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ORIGINAL ARTICLE

Reliability of the Brazilian version of the questionnaire on eating and weight patterns-5 (QEWP-5)

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Abstract

Purpose The Questionnaire on Eating and Weight Patterns-5 (QEWP-5) is a self-report instrument developed to screen individuals for binge eating disorder (BED) and bulimia nervosa (BN) as diagnosed by the DSM-5. This instrument was cross-culturally adapted for the Brazilian Portuguese and well understood by the target sample. The present study aimed to assess the test–retest reliability of the Brazilian version of QEWP-5 in a sample of undergraduate students from Dietitian and Psychology courses.

Methods The Brazilian version of QEWP-5 was administered to a sample of 345 male and female undergraduate students, from dietitian ($n = 179$) and psychology ($n = 166$) courses. The instrument was applied twice with a time interval of 2 weeks between the applications. The *kappa* coefficient was used to assess the temporal stability of the questionnaire in the screening of BED and BN.

Results Overall, the *kappa* coefficient for the screening of BED was .48, and for the screening of BN was .71. In the dietitian course, the temporal stability was .60 (for the assessment of BED) and .80 (for BN). In the psychology course, the *kappa* values for the assessment of BED and BN were .27 and .60, respectively. All values were statistically significant ($p < .001$).

Conclusion In general, the stability of the Brazilian version of QEWP-5 was considered moderate to assess BED and substantial for the screening of BN in undergraduate students. Stratifying by course, the questionnaire had higher stability for the assessment of BED and BN in dietitian students.

Level of evidence Level V, descriptive study.

Keywords Binge eating disorder · Bulimia nervosa · QEWP-5 · Reliability · Undergraduate students

Introduction

Binge eating disorder (BED) and bulimia nervosa (BN) are the most common eating disorders (ED) [1]. Their lifetime prevalences are 1.9% and 1.0%, respectively [2]. They are characterized by recurrent binge eating episodes in which individuals eat an unusually large amount of food followed by a sense of loss of control over eating. However, in BED the episodes are not followed by the inappropriate compensatory behaviors seen in BN, such as self-induced vomit, misuse of laxatives or other medications, excessive exercise and fasting [1]. Both BED and BN are persistent ED that impair physical health and psychosocial functioning [1, 2].

Undergraduate students are a group of risk for the development of ED symptoms [3]. In addition, it seems that these characteristics are more prevalent in undergraduate students from health sciences, such as dietitians' courses. Some studies have investigated the differences in the eating behaviors of students from health and human sciences [4, 5]. For instance, Vitolo et al. [5] compared the prevalence of binge eating in both areas. They did not find significative differences. In contrast, there are studies showing that dietitians' students tend to

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have higher levels of dietary restraint, binge eating and body image concern when compared to students from other courses [4, 6–8]. Although it is not clear what science area is more prone to develop ED, the diagnostic and treatment of undergraduate students with these conditions is essential to improve their physical and psychological health.

Self-report instruments are an alternative for the assessment of ED in large samples. One of the most widely used instrument is the Questionnaire on Eating and Weight Patterns (QEWP) [9]. It was developed as an assessment instrument for the initial multisite field trials that described BED prevalence in clinical and community samples and supported its clinical utility [9, 10]. Additionally, QEWP was developed for the screening of BED categorically, using questions based on the proposed diagnostic criteria for BED [10, 11]. Further, QEWP was revised to be in line with DSM-IV [11]. The Questionnaire on Eating and Weight Patterns – Revised (QEWP-R) [12] was widely used on clinical and community settings [13–15]. Also, it was translated and validated to Portuguese [16]. Considering the changes made in the Diagnostic and Statistical Manual of Mental Disorders, Fifth edition (DSM-5) [1], the QEWP-R was updated to be in line with the current diagnostic criteria [17]. Therefore, Questionnaire on Eating and Weight Patterns-5 (QEWP-5) [17] is the only instrument that screens individuals for BED and BN converting for a categorical scale, as diagnosed by DSM-5 [1]. This questionnaire was cross-culturally adapted to the Brazilian context [18].

Self-report instruments should be valid and reliable to be used in specific settings. An important characteristic that should be considered when choosing a questionnaire is the test–retest reliability. It is related to the stability of a measure between two assessments within a time interval [19, 20]. A systematic review about psychometric properties of 29 self-report measures of binge eating indicated that none of them were able to meet all the criteria for good psychometric quality. Also, this review highlighted the scarcity of conclusive data regarding psychometric properties of those measures [21].

Although QEWP-5 represents an alternative for the assessment of BED and BN, up to date, the psychometric properties of its Brazilian version were not assessed yet. Thus, the aim of the present study was to assess the test–retest reliability of the Brazilian version of QEWP-5 in a sample of undergraduate students from Dietitian and Psychology courses.

Materials and methods

Design and participants

Undergraduate students ($n = 403$) were recruited from dietitian ($n = 197$; 48.9%) and psychology ($n = 206$; 51.1%) courses at a Brazilian public university. Students were approached in class and informed about the study. From those invited, 345 (179 from dietitian and 166 from psychology courses) completed the Brazilian version of QEWP-5 [18] twice, corresponding to 85% of the students approached. The questionnaire was applied twice, with a 2 weeks interval. This interval is considered appropriate to avoid temporal changes in the answers [22]. The two applications (test and retest) were independent and the students did not have access to the results of the first assessment. This research was approved by the Ethics Committee from Institute of Psychiatry from the Federal University of Rio de Janeiro. A written informed consent was obtained from all study participants before performing any study procedures.

Measures

QEWP-5 is an updated version of the QEWP. It was developed in 1992 to the multisite field trials that supported the clinical utility and described the prevalence of BED in different settings [9]. Afterward, QEWP was revised to be in line with DSM-IV criteria [11]. The QEWP-R [12] was widely used in the literature [13, 15, 23]. Also, it was translated and validated to the Brazilian context [16]. Considering the changes made in the diagnostic criteria for BED and BN in the DSM-5 [1], QEWP-R was updated to QEWP-5 in 2015 [17].

QEWP-5 [17] is a 26-item self-report measure, developed for the screening of BED and BN. The instrument includes questions about demographic characteristics (such as age, sex and race), weight history, binge eating episodes (both objective and subjective), duration and frequency of the episodes, distress regarding binge eating, inappropriate compensatory behaviors, overvaluation of weight and shape, and parents' silhouettes. According to DSM-5 criteria, the diagnostic items time frame focus in the past 3 months [17].

QEWP-5 provides a possible diagnostic of BED and BN in a dichotomous measure (presence/absence), based on DSM-5 [1] diagnostic criteria. The presence of BED is considered when: a) Presence of at least 1 binge eating episode per week for three months (binge eating is defined as eating a large amount of food in a short period and the feeling of loss of control); b) the absence of inappropriate compensatory behaviors (such as vomiting, diuretics/laxatives/other medications abuse and excessive exercise); c) the presence of at least 3 of the following associated symptoms during the episodes (eating much faster than usual; eating until feeling uncomfortably full; eating large amount of food when not physically hungry; eating alone because of feeling embarrassed by how much one is eating; felling disgusted with oneself, depressed or very guilty after the episode); and d) marked distress regarding binge eating; The presence of BN is considered when: a) presence of at least 1 binge eating

episode per week for three months; b) presence of any inappropriate compensatory behavior at least 1 time per week for three months; and c) overvaluation of weight/shape [17].

QEWP-5 was translated and adapted into Brazilian Portuguese following international guidelines. The process of cross-cultural adaptation comprised the following stages: forward translation, comparison of translations and synthesis version, preliminary version/experts' panel, blind back-translations, comparison between back-translations, and comprehensibility test. The Brazilian version of QEWP-5 was pre-tested and well understood by 10 patients with BED/BN and 10 ED experts [18].

The Body Mass Index (BMI = weight/height^2) was calculated through the weight and height self-reported in the questionnaire. BMI was classified in four categories: underweight (BMI < 18.5 kg/m^2), normal weight (18.5–24.9 kg/m^2), overweight (25–29.9 kg/m^2) and obesity (≥ 30 kg/m^2).

Data control and analysis

The data were registered twice, by two independent people, and compared (double-data entry). If there were disagreements between typing, the data were corrected after checking the respective questionnaire. The sample was characterized by sex, BMI classification and semester of the course. Participants' age and BMI were also analyzed as continuous measures. These variables were tested regarding their normality using Kolmogorov–Smirnov test. The students who completed QEWP-5 twice (test and retest) were compared with those who were present only in the first application (missing data). Also, the students from Dietitian course were compared with those from Psychology course. Chi square tests were performed to compare the categorical variables (sex, BMI classification, presence of BED or BN and the semester of the course). Considering that continuous variables (age and BMI) did not fit the normal distribution, the Mann–Whitney test were used to compare them.

The test–retest reliability for each possible diagnostic was based on an analysis of 2 × 2 contingency tables with the following categories (at times 1 and 2): (1) BED x No diagnostic (ND); and (2) BN x ND. Considering that QEWP-5 converts the diagnostic items for a dichotomous scale, the *kappa* coefficient [24] was used to determine the test–retest reliability of the questionnaire. It is the preferred method for the assessment of temporal stability of instruments with dichotomous scores [22]. The *kappa* coefficient has been used to assess the test–retest reliability of health measurement scales in different settings [25–28]. It was considered the Landis and Koch [30] criteria to rate the agreement between the applications, as follows: < 0.00 Poor; 0.00–0.20 Slight; 0.21–0.40 Fair; 0.41–0.60 Moderate; 0.61–0.80 Substantial; 0.81–1.00 almost perfect. The temporal stability of the QEWP-5 between the students from both courses were compared using the Landis and Koch criteria [30]. The analysis was performed using SPSS—Statistical Package for the Social Sciences, version 22. Statistical significance was set at $p < 0.05$.

Results

Table 1 shows the comparison between participants who completed the first application of QEWP-5 ($n = 403$) and those who were present both in the test and retest ($n = 345$) regarding sex, semester of the course, BMI classification, positive screening for BED or BN, and course. The age's median of the first group was 21 years (min: 17; max: 57). Regarding BMI, the median was 22.5 kg/m^2 (min: 13.8; max: 46.6). The medians of age and BMI of the participants who completed QEWP-5 twice was 21 years (Min: 17; Max: 57) and 22.4 kg/m^2 (min: 15.1; max: 46.6), respectively. No significant differences were found between the groups according to these characteristics (age: $p = 0.96$; BMI:

Table 1 Comparison between participants who completed QEWP-5 in the test and retest with those who completed only the test

Variables	Test ($n = 403$)		Test and retest ($n = 345$)		p value*
	n	%	*n*	%	
Sex					
Male	68	16.9	61	17.7	.77
Female	335	81.1	284	82.3	
Semester of the course					
1st to 5th	249	61.8	210	60.9	.82
6th or above	154	38.2	135	39.1	
BMI classification					
Underweight	46	11.5	36	10.5	.82
Normal weight	261	65.3	234	68.4	
Overweight	68	17.0	54	15.8	
Obesity	25	6.3	18	5.3	
Positive screening for BN					
Yes	25	6.2	20	5.8	.87
No	378	93.8	325	94.2	
Positive screening for BED					
Yes	11	2.7	9	2.6	1.00
No	392	97.3	336	97.4	
Course					
Dietitian	197	48.9	179	51.9	.42
Psychology	206	51.1	166	48.1	

BED binge eating disorder, *BN* bulimia nervosa, *BMI* body mass index

*Chi square test

$p = 0.86$). Also, both groups were not statistically different regarding sex ($p = 0.77$), semester of the course ($p = 0.82$), BMI classification ($p = 0.82$), presence of BN ($p = 0.87$) and BED ($p = 1.00$), and type of course ($p = 0.42$).

Table 2 shows the comparison between students who completed QEWP-5 twice, by course. The age's medians of the participants from dietitian course (21 years; min: 18; max: 37) was not statistically different from those who were students of psychology course (21 years; min: 17; max: 57; $p = 0.99$). Regarding BMI, the medians for dietitian (22.6 kg/m^2; min: 0.50; max: 40.5) and psychology (22.2 kg/m^2; min: 15.2; max: 46.6) courses were not different either ($p = 0.47$). Concerning other sample characteristics, in both courses the higher proportion of students were between first and fifth semesters ($p = 0.44$), with normal weight ($p = 0.35$) and similar prevalence of BN ($p = 0.52$) and BED ($p = 1.00$). The only statistically significant difference observed was related to sex, in which the proportion of females was higher in the dietitian course (86.6% vs. 77.7%; $p = 0.03$).

Test–retest reliability

Table 3 shows the concordance between test and retest for identifying undergraduate students with positive screening for BED and BN within total sample ($n = 345$) and by course. Considering the entire sample, the two applications of QEWP-5 identified a similar number of students with BED (test = 2.6%; retest = 3.2%) and BN (test = 5.8%; retest = 6.1%). However, the concordance between the measures were moderate ($k = 0.48$) for BED and substantial ($k = 0.71$) for BN. Analyzing by course, the frequency of students with BED in the dietitian course was 2.8% (test) and 4.5% (retest), and BN was 6.1% for both applications. The agreement between the two measures was moderate ($k = 0.60$) and substantial ($k = 0.80$), respectively. In the psychology course, the *kappa* coefficient for the screening of BED (test = 2.4%; retest = 1.8%) and BN (test = 5.4%; retest = 6%) was fair ($k = 0.27$) and moderate ($k = 0.60$), respectively.

Table 2 Comparison of participants who completed QEWP-5 twice by course

Variables	Dietitian course ($n = 179$)		Psychology course ($n = 166$)		p value*
	n	%	*n*	%	
Sex					
Male	24	13.4	37	22.3	.03
Female	155	86.6	129	77.7	
Semester of the course					
1st to 5th	105	58.7	105	63.3	.44
6th or above	74	41.3	61	36.7	
BMI classification					
Underweight	17	9.6	19	11.6	.35
Normal weight	125	70.2	109	66.5	
Overweight	30	16.9	24	14.6	
Obesity	6	3.4	12	7.3	
Positive screening for BN					
Yes	11	6.1	9	5.4	.82
No	168	93.9	157	94.6	
Positive screening for BED					
Yes	5	2.8	4	2.4	1.00
No	174	97.2	162	97.6	

BED binge eating disorder, *BN* bulimia nervosa, *BMI* body mass index

*Chi square test

Table 3 Frequency of BED and BN obtained in the 1st application (test) and 2nd application (retest) of the QEWP-5 and kappa values in the entire sample and by course

Test	Retest		*k*
Entire sample			
BED	Positive	Negative	
Positive	5 (1.4%)	4 (1.2%)	.48*
Negative	6 (1.7%)	330 (95.7%)	
BN			
Positive	15 (4.3%)	5 (1.4%)	.71*
Negative	6 (1.7%)	319 (92.5%)	
Dietitian course			
BED			
Positive	4 (2.2%)	1 (0.6%)	.60*
Negative	4 (2.2%)	170 (95%)	
BN			
Positive	9 (5%)	2 (1.1%)	.80*
Negative	2 (1.1%)	166 (92.7%)	
Psychology course BED			
Positive	1 (0.6%)	3 (1.8%)	.27*
Negative	2 (1.2%)	160 (96.4%)	
BN			
Positive	6 (3.6%)	3 (1.8%)	.60*
Negative	4 (2.4%)	153 (92.2%)	

BED binge eating disorder, *BN* bulimia nervosa, *k kappa* coefficient

*$p < .001$

Discussion

This study investigated the test–retest reliability of the Brazilian version of QEWP-5 in undergraduate students from the Dietitian and Psychology courses. To our knowledge, our research group was the first to translate and adapt the QEWP-5 to the Brazilian context, and thus, now to proceed with the evaluation of its psychometric properties. Also, it is the first evaluation of the temporal stability of a version of QEWP for the screening of BN. The test–retest reliability was assessed after applying the questionnaire to the students in two different occasions. The applications were done within an interval of 2 weeks. Overall, the questionnaire was considered moderately and substantially stable for the screening of BED and BN, respectively. In the dietitian course, QEWP-5 was considered moderately stable to assess BED and substantially stable for the screening of BN. In the psychology course, the stability over the time for the assessment of BED and BN were fair and moderate, respectively.

Although there are no studies about test–retest reliability of QEWP-5, the temporal stability of the previous versions has been assessed. The QEWP was administered twice, within an interval of three weeks, to 52 women and 2 men who identified binge eating episodes as very problematic for them (self-reported binge eaters) and 52 women who did not reported binge eating episodes as a problem (comparison sample). The questionnaire was considered moderately stable. The *kappa* coefficient was 0.57 for the self-referred binge eating sample, and 0.58 for the total sample (self-referred and comparison groups) [25]. Johnson et al. [31] evaluated the stability the QEWP-A for the screening of BED in adolescents (both males and females). The time interval between the two assessments was also of three weeks. The test–retest reliability, assessed by phi-coefficient, was 0.42 [31]. Therefore, the assessment of the reliability of previous versions of QEWP for the screening of BED shows quite similar values to those found in the present study.

The evaluation of the agreement between test and retest demonstrated that *kappa* coefficient for the assessment of BN were higher than for BED in the entire sample and in both courses. Additionally, the stability of QEWP-5 to assess BED were higher in the dietitian course than in the psychology. One possible explanation for these findings is that *kappa* coefficient is influenced by the prevalence of the condition being measured [32]. That is, when comparing the stability of two measures, the *kappa* tends to be higher if the condition assessed is more prevalent. In the present study, BN's prevalence was higher than BED, both in the total sample and in the courses. Also, when comparing the prevalence of BED between the courses, it was higher in Dietitian than Psychology. A similar situation was described by Johnson et al. [29] when evaluating, by QEWP-A, the agreement between two assessments of BED in 367 adolescents. The researchers found a *kappa* coefficient of 0.19 and a low prevalence of BED in the sample (1.07%) [29]. Another characteristic that could have influenced the test–retest reliability of QEWP-5 is the different course of the EDs assessed. BED is more instable, with a tendency to remit the symptoms and few relapsing over the time. In contrast, BN is a more persistent diagnosis with a stable course, higher relapse and lower remission [2, 33]. Johnson et al. [31] reported the influences of the instable course of BED in the stability of QEWP-A. One third of the sample of females diagnosed as subthreshold binge eating in the first assessment were classified as no diagnostic three weeks later [31].

Up to date, there is only one study about psychometric properties of QEWP-5. Calugi et al. [34] proceeded the validation of the Italian version of the questionnaire in 604 adults seeking treatment for obesity. Using the Eating Disorders Examination (EDE) [35, 36] as the gold standard, the authors assessed the concordance between the QEWP-5 and the clinical interview in identifying the presence of BED. QEWP-5′s sensibility, specificity, positive predictive value and negative predictive value was 0.49, 0.93, 0.34 and 0.96, respectively. In addition, the agreement between the two instruments was poor ($k = 0.34$). These results indicated that QEWP-5 can be useful as a screening tool for BED. However, the diagnostic should be confirmed by a clinical interview. As the authors did not performed test–retest evaluation, their findings cannot be compared with our results.

Undergraduate students are a group of risk for the development of ED [37]. Also, the students from courses of the health sciences, such as dietitian, seem to be in a higher risk [38, 39]. Kolar et al. [40] performed a meta-analysis of studies on ED in Latin America. Considering only studies that diagnosed ED in college samples with clinical interviews, the prevalence of BN and BED ranged from 0% to 2.8% and from 0% to 4.21%, respectively [41–44]. In the present study, the prevalence of BN ranged from 5.8% to 6.1, and the prevalence of BED ranged from 2.6 to 3.2%, between the applications of the QEWP-5 in the entire sample. However, it should be confirmed with a clinical interview, because self-report instruments tend to overestimate the prevalence of ED [45].

The present study has some limitations, such as the missing data from the 14.4% of the students that did not complete the retest. However, they did not show differences from the group of students that completed QEWP-5 twice. Therefore, the missing data did not undermine the study's results. Second, the low prevalence of BED both in the entire sample and in the psychology course could have negatively influenced the *kappa* coefficient [32]. Third, the use of *kappa* coefficient as the unique measurement of stability. Although it is considered the preferred statistical method to assess the reliability of scales with dichotomous scores, no information about agreement/disagreement structures are available [22, 46, 47].

Conclusion

In general, the stability of the Brazilian version of QEWP-5 was considered moderate to assess BED and substantial for the screening of BN in undergraduate students. Stratifying by course, the questionnaire had a better stability to assess both BED and BN in dietitian students than in psychology ones. More research is required to evaluate the psychometric properties of this version of QEWP-5 in samples with different backgrounds. Finally, a clinical interview should be performed to confirm the high prevalence of ED on this sample, and to validate the questionnaire as a screening instrument.

What is already known in this area?

QEWP-5 is the only instrument translated to Brazilian Portuguese that screens individuals for BED and BN converting for a categorical scale. However, its psychometric properties were not assessed yet.

What this study adds?

The Brazilian version of QEWP-5 was moderately stable to assess BED and substantially stable for the screening of BN in undergraduate students.

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Data availability Additional data can be made available on request.

Compliance with ethical standards

Conflict of interest JCA received research grants, consultancy fees, and advisory board fees from Shire Pharmaceuticals.

Ethical approval All procedures performed in the study were conducted in accordance with the ethical standards of the institutional and/ or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. The study was approved by the Ethics Committee from Institute of Psychiatry from the Federal University of Rio de Janeiro (protocol no. 89082418.6.0000.5263).

Informed consent Informed consent was provided by all participants included in the study.

References

1. American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders, 5th edn. American Psychiatric Publishing, Arlington
2. Kessler RC, Berglund PA, Chiu WT, Deitz AC, Hudson JI, Shahly V, Aguilar-gaxiola S, Alonso J, Angermeyer MC, Benjet C, Bruffaerts R, De GG, De GR, Haro JM, Kovess-masfety V, Neill SO, Posada-villa J, Sasu C, Scott K, Viana MC, Xavier M (2013) The prevalence and correlates of binge eating. Biol Psychiatry 73:904–914. https://doi.org/10.1016/j.biopsych.2012.11.020
3. Bosi MM, Uchimura KY, Luiz RR (2009) Eating behavior and body image among psychology students. J Bras Psiquiatr 58:150–155. https://doi.org/10.1590/S0047-20852009000300002
4. Laus MF, De Cássia R, Moreira M, Braga Costa TM (2009) Diferenças na percepção da imagem corporal, no comportamento alimentar e no estado nutricional de universitárias das áreas de saúde e humanas. Rev Psiquiatr RS 31:192–196
5. Vitolo MR, Bortolini GA, Horta RL (2006) Prevalência de compulsão alimentar entre universitárias de diferentes áreas de estudo. Rev Psiquiatr RS 28:20–26. https://doi.org/10.1590/s0101-81082006000100004
6. Korinth A, Schiess S, Westenhoefer J (2010) Eating behaviour and eating disorders in students of nutrition sciences. Public Health Nutr 13:32–37. https://doi.org/10.1017/S1368980009005709
7. Ozenoglu A, Unal G, Ercan A, Kumcagiz H, Alakus K (2015) Are nutrition and dietetics students more prone to eating disorders related attitudes and comorbid depression and anxiety than non-dietetics Students ? Food Nutr Sci 6:1258–1266. https://doi.org/10.4236/fns.2015.614131
8. Poínhos R, Alves D, Vieira E, Pinhão S, Oliveira BMPM, Correia F (2014) Eating behaviour among undergraduate students. Comparing nutrition students with other courses. Appetite 84:28–33. https://doi.org/10.1016/j.appet.2014.09.011
9. Spitzer RL, Devlin M, Walsh BT, Hasin D, Wing R, Marcus M, Stunkard A, Wadden T, Yanovski S, Agras S, Mitchell J, Nonas C (1992) Binge eating disorder: a multisite field trial of the diagnostic criteria. Int J Eat Disord 11:191–203. https://doi.org/10.1002/1098-108X(199204)11:3%3c191::AID-EAT2260110302%3e3.0.CO;2-S
10. Spitzer RL, Yanovski SZ, Wadden TA, Wing R, Marcus MD, Stunkard AJ, Devlin MJ, Mitchell JE, Hasin D, Horne RL (1993) Binge eating disorder: its further validation in a multisite study. Int J Eat Disord 13:137–153. https://doi.org/10.1002/1098-108X(199303)13:2%3c137::AID-EAT2260130202%3e3.0.CO;2-#
11. American Psychiatric Association (1994) Diagnostic and statistical manual of mental disorders, 4th edn. American Psychiatric Association, Washington, DC
12. Spitzer RL, Yanovski SZ, Marcus MD (1994) Questionnaire on Eating and Weight Patterns, Revised. Behavioral Measurement Database Services, Pittsburgh
13. Dymek-Valentine M, Rienecke-Hoste R, Alverdy J (2004) Assessment of binge eating disorder in morbidly obese patients evaluated for gastric bypass: SCID versus QEWP-R. Eat Weight Disord 9:211–216
14. Elder KA, Grilo CM, Masheb RM, Rothschild S, Burke-Martindale CH, Brody ML (2006) Comparison of two self-report instruments for assessing binge eating in bariatric surgery candidates. Behav Res Ther 44:545–560. https://doi.org/10.1016/j.brat.2005.04.003

15. Barnes RD, Masheb RM, White MA, Grilo CM (2011) Comparison of methods for identifying and assessing obese patients with binge eating disorder in primary care settings. Int J Eat Disord 44:157–163. https://doi.org/10.1002/eat.20802
16. Borges MBF, Morgan CM, Claudino AM, Da Silveira DX (2005) Validation of the Portuguese version of the questionnaire on eating and weight patterns: revised (QEWP-R) for the screening of binge eating disorder. Rev Bras Psiquiatr 27:319–322. https://doi.org/10.1590/S1516-44462005000400012
17. Yanovski SZ, Marcus MD, Wadden TA, Walsh BT (2015) The questionnaire on eating and weight patterns-5: an updated screening instrument for binge eating disorder. Int J Eat Disord 48:259–261. https://doi.org/10.1002/eat.22372
18. Moraes CEF, Mourilhe C, Freitas SR, Marcus MD, Veiga GV, Appolinario JC (2020) Cross-cultural adaptation of Brazilian version of Questionnaire on Eating and Weight Patterns-5 (QEWP-5). Trends Psychiatry Psychol 42:39–47. 10.1590/2237-6089-2019-0029
19. Terwee CB, Bot SDM, De BMR, Van Der WAWM, Knol DL, Dekker J (2007) Quality criteria were proposed for measurement properties of health status questionnaires. J Clin Epidemiol 60:34–42. https://doi.org/10.1016/j.jclinepi.2006.03.012
20. Souza AC, Alexandre NMC, de Guirardello E, B, (2017) Propriedades psicométricas na avaliação de instrumentos : avaliação da confiabilidade e da validade. Epidemiol Serv Saude 26:649–659. https://doi.org/10.5123/S1679-49742017000300022
21. Burton AL, Abbott MJ, Psych MC, Modini M, Touyz S (2016) Psychometric evaluation of self-report measures of binge-eating symptoms and related psychopathology : A systematic review of the literature. Int J Eat Disord 49:123–140. https://doi.org/10.1002/eat.22453
22. Streiner DL, Norman GR, Cairney J (2015) Health measurement scales: a practical guideline to their development and use. Oxford University Press, Oxford, Fifth Edit
23. Varnado PJ, Williamson DA, Bentz BG, Ryan DH, Rhodes SK, O'Neil PM, Sebastian SB, Barker SE (1997) Prevalence of binge eating disorder in obese adults seeking weight loss treatment. Eat Weight Disord Stud Anorexia Bulim Obes 2:117–123. https://doi.org/10.1007/bf03339961
24. Cohen J (1960) A coefficient of agreement for nominal scales. Educ Psychol Meas. https://doi.org/10.1177/001316446002000104 (**XX:37–46**)
25. Nangle DW, Johnson WG, Carr-Nangle RE, Engler LB (1994) Binge eating disorder and the proposed DSM-IV criteria : psychometric analysis of the questionnaire of eating and weight patterns. Int J Eat Disord 16:147–157
26. de Domingues GBL, Gallani MC, Gobatto CA, Miura CTP, Rodrigues RCM, Myers J (2011) Cultural adaptation of an instrument to assess physical fitness in cardiac patients. Rev Saude Publica 45:276–285. https://doi.org/10.1590/S0034-89102011005000006
27. Davey AF, Roberts MJ, Mounce L, Maramba I, Campbell JL (2016) Test–retest stability of patient experience items derived from the national GP patient survey. Springerplus 5:1755. https://doi.org/10.1186/s40064-016-3377-9
28. Dias IM, Bastos RR, Alves RT, Leite ICG (2019) Construction and validation of an questionnaire for evaluating self-medication practised by patients with temporomandibular disorders. J Oral Rehabil 46:424–432. https://doi.org/10.1111/joor.12764
29. Johnson WG, Grieve FG, Adams CD, Sandy J (1999) Measuring binge eating in adolescents: adolescent and parent versions of the questionnaire of eating and weight patterns. Int J Eat Disord 26:301–314
30. Landis JR, Koch GG (1977) The measurement of observer agreement for categorical data. Biometrics 33:159–174
31. Johnson WG, Kirk AA, Reed AE (2001) Adolescent version of the questionnaire of eating and weight patterns: reliability and gender differences. Int J Eat Disord 29:94–96
32. Maclure M, Willett WC (1987) Misinterpretation and misuse of the kappa statistic. Am J Epidemiol 126:161–169
33. Fairburn CG, Cooper Z, Doll HA, Norman P, O'Connor M (2000) The natural course of bulimia nervosa and binge eating disorder in young women. Arch Gen Psychiatry 57:659–665
34. Calugi S, Pace CS, Muzi S, Fasoli D, Travagnin F, Dalle Grave R (2019) Psychometric proprieties of the Italian version of the questionnaire on eating and weight patterns (QEWP-5) and its accuracy in screening for binge-eating disorder in patients seeking treatment for obesity. Eat Weight Disord. https://doi.org/10.1007/s40519-019-00818-1
35. Fairburn CG, Cooper Z, O'Connor G (2008) Eating disorder examination (Edition 16.0D). In: Fairburn CG (ed) Cognitive Behavior Therapy and Eating Disorders. The Guilford Press, New York, pp 268–269
36. Calugi S, Ricca V, Castellini G, Lo SC, Ruocco A, Chignola E, El Ghoch M, Dalle Grave R (2015) The eating disorder examination: reliability and validity of the Italian version. Eat Weight Disord 20:505–511. https://doi.org/10.1007/s40519-015-0191-2
37. Lipson SK, Sonneville KR (2017) Eating disorder symptoms among undergraduate and graduate students at 12 U.S. colleges and universities. Eat Behav 24:81–88. https://doi.org/10.1016/j.eatbeh.2016.12.003
38. dos Reis JA, Silva Júnior CRR, de Pinho L (2014) Factors associated with the risk of eating disorders among academics in the area of health. Rev Gaúcha Enferm 35:73–78. https://doi.org/10.1590/1983-1447.2014.02.42441
39. Trindade AP, Appolinario JC, Mattos P, Treasure J, Nazar BP (2019) Eating disorder symptoms in Brazilian university students: a systematic review and meta-analysis. Brazilian J Psychiatry 41:179–187. https://doi.org/10.1590/1516-4446-2018-0014
40. Kolar DR, Rodriguez DLM, Chams MM, Hoek HW (2016) Epidemiology of eating disorders in Latin America: a systematic review and meta-analysis. Curr Opin Psychiatry 29:363–371. https://doi.org/10.1097/YCO.0000000000000279
41. Mancilla-Diaz JM, Franco-Paredes K, Vazquez-Arevalo R, Lopez-Aguilar X, Alvarez-Rayon GL, Tellez-Giron MTO (2007) Psychometric properties of the attitudes towards body figure questionnaire in mexican female students and patients with eating disorders. Eur Eat Disord Rev 15:463–470. https://doi.org/10.1002/erv
42. Rueda Jaimes GE, Díaz Martínez LA, Ortiz Barajas DP, Pinzón Plata C, Rodríguez Martínez J, Cadena Afanador LP (2005) Validación del cuestionario SCOFF para el cribado de los trastornos del comportamiento alimentario en adolescentes escolarizadas. Aten Primaria 35:89–94. https://doi.org/10.1157/13071915
43. Compte EJ, Sepulveda AR, Torrente F (2015) A two-stage epidemiological study of eating disorders and muscle dysmorphia in male university students in Buenos Aires. Int J Eat Disord 48:1092–1101. https://doi.org/10.1002/eat.22448
44. Baader TM, Rojas CC, Molina JLF, Gotelli MV, Alamo CP, Fierro CF, Venezian SB, Dittus PB (2014) Diagnostic of the prevalence of mental health disorders in college students and associated emotional risk factors. Rev Chil Neuropsiquiatr 52:167–176. https://doi.org/10.4067/S0717-92272014000300004
45. Celio AA, Wilfley DE, Crow SJ, Mitchell J, Walsh BT (2004) A comparison of the binge eating scale, questionnaire for eating and weight patterns-revised, and eating disorder examination questionnaire with instructions with the eating disorder examination in the assessment of binge eating disorder and its symptoms. Int J Eat Disord 36:434–444. https://doi.org/10.1002/eat.20057

46. Mokkink LB, Terwee CB (2010) The COSMIN checklist for assessing the methodological quality of studies on measurement properties of health status measurement instruments: an international Delphi study. Qual Life Res 19:539–549. https://doi.org/10.1007/s11136-010-9606-8
47. da Silva EF, Pereira MG (1998) Avaliação das estruturas de concordância e discordância nos estudos de confiabilidade. Rev Saude Publica 32:383–393