of Weight Stigma in Men. *Obesity*. 2019;27(10):1598–605. <https://doi.org/10.1002/oby.22599>.
6. Siqueira BB, Assumpção MC, Barroso SM, Japur CC, de PenaforteO FR. Weight stigma and health—repercussions on the health of adolescents and adults: integrative review of the literature. *J Bras Psiquiatr*. 2021;70:162–78. <https://doi.org/10.1590/0047-208500000324>.
7. Cook JE, Purdie-Vaughns V, Meyer IH, Busch JTA. Intervening within and across levels: a multilevel approach to stigma and public health. *Soc Sci Med*. 2014;103:101. <https://doi.org/10.1016/j.socscimed.2013.09.023>.
8. Rafeh A, Hanif R. Understanding perception of weight stigma: development and validation of perceived weight stigmatization Scale-Pakistan. *Jour of Psyc Res*. 2019;34(4):869–97. <https://doi.org/10.33824/PJPR.2019.34.4.47>.
9. Durso LE, Latner JD. Understanding self-directed Stigma: development of the weight bias internalization scale. *Obesity*. 2008;16(S2):S80–6. <https://doi.org/10.1038/oby.2008.448>.
10. Allison DB, Basile VC, Yaker HE. The measurement of attitudes toward and beliefs about obese persons. *Int J Eat Disord*. 1991;10(5):599–607. [https://doi.org/10.1002/1098-108X\(199109\)10:5%3c599::AID-EAT2260100512%3e3.0.CO;2-%23](https://doi.org/10.1002/1098-108X(199109)10:5%3c599::AID-EAT2260100512%3e3.0.CO;2-%23).
11. McClure Brenchley KJ, Quinn DM. Weight-based rejection sensitivity: scale development and implications for well-being. *Body Image*. 2016;16:79–92. <https://doi.org/10.1016/j.bodyim.2015.11.005>.
12. Cash TF, Wood KC, Phelps KD, Boyd K. New assessments of weight-related body image derived from extant instruments. *Percept Mot Skills*. 1991;73(1):235–41. <https://doi.org/10.2466/pms.1991.73.1.235>.
13. Chen C, Gonzales L. Understanding weight stigma in eating disorder treatment: development and initial validation of a treatment-based stigma scale. *J Health Psychol*. 2022;27(13):3028–45. <https://doi.org/10.1177/13591053221079177>.
14. Goldfarb LA, Dykens EM, Gerrard M. The goldfarb fear of fat scale. *J Pers Assess*. 1985;49(3):329–32. https://doi.org/10.1207/s15327752jpa4903_21.
15. Rieger E, Lee YF, Monaghan C, Zwickert K, Murray K. Measuring social processes regarding eating, physical activity, and weight in higher-weight people: the weight-related interactions scale (WRIS). *Eat Weight Disord*. 2022;27(2):737–49. <https://doi.org/10.1007/s40519-021-01208-2>.
16. Obara AA, dos Alvarenga S M. Adaptação transcultural da Escala de Atitudes Antiobesidade para o português do Brasil. *Ciênc Saúde Coletiva*. 2018;23(5):1507–20. <https://doi.org/10.1590/1413-81232018235.17252016>.
17. Brasil AMB, Brasil F, Maurício AA, Vilela MR. Cross-cultural adaptation and validation to Brazil of the obesity-related problems scale. *Einst*. 2017;15(3):327–33. <https://doi.org/10.1590/S1679-45082017AO4004>.
18. Tarozo M, Júnior CRB, Neufeld CB, Pessa RP. Adaptação Cultural e Características Psicométricas da Weight Internalization Scale (WBIS). *Revista Psicologia: Teoria E Prática*. 2022;24(2):14166–14166. <https://doi.org/10.5935/1980-6906/ePTPPA14166.en>.
19. Dedeli O, Bursalioğlu SA, Deveci A. Validity and reliability of the Turkish version of the attitudes toward obese persons scale and the beliefs about obese persons scale. *Clin Nurs Stud*. 2014;2(4):105. <https://doi.org/10.5430/cns.v2n4p105>.
20. Tsai MC, Strong C, Latner JD, Lin YC, Pakpour AH, Lin CY, et al. Attitudes toward and beliefs about obese persons across Hong Kong and Taiwan: wording effects and measurement invariance. *Health Quality Life Outcomes*. 2019;17(1):134. <https://doi.org/10.1186/s12955-019-1198-6>.
21. Bacon JG, Scheltema KE, Robinson BE. Fat phobia scale revisited: the short form. *Int J Obes*. 2001;25(2):252–7. <https://doi.org/10.1038/sj.jjo.0801537>.
22. Stein J, Luppá M, Ruzanska U, Sikorski C, König HH, Riedel-Heller SG. Measuring negative attitudes towards overweight and obesity in the German population—psychometric properties and reference values for the German short version of the Fat Phobia Scale (FPS). *PLoS ONE*. 2014;9(12):1141–6. <https://doi.org/10.1371/journal.pone.0114641>.
23. Rina K, Bhoi R, Vindal A, Lal P. Cultural adaptation, validation of hindi version of fat phobia scale—short form (fps-sf) involving morbidly obese individuals seeking treatment from the metabolic surgery clinic in a tertiary care center of North India. *Indian J Psychiatry*. 2022;64(3):531. <https://doi.org/10.4103/0019-5545.341518>.
24. Dos Santos Alvarenga M, et al. Anti-fat attitudes of nutrition undergraduates in Brazil toward individuals with obesity. *Cien Saude Colet*. 2022. <https://doi.org/10.1590/1413-81232022272.02342021>.
25. Cavalcanti F, de Macêdo P, Brito E, de Magalhães CC, de Farias R, Costa P, Cardoso Martins P, Portela L, de Santana M. Weight stigma is a predictor of disordered eating in Brazilian college students during the COVID-19 pandemic: a 16-month cohort follow-up. *Appetite*. 2023;22(192):107084. <https://doi.org/10.1016/j.appet.2023.107084>.
26. Borsa JC, Damásio BF, Bandeira DR. Adaptação e validação de instrumentos psicológicos entre culturas: algumas considerações. *Paidéia (Ribeirão Preto)*. 2012;22:423–32. <https://doi.org/10.1590/S0103-863X2012000300014>.
27. Fleiss JL. *Statistical Methods for Rates and Proportions*. 1st ed. London: John Wiley & Sons; 2018.
28. Swami V, Barron D. Translation and validation of body image instruments: Challenges, good practice guidelines, and reporting recommendations for test adaptation. *Body Image*. 2019;31:204–20. <https://doi.org/10.1016/j.bodyim.2018.08.014>.
29. Epstein J, Osborne RH, Elsworth GR, Beaton DE, Guillemin F. Cross-cultural adaptation of the health education impact questionnaire: experimental study showed expert committee, not back-translation, added value. *J Clin Epidemiol*. 2015;68(4):360–9. <https://doi.org/10.1016/j.jclinepi.2013.07.013>.
30. Dorer, B. Round 6 Translation Guidelines. Mannheim European Social Survey, GESIS. 2012.

31. England NHS. Language matters language and diabetes. Inglaterra Junho. 2018. <https://doi.org/10.1111/dme.13801>.
32. Palmeira L, Cunha M, Pinto-Gouveia J, Carvalho S, Lillis J. New developments in the assessment of weight-related experiential avoidance (AAQW-Revised). *J Contextual Behavioral Sci.* 2016;5(3):193–200. <https://doi.org/10.1016/j.jcbs.2016.06.001>.
33. Gracia Arnaiz M. De la lipofobia al lipofobismo: imágenes y experiencias en torno de la obesidad. *Salud(i)ciencia (Impresa)*. 2014;382–8.
34. Silva BL, Cantisani JR. Interfaces entre a gordofobia e a formação acadêmica em nutrição: um debate necessário. *Demetra Alimentação, Nutrição Saúde*. 2018;13(2):363–80.
35. Lawrence BJ, Kerr D, Pollard CM, Theophilus M, Alexander E, Haywood D, et al. Weight bias among health care professionals: a systematic review and meta-analysis. *Obesity*. 2021;29(11):1802–12. <https://doi.org/10.1002/oby.23266>.
36. O'Hara L, Gregg J. Human Rights Casualties from the "War on Obesity": why focusing on body weight is inconsistent with a human rights approach to health. *Fat Stud.* 2012;1(1):32–46. <https://doi.org/10.1080/21604851.2012.627790>.
37. Vigil-Colet A, Navarro-González D, Morales-Vives F. To reverse or to not reverse Likert-type items: that is the question. *Psicothema*. 2020. <https://doi.org/10.7334/psicothema2019.286>.
38. García-Fernández J, Postigo Á, Cuesta M, González-Nuevo C, Menéndez-Aller Á, García-Cueto E. To be direct or not: reversing likert response format items. *Span J Psychol.* 2022;25:24. <https://doi.org/10.1017/SJP.2022.20>.
39. Behr D. Assessing the use of back translation the shortcomings of back translation as a quality testing method. *Intern J Social Resear Method.* 2017;20(6):573–84. <https://doi.org/10.1080/13645579.2016.1252188>.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.