

Psychological Assessment

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RESEARCH ON TRANSLATIONS OF TESTS

Psychometric Properties of the Spanish Acceptance and Action
Questionnaire for Weight-Related Difficulties–Revised (AAQW-R)

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Based on the original 22-item single-factor questionnaire, the 10-item second-order Acceptance and Action Questionnaire for Weight-Related Difficulties–Revised (AAQW-R) was developed for measuring weight-related experiential avoidance. This instrument showed good psychometric properties, and it has been validated to different contexts. However, no Spanish validation has been conducted, to date. Therefore, the aim of this study was to analyze the psychometric properties of the Spanish version of the instrument in a sample of adults from the Spanish context across the whole body mass index spectrum ($N = 393$). Confirmatory factor analysis was performed to examine the fit of the first- and second-order AAQW-R structures. Internal reliability, construct validity, external reliability, and sensitivity to change were also analyzed. The Spanish AAQW-R presented a good fit to the data, the overall scale and subscale scores showed acceptable-to-good internal consistencies, and adequate construct validity. Likewise, test–retest reliability parameters were high, and the instrument showed sensitivity to change. The findings demonstrate that the Spanish AAQW-R is an instrument with good psychometric properties, supporting its use for measuring adults' weight-related experiential avoidance in both research and clinical settings within the Spanish context.

Public Significance Statement

The Spanish AAQW-R presented a good fit to the data and acceptable-to-good internal consistencies for the scores of the global scale and subscales. The instrument scores also showed an adequate construct validity, high test–retest reliability, and the measure was sensitive to change, demonstrating its suitability for both research and clinical practice.

Keywords: weight-related experiential avoidance, validation, overweight, obesity, confirmatory factor analysis

Supplemental materials: <https://doi.org/10.1037/pas0001224.supp>

Overweight and obesity are nowadays considered a public health problem as they have recently reached epidemic proportions (World Health Organization, 2021). This condition is characterized by abnormal or excessive body fat accumulation that entails health risks, being associated with several noncommunicable diseases (i.e.,

chronic diseases that are not directly transmissible from person to person). Additionally, people with overweight are frequently the target of discriminatory attitudes in a variety of circumstances (Puhl & Brownell, 2001, 2006). Such experiences of weight stigmatization can have a direct impact on their psychological and

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Data generated during the present study are available upon reasonable request. This study was not preregistered.

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funding acquisition, project administration, resources, supervision, and writing of review and editing. Edurne Maiz played a supporting role in writing of original draft and an equal role in conceptualization, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, resources, supervision, validation, visualization, and writing of review and editing.

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physiological well-being (Emmer et al., 2020; Wu & Berry, 2018), often regardless of any effects excess weight per se may have (Puhl et al., 2020; Rubino et al., 2020), being an issue that cannot be underestimated when dealing with obesity. It is consequently necessary to find ways to effectively address the physical and emotional impact that obesity can have on people facing weight-related problems to enhance their overall quality of life. For this purpose, it is essential to understand the underlying processes that explain why individuals persistently adopt certain behaviors that negatively affect their lifestyle.

Acceptance and commitment therapy (ACT; Hayes et al., 1999) is a contextual therapy rooted in cognitive behaviorism that can be applied to a variety of problems, considering its transdiagnostic nature (Dindo et al., 2017). This approach posits that psychological inflexibility underpins any type of suffering that a person may be experiencing by repeatedly engaging in inconvenient and rigid behavioral patterns in the presence of certain private events (i.e., thoughts, feelings, and bodily sensations) without considering personal values (Hayes et al., 2006). One of the key subprocesses involved in the aforementioned construct is experiential avoidance or the tendency to try to control or avoid those inner experiences, which has been related to a multiple mental health problems and is thus considered a key pathological process and therapeutic target (Akbari et al., 2022).

Concerning overweight and its management from an ACT approach, Forman and Butryn (2015) stated that human beings, by nature, have the tendency to respond automatically to both internal and external cues, prioritizing momentary benefits without considering their long-term potential adverse effects. In addition, individuals with excess weight may show a tendency to overeat as a regulatory strategy, with the aim of avoiding distressing emotions at any given moment (Byrne et al., 2003; Ganley, 1989; Puhl & Brownell, 2006). Moreover, people who struggle with their weight may also apply avoidance coping strategies (i.e., avoiding or leaving situations or social interactions) and stop engaging in certain fulfilling activities to escape from the harmful discriminatory messages they might expect to receive from people simply because of their body (Puhl & Brownell, 2003, 2006).

Therefore, it appears that weight-related experiential avoidance—that is, trying to deliberately avoid or control difficult thoughts, feelings, and bodily sensations about one's weight and eating (Lillis & Hayes, 2008)—plays a pivotal role in weight management, eating behaviors, and emotional well-being of people with overweight or obesity. Specifically, reducing weight-related experiential avoidance is associated with a decrease in binge eating (Afari et al., 2019) and a medium-term improvement in diet quality (Wooldridge et al., 2022). Likewise, weight-related experiential avoidance has not only shown to have a strong association with internalized weight-stigma (i.e., awareness of negative weight stereotypes and self-rating based on them; Romano et al., 2022), but several studies have also demonstrated its mediating role in the effect of several interventions on weight self-stigma, as well as on psychological distress, quality of life, emotional eating (i.e., eating in response to one's emotions), and body mass index (BMI; Lillis et al., 2009; Palmeira et al., 2019).

For the assessment of general levels of experiential avoidance and psychological inflexibility, the Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) was initially developed, which has been validated for various languages and cultural contexts, including Spanish (Ruiz et al., 2013). Furthermore, with the aim to

specifically measure weight-related experiential avoidance and psychological inflexibility, the Acceptance and Action Questionnaire for Weight-Related Difficulties (AAQ-W; Lillis & Hayes, 2008) was developed and validated in a sample of female adults who underwent a weight-loss intervention, making a substantial contribution to the assessment of a core process involved in weight control and well-being. This 22-item single-factor instrument total score showed good internal consistency and consistent correlations with self-reported weight-related measures. However, factor analysis needed further exploration, and the sample was too small and homogeneous for generalizing the results. Consequently, Weineland et al. (2013) analyzed the psychometric properties of the instrument in a larger sample of both female and male adults who had undergone bariatric surgery revealing a five-factor structure. Although the instrument proved good internal consistency for the global score, three of the five-factor scores showed low internal consistency.

Therefore, and also considering the three-dimensional structure found by Cardoso (2014), Palmeira et al. (2016) conducted a confirmatory factor analysis (CFA) comparing existing models in three different samples of women. The CFA revealed that the factor structure that best fitted the data was the 10-item three-factor second-order model referred to as Acceptance and Action Questionnaire for Weight-Related Difficulties-Revised (AAQW-R). The internal consistency was good for the global scale score and acceptable for the subscale scores, while they showed good temporal stability and convergent and divergent validity. It was also found to be sensitive to clinical change and sample differences, while the authors also confirmed the measurement invariance across a variety of BMI groups, therefore being the weight-related experiential avoidance instrument with best psychometric properties so far and frequently applied in the latest research of the area (Morse et al., 2022; Mueller et al., 2022; Palmeira et al., 2017; Tynan et al., 2022; Wooldridge et al., 2022).

With the aim of adapting the AAQW-R to other linguistic and cultural contexts, some studies have been conducted to date. Concretely, Dochat et al. (2020) validated the AAQW-R in a U.S. sample of adults with overweight or obesity, showing good internal consistency and convergent validity for the scores. Similarly, Pirmoradi et al. (2021) adapted the instrument to Persian, finding satisfactory fit to the data for most of the indices after deleting an item. Convergent validity was consistent with previous studies being the internal consistency of the global scale score acceptable, and questionable or unacceptable for the subscales (Pirmoradi et al., 2021). Regarding the Spanish-speaking context, Flynn et al. (2019) analyzed the factor structure and psychometric properties of the original AAQ-W among Hispanics mostly born and living in the United States, obtaining a six-item single-factor instrument with adequate psychometric qualities. However, this study did not perform the factor analysis of the AAQW-R second-order three-factor model, being the one with best psychometric qualities to date. Likewise, they examined the instrument in its English version and tested it among college-age Hispanics from the United States. Therefore, there is currently no Spanish version of the AAQW-R nor a weight-related experiential avoidance instrument validated in the Spanish adult population. Thus, the aim of the present study was to examine the factor structure and psychometric properties of the Spanish AAQW-R in a sample of Spanish-speaking adults living in Spain. Specifically, CFA and analyses of internal consistency, construct validity, external reliability, and sensitivity to clinical change were performed.

Method

Sample

Questionnaires were administered to a total 970 female, male, or nonbinary adults from the general Spanish population, from which 482 consent to participate and 89 did not fully complete the questionnaires, leading to a final sample of 393 participants for the present study. Whereas some subjects of the final sample ($n = 265$) were recruited by snowball sampling through social networks, without weight-based conditions set, those participants used to examine sensitivity to change ($n = 128$) were derived from primary care units of the region as part of the Mind&Life study (Iturbe et al., 2021), all falling within the overweight or obese range. Finally, two subsamples could be distinguished: Subsample 1 was composed of 168 individuals within the normal weight range ($BMI < 25$) and Subsample 2 included 225 individuals in the overweight or obesity range ($BMI \geq 25$). Subsample 1 was predominantly female (81.5%), and 33 years old, on average, while Subsample 2 was mostly female (71.6%), having a mean age of 48 years (Table 1).

Instruments

Sociodemographic and Anthropometric Data

Information was collected on participants' age, gender, height, and weight. The last two measures were used to estimate individuals' BMI (kg/m^2). Participants from the general population provided self-reported data for BMI estimation, while a nutritionist collected these data of subjects derived from primary care units, as part of the Mind&Life study in which they participated (Iturbe et al., 2021).

Weight-Related Experiential Avoidance

The AAQW-R is a weight-related experiential avoidance measure developed by Palmeira et al. (2016), based on the initial model proposed by Lillis and Hayes (2008). Ten translated items from the original 22 items were used to develop the AAQW-R, which has a second-order factor structure with a global score and the following

three first-order factors or subscales: (a) Food as Control, comprising three items (e.g., "When I have negative feelings, I use food to make myself feel better"); (b) Weight as Barrier to Living, composed of three items (e.g., "I need to feel better about how I look in order to live the life I want to"); and (c) Weight-Stigma, having four items (e.g., "Other people make it hard for me to accept myself"). Items are answered on a 7-point Likert scale, with options ranging from 1 (*never true*) to 7 (*always true*). The scores of each subscale are obtained by adding the respective item responses, while the total score is calculated by summing the scores of the three subscales. Higher scores on the global scale and subscales are indicators of greater weight-related experiential avoidance. The overall scale score showed good internal consistency ($\alpha = .88$) and acceptable internal consistency for the Food as Control ($\alpha = .77$), Weight as Barrier to Living ($\alpha = .73$), and Weight-Stigma ($\alpha = .79$) subscale scores (Palmeira et al., 2016).

Experiential Avoidance

This was assessed by the Spanish version of the Acceptance and Action Questionnaire-II (AAQ-II; Ruiz et al., 2013), which is a seven-item first-order scale using a 7-point Likert response scale ranging from 1 (*never true*) to 7 (*always true*). The overall score is obtained by summing the score of each item (e.g., "My painful experiences and memories make it difficult for me to live a life that I would value"), so that a higher score indicates a greater general experiential avoidance or psychological inflexibility. The total scale score showed good internal consistency ($\alpha = .88$).

Disordered Eating Behavior

Participants completed the Spanish version of the Eating Attitudes Test-12 (EAT-12; Veloso et al., 2010), which is a 12-item version of the EAT questionnaire (Garner et al., 1982) originally created for anorexia nervosa screening. This instrument has a response scale ranging from 1 (*never*) to 6 (*always*). CFA confirmed the three-factor structure of the scale: (a) Dieting ("I am preoccupied with a desire to be thinner"), (b) Bulimia and Food Preoccupation

Table 1

Descriptive Statistics for Total Sample, Sample 1 (Not Overweight), and Sample 2 (Overweight and Obese)

Measure	Total ($N = 393$)	Sample 1 ($n = 168$)	Sample 2 ($n = 225$)	χ^2/df	p	Cramer's V /Cohen's d
Age, M (SD)	41.49 (14.90)	32.88 (12.59)	47.93 (13.13)	11.48	<.001	1.16
Gender						
Female	75.8%	81.5%	71.6%	9.02	.011	.15
Male	23.7%	17.3%	28.4%			
Nonbinary	.5%	1.2%	0%			
BMI, M (SD)	29.31 (8.70)	21.65 (1.68)	34.99 (7.33)	26.37	<.001	2.35
AAQW-R total, M (SD)	31.45 (12.51)	25.48 (9.69)	35.88 (12.58)	9.22	<.001	.91
AAQW-R Food as Control, M (SD)	10.91 (5.07)	8.37 (4.17)	12.83 (4.83)	9.88	<.001	.98
AAQW-R Weight as Barrier, M (SD)	11.17 (4.62)	9.59 (4.17)	12.30 (4.59)	5.88	<.001	.61
AAQW-R Weight-Stigma, M (SD)	9.38 (4.95)	7.53 (3.78)	10.75 (5.27)	7.03	<.001	.68
AAQ-II, M (SD)	21.32 (10.32)	19.77 (9.39)	22.43 (10.82)	2.55	.011	.26
EAT-12, M (SD)	30.75 (8.01)	27.93 (8.31)	32.80 (7.10)	6.13	<.001	.64
IWQOL-Lite, M (SD)	55.93 (24.11)	39.36 (9.12)	68.38 (24.45)	16.17	<.001	1.49
GHQ-28, M (SD)	21.80 (12.61)	19.16 (11.31)	23.77 (13.20)	3.71	<.001	.37

Note. BMI = body mass index; AAQW-R = Acceptance and Action Questionnaire for Weight-Related Difficulties-Revised; AAQ-II = Acceptance and Action Questionnaire-II; EAT-12 = Eating Attitudes Test-12; IWQOL-Lite = Impact of Weight on Quality of Life-Lite; GHQ-28 = General Health Questionnaire-28.

("I feel that food controls my life"), and (c) Oral Control ("Other people think that I am too thin"), comprising four items each (Veloso et al., 2010). The total scores of the subscales are obtained by summing the scores of the corresponding items, while the global score is calculated by summing the scores of the subscales. Higher scores indicate greater disordered eating behaviors. The global scale score showed an acceptable internal consistency ($\alpha = .79$) and Cronbach's α values of .87, .60, and .52 for Dieting, Bulimia and Food Preoccupation, and Oral Control subscale scores, respectively (Veloso et al., 2010).

Impact of Weight on Quality of Life

The Spanish version of the Impact of Weight on Quality of Life questionnaire (IWQOL-Lite; Andrés et al., 2012) was used, which consists of 31 items assessing the impact of weight on various areas of life. Response options are given on a 5-point Likert scale ranging from 1 (*never true*) to 5 (*always true*). Analyses revealed a second-order five-factor structure with a global scale and the following five subscales (Andrés et al., 2012): (a) Physical Function, with 11 items ("Because of my weight, I have trouble picking up objects"); (b) Self-Esteem, comprising seven items ("Because of my weight, I am self-conscious"); (c) Sexual Life, composed of four items ("Because of my weight, I do not enjoy sexual activity"); (d) Public Distress, with five items ("Because of my weight, I experience ridicule, teasing, or unwanted attention"); and (e) Work, with four items ("Because of my weight, I have trouble getting things accomplished or meeting my responsibilities"). An additional question about previous health-related problems is listed at the end of the questionnaire. The scores of the subscales are calculated by summing the scores of the items, while the overall score is obtained by summing the scores of the subscales. Thus, higher scores indicate a greater IWQOL-Lite. IWQOL-Lite's Spanish adaptation scores showed excellent internal consistency, having Cronbach's α values of .95, .93, .92, .91, .90, and .88, for the total scale and Physical Function, Self-Esteem, Sexual Life, Public Distress, and Work subscale scores, respectively (Andrés et al., 2012).

Psychological Distress

Participants completed the Spanish version of the General Health Questionnaire-28 (GHQ-28; Lobo et al., 1986) containing 28 items answered on a 4-point Likert scale ranging from 0 (e.g., *not at all*) to 3 (e.g., *much more than usual*). The instrument consists of a total scale and four subscales of seven items each: (a) Somatic Symptoms ("Have you recently been feeling in need of a good tonic?"), (b) Anxiety and Insomnia ("Have you recently lost much sleep over worry?"), (c) Social Dysfunction ("Have you recently been managing to keep yourself busy and occupied?"), and (d) Severe Depression ("Have you recently been thinking of yourself as a worthless person?"). The total scores for the subscales are obtained by summing the item scores, while the global score is calculated by summing the scores of the subscales. Higher scores indicate greater psychological distress. The questionnaire scores showed excellent internal consistency, having Cronbach's α values of .97, .93, .92, .91, and .97, for the global scale and Somatic Symptoms, Anxiety and Insomnia, Social Dysfunction, and Severe Depression scores, respectively (Godoy-Izquierdo et al., 2002).

Procedure

This study is part of the Mind&Life project (Iturbe et al., 2021), which has the approval of the Ethics Committee of the Basque Health Service (protocol code: MAI-MIN-2018-01). While snowball sampling was used to recruit some participants, the subsample used to study sensitivity to change was recruited from primary care units of the area. Regarding the snowball sampling procedure, researchers disseminated a message with information about the study and a link to access the questionnaires through a social network. Researchers' contact details were provided in case further information was needed. The online platform used for data collection was Encuesta Fácil (www.encuestafacil.com). Regarding the recruitment of the sample derived from primary care units, the principal researchers of the Mind&Life study to which the present investigation adheres previously contacted medical and nursing professionals of the service to inform people seeking weight management treatment about the Mind&Life study (Iturbe et al., 2021). If interested in participating, they would contact study investigators, who would ensure that the inclusion criteria were met. Then, as part of the Mind&Life study assessments, a questionnaire battery was administered both at baseline and immediately after receiving the treatment. Besides, to analyze test-retest reliability, a subsample ($n = 63$) was sent again the Spanish AAQW-R by email 2 weeks after, in order to compare both results. Incomplete questionnaires were not included in the analyses. All participants provided consent before participating. This study was not preregistered. Data generated during the present study are available upon reasonable request.

Concerning the development of the Spanish version of the instrument, the original 10 English items were translated to Spanish using a forward-backward design, since this is one of the best methods for evaluating the quality of the translation (Balluerka et al., 2007; Hambleton, 2005). Two bilingual researchers independently translated each of the 10 English items into Spanish, which were then compared and debated until agreement was reached. These Spanish items were then translated back into English by another two bilingual researchers, after which it was determined whether these proposed items were essentially similar to the English ones. Consistent with the Portuguese version, it was then agreed that the response format would consist of rating the truthfulness of the questions on a 7-point Likert scale ranging from 1 (*never true*) to 7 (*always true*).

Data Analysis

Analyses were carried out using IBM SPSS Statistics (Version 26) and AMOS Software (Version 26).

Descriptive Statistics and Preliminary Data Analysis

The descriptive statistics for the sociodemographic and outcome variables were examined for the overall sample and each subsample, while subsample comparisons were also carried out. In order to decide on the CFA estimator, skewness and kurtosis were analyzed for each item, considering that values lower than ± 2 indicate relative univariate normality (Hahs-Vaughn & Lomax, 2020). Likewise, multicollinearity was tested by examining the variance inflation factor (VIF), with values higher than five indicating multicollinearity (Kline, 2015). Mahalanobis distance was employed to detect potential outliers.

Confirmatory Factor Analysis

CFA was conducted on the overall sample to test the fit of the 10-item three-factor structure and 10-item three-factor second-order structure. Following the general sequence of CFA-based higher order factor analysis, the first-order model was first examined and based on the pattern of correlations among the factors, the posited second-order model was subsequently analyzed (Brown, 2015). When assumptions were met, the maximum likelihood estimation procedure was selected as this is one of the most frequently used estimation methods, as well as being robust and suited to the goals of this study (Brown, 2015).

Several goodness-of-fit indices were used to assess the model fit: normed chi-square ($\chi^2/df < 2$: good and < 3 : acceptable; Schermelleh-Engel et al., 2003), root-mean-square error of approximation (RMSEA $\leq .05$: good, $\leq .08$: acceptable, and $\leq .10$: poor; Brown, 2015; Kline, 2015), adjusted goodness-of-fit index (AGFI $\geq .90$: good and $\geq .95$: desirable; Jöreskog & Sörbom, 1996), Tucker–Lewis index (TLI $\geq .90$: acceptable and $\geq .95$: desirable; Hu & Bentler, 1998), comparative fit index (CFI $\geq .90$: acceptable and $\geq .95$: desirable; Hu & Bentler, 1998), and the standardized root-mean-square residual (SRMR $< .05$: good and $< .08$: acceptable; Hu & Bentler, 1999).

Internal Reliability

The Cronbach's α coefficient ($\alpha \geq .70$: acceptable; Streiner & Norman, 2008) of the total scale and subscales scores and item-total correlations were used to determine internal consistency.

Construct Validity

Convergent validity was examined through Pearson correlation coefficients (Cohen et al., 2003), where r values of .00–.30, .30–.50, .50–.70, .70–.90, .90–1.00 indicated negligible, low, moderate, high, and very high correlations, respectively (Hinkle et al., 2003). Moderate positive correlations were expected between the Spanish AAQW-R overall score and those of AAQ-II, EAT-12, and IWQOL-Lite,

whereas we anticipated low-to-moderate correlations with GHQ-28 and BMI.

External Reliability

To assess test–retest reliability, the instrument was again administered to a subsample ($n = 63$) 2 weeks after it had been completed for the first time. Pearson product-moment correlations and t tests for paired samples were used for the analyses.

Sensitivity to Change

To analyze if the Spanish version of the AAQW-R was sensitive to capturing clinical change, analyses were conducted on a subsample of adults with overweight or obesity ($n = 128$) who had received either treatment as usual (TAU) or TAU plus Mind&Life intervention, an ACT- and mindfulness-based intervention (Iturbe et al., 2021). An analysis of covariance was carried out to examine the difference between groups' AAQW-R global and subscale scores at postintervention, introducing those variables in which groups differed at baseline and other confounding variables such as gender, age, average annual neighborhood income, or the stage of the COVID-19 pandemic in which assessments were conducted, as covariates.

Results

Descriptive Statistics and Preliminary Data Analysis

Sample characteristics and subsample comparisons are displayed in Table 1. The overall sample was middle-aged, predominantly female, and fell in the overweight range. Statistically significant differences between samples were observed in all the variables, except for gender and AAQ-II, where both subsamples had similar scores. As displayed in Table 2, item skewness and kurtosis fell within the range of ± 2 , indicating univariate normality. Moreover, VIF values were lower than five, thus supporting the assumption of nonmulticollinearity. Although some outliers were detected, it was

Table 2

Means, Standard Deviations, Skewness, Kurtosis, and Corrected Item-Total Correlations for Acceptance and Action Questionnaire for Weight-Related Difficulties–Revised (AAQW-R) and Its Dimensions (N = 393)

Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis	Corrected item-total <i>r</i>
AAQW-R Food as Control	10.91	5.07	0.173	−0.876	
1. When I have negative feelings, I use food to make myself feel better.	3.67	1.85	0.112	−0.988	.62
6. My eating urges control me.	3.30	1.80	0.307	−0.956	.72
7. I need to get rid of my eating urges to eat better.	3.94	2.10	0.003	−1.312	.62
AAQW-R Weight as Barrier to Living	11.17	4.62	0.086	−0.730	
2. I need to feel better about how I look in order to live the life I want to.	4.10	1.83	−0.132	−0.959	.59
4. If I'm overweight, I can't live the life I want to.	3.63	1.93	0.182	−1.055	.49
5. If I gain weight, that means I have failed.	3.43	1.95	0.206	−1.145	.70
AAQW-R Weight-Stigma	9.38	4.95	1.100	1.034	
3. Other people make it hard for me to accept myself.	2.08	1.46	1.509	1.855	.52
8. If I eat something bad, the whole day is a waste.	2.70	1.63	0.809	−0.077	.61
9. I should be ashamed of my body.	2.26	1.69	1.347	0.949	.66
10. I need to avoid social situations where people might judge me.	2.34	1.62	1.134	0.484	.63
AAQW-R total	31.45	12.52	0.569	−0.063	

Note. Adapted from “Measuring Avoidance and Inflexibility in Weight Related Problems,” by J. Lillis and S. C. Hayes, 2008, *International Journal of Behavioral Consultation and Therapy*, 4(4), p. 349 (<https://doi.org/10.1037/h0100865>). Copyright 2008 by the American Psychological Association.

Table 3
Goodness-of-Fit Indices for Comparative Models

Models	df	χ^2/df	RMSEA [90% CI]	AGFI	TLI	CFI	SRMR
1. Three-factor first-order (10 items)	32	2.839	.068* [.052, .085]	.929	.952	.966	.0422
2. Three-factor second-order (10 items)	32	2.839	.068* [.052, .085]	.929	.952	.966	.0422

Note. df = degrees of freedom; χ^2/df = normed chi-square; RMSEA = root-mean-square error of approximation; CI = confidence interval; AGFI = adjusted goodness-of-fit index; TLI = Tucker–Lewis index; CFI = comparative fit index; SRMR = standardized root-mean-square residual.
 * $p < .05$.

decided to maintain them, in order to gain representativeness, in accordance with Palmeira et al. (2016).

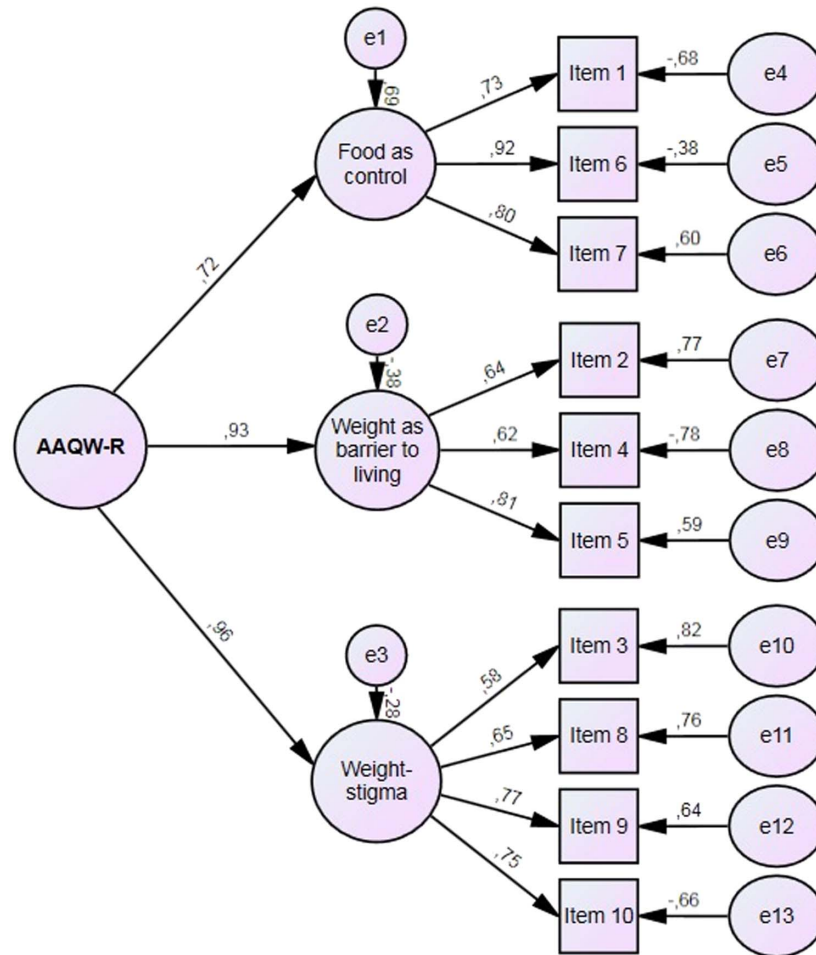
Confirmatory Factor Analyses

Model 1

First, the three-factor first-order (10 items) model proposed by Cardoso (2014) and confirmed by Palmeira et al. (2016) was examined. The latent variables were Food as Control (three items), Weight

as Barrier to Living (three items), and Self-Stigma (four items). Good results were yielded in terms of fit (Table 3), given that χ^2/df and RMSEA indicated an acceptable model fit, AGFI and SRMR a good model fit, and TLI and CFI a desirable model fit. All standardized factor loadings ranged from moderate to very high, statistically significant, and positive. Specifically, Food as Control factor loadings varied between .73 and .92, Weight as Barrier to Living between .62 and .81, while Self-Stigma saturations were between .58 and .77 (Figure 1). The three first-order factors were intercorrelated: moderate,

Figure 1
Confirmatory Factor Analysis of Model 2 of the AAQW-R



Note. AAQW-R = Acceptance and Action Questionnaire for Weight-Related Difficulties–Revised.

significant, and positive correlations were found between Food as Control and Weight as Barrier to Living ($r = .67, p < .001$), and between Food as Control and Weight-Stigma ($r = .69, p < .001$), while a high, significant, and positive correlation was observed between Weight as Barrier to Living and Weight-Stigma ($r = .89, p < .001$), indicating that a second-order factor analysis was reasonable.

Model 2

Next, the fit of the most recent second-order three-factor model (10 items) proposed by Palmeira et al. (2016) was tested, which introduced a higher order factor that accounted for the correlations between the three first-order factors. Since Model 2 was just-identified, the factor loadings and model fit indices were equal to those of the previously examined model (Table 3). Standardized correlations between the theoretical second-order factor and first-order factors were high-to-very high, significant, and positive (Figure 1). Specifically, the correlations between the theoretical second-order factor and first-order Food as Control, Weight as Barrier to Living, and Weight-Stigma factors were .72, .93, and .96, respectively.

Internal Reliability

The AAQW-R showed acceptable-to-good internal consistency estimates for the scores of the global scale ($\alpha = .88$), and Food as Control ($\alpha = .85$), Weight as Barrier to Living ($\alpha = .74$), and Weight-Stigma ($\alpha = .77$) subscales. Item-total correlations were all above .40, supporting the internal consistency of the measure scores (Table 2).

Construct Validity

Correlations between the scores of the AAQW-R scale and subscales and convergent validity measure scores are detailed in

Table 4. Overall, the total AAQW-R score showed highly positive correlations with the IWQOL-Lite total score, while subscale scores revealed moderate and positive correlations. In addition, the total AAQW-R and the subscale scores moderately and positively correlated with AAQ-II global score, apart from the Food as Control subscale score, which showed low and positive correlations. Similarly, both AAQW-R total and the Weight as Barrier to Living subscale scores moderately and positively correlated with total EAT-12 score, whereas the Food as Control and Weight-Stigma subscale scores showed weak and positive correlations. Finally, total AAQW-R score and the three subscale scores showed low and positive correlations with BMI and GHQ-28.

External Reliability

Test-retest results showed high, significant, and positive correlations between the two measures for the global score ($r = .87, p < .001$) and Food as Control ($r = .77, p < .001$), Weight as Barrier to Living ($r = .72, p < .001$), and Weight-Stigma ($r = .86, p < .001$) subscale scores. Similarly, paired-sample *t* test revealed no significant differences between the two measures for the global score, $t(62) = 1.052, p = .297$, Food as Control, $t(62) = .937, p = .352$, Weight as Barrier to Living, $t(62) = .255, p = .799$, and Weight-Stigma, $t(62) = 1.745, p = .086$, subscale scores.

Sensitivity to Change

AAQW-R appeared to be sensitive in detecting intervention changes, since individuals receiving the ACT- and mindfulness-based intervention showed lower scores on the global scale, $F(1, 103) = 6.91, p = .018$, partial $\eta^2 = .063$, and on the Food as Control, $F(1, 103) = 7.93, p = .006$, partial $\eta^2 = .072$, and Weight-Stigma, $F(1, 103) = 14.09, p = .001$, partial $\eta^2 = .120$, subscales compared with the group receiving TAU at postintervention. In contrast, no

Table 4

Correlations Between AAQW-R Total and Subscale Scores and Construct Validity Measures

Measure	AAQW-R total		AAQW-R Food as Control		AAQW-R Weight as a Barrier to Living		AAQW-R Weight-Stigma	
		<i>p</i>		<i>p</i>		<i>p</i>		<i>p</i>
BMI	.452	<.001	.429	<.001	.344	<.001	.385	<.001
AAQ-II total	.629	<.001	.479	<.001	.521	<.001	.619	<.001
EAT-12 total	.586	<.001	.486	<.001	.564	<.001	.458	<.001
EAT-12 Dieting	.560	<.001	.490	<.001	.534	<.001	.418	<.001
EAT-12 Bulimia	.598	<.001	.544	<.001	.516	<.001	.475	<.001
EAT-12 Oral Control	-.073	-.147	-.171	<.001	.018	.730	-.027	.593
IWQOL-Lite total	.739	<.001	.617	<.001	.590	<.001	.685	<.001
IWQOL-Lite Physical Function	.605	<.001	.541	<.001	.470	<.001	.537	<.001
IWQOL-Lite Self-Esteem	.734	<.001	.586	<.001	.617	<.001	.678	<.001
IWQOL-Lite Sexual Life	.620	<.001	.483	<.001	.495	<.001	.608	<.001
IWQOL-Lite Public Distress	.555	<.001	.454	<.001	.427	<.001	.538	<.001
IWQOL-Lite Work	.508	<.001	.433	<.001	.384	<.001	.482	<.001
GHQ-28 total	.485	<.001	.426	<.001	.351	<.001	.463	<.001
GHQ-28 Somatic Symptoms	.385	<.001	.367	<.001	.251	<.001	.364	<.001
GHQ-28 Anxiety and Insomnia	.405	<.001	.338	<.001	.320	<.001	.381	<.001
GHQ-28 Social Dysfunction	.360	<.001	.328	<.001	.262	<.001	.331	<.001
GHQ-28 Severe Depression	.428	<.001	.356	<.001	.305	<.001	.434	<.001

Note. AAQ-II = Acceptance and Action Questionnaire-II; AAQW-R = Acceptance and Action Questionnaire for Weight-Related Difficulties-Revised; BMI = body mass index; EAT-12 = Eating Attitudes Test-12; GHQ-28 = General Health Questionnaire-28; IWQOL-Lite = Impact of Weight on Quality of Life-Lite.

differences were found between conditions in the Weight as Barrier to Living, $F(1, 103) = 0.00, p = .957, \text{partial } \eta^2 > .001$, subscale scores.

Discussion

The present study sought to conduct a psychometric analysis of the Spanish version of the AAQW-R, examining the factor structure and psychometric properties of the instrument in a sample of Spanish adults. Analyses confirmed the suitability of the Spanish 10-item three-factor AAQW-R, favoring the second-order structure for parsimoniousness. The instrument showed good internal consistency for the whole scale score, similar to previous AAQW-R validation studies (Dochat et al., 2020; Palmeira et al., 2016). Likewise, internal consistency of two of the three subscale scores were comparable with previous results. It is worth noting that in the present study, the Food as Control subscale score appeared to have greater internal consistency than reported in earlier studies (Dochat et al., 2020; Palmeira et al., 2016).

Regarding convergent validity, findings were generally consistent with previous research and were in line with our expectations, since the AAQW-R total score showed significant and positive relationships in the high–moderate range with the IWQOL-Lite, general experiential avoidance, and disordered eating behavior. Similarly, AAQW-R global score showed significant, positive, and low correlations with psychological distress and BMI. The correlations between the overall AAQW-R score and the IWQOL-Lite scores were higher than expected, as strong relationships were observed between both variables. Comparable results were found in previous studies, where the weight-related experiential avoidance global score correlated moderately with obesity-specific quality of life (Dochat et al., 2020; Lillis & Hayes, 2008). This finding suggests that it is vitally important for obesity treatments to focus on this process to promote the overall well-being of people dealing with excess weight-related issues, as suggested by other authors (Lillis et al., 2009; Palmeira et al., 2019).

As expected, AAQW-R total score showed a moderate correlation with AAQ-II score, similar to Lillis and Hayes (2008), Weineland et al. (2013), Dochat et al. (2020), and Flynn et al. (2019). This finding contrasts with that reported by Palmeira et al. (2016) and Pirmoradi et al. (2021), since they found low correlations between the two measure scores. These results suggest that, although these are tightly related constructs, they still differ, with one being specific to the weight-related domain. Accordingly, baseline comparisons between subsamples highlight that while participants obtained similar scores for overall experiential avoidance regardless of BMI, individuals in the overweight range had higher weight-related experiential avoidance levels, supporting the need for an instrument that captures the particular experiences of this population. In addition, the present instrument total score yielded a moderate relationship with the global scale of the EAT-12, as expected. This result is fully in line with most previous studies (Dochat et al., 2020; Flynn et al., 2019; Palmeira et al., 2016; Weineland et al., 2013), which emphasizes the importance of targeting acceptance-related processes as a preventive strategy for helping people struggling with weight to avoid developing eating disorders.

Partially matching our expectations, the correlations between AAQW-R and GHQ-28 scores were significant but low, consistent with the original study by Lillis and Hayes (2008). Other previous

validation studies specifically analyzed the relationship between the AAQW-R score and depression and/or anxiety, obtaining either low or moderate associations (Dochat et al., 2020; Pirmoradi et al., 2021; Weineland et al., 2013), comparable to the results observed in the present study for the Anxiety and Insomnia and Severe Depression subscale scores. This suggests that although low in magnitude, an association exists between weight-related avoidance patterns and overall psychological discomfort (Lillis et al., 2009; Petersen et al., 2021). In partial agreement with our predictions, the correlations between AAQW-R scores and BMI appeared to be significant but low in the present study. This result agrees with the original work of Lillis and Hayes (2008). Moreover, while some previous studies found insignificant relationships with BMI (Dochat et al., 2020; Flynn et al., 2019; Weineland et al., 2013), Palmeira et al. (2016) observed a moderate associations between AAQW-R scores and BMI. However, the fact that most of the results make visible the surprisingly weak relationship between weight-related experiential avoidance and weight per se prompts us to conclude that people probably tend to avoid weight-related inner experiences because they are experiencing some kind of discomfort not attributable to their weight. In fact, the literature argues that the negative consequences of weight-related stigma and self-stigma (e.g., psychological distress, emotional eating, uncontrolled eating) are also experienced by people in the normal weight range (Himmelstein et al., 2015; O'Brien et al., 2016), which might indicate that they are likely to avoid weight-related distressing inner states due to the perception and/or internalization of stigma, regardless of their absolute weight.

Furthermore, considering the test–retest values of the global scale and the subscale punctuations, the measure scores proved to be highly stable over time. These findings are compatible with those of Palmeira et al. (2016) regarding the scores of the global scale and subscales, as well as those observed in Weineland et al. (2013) and Lillis and Hayes (2008) for the global scale score, even though their scales had different factor structures and characteristics. Finally, AAQW-R not only appeared to be a sensitive instrument for capturing different levels of AAQW-R across the spectrum of BMIs but it can also detect between-group differences in weight-related experiential avoidance after the participants had received distinct treatments throughout a 5-month period, in line with Palmeira et al. (2016) findings. This makes the Spanish AAQW-R scale scores reliable for cross-sectional studies and for evaluating the impact of weight management treatments.

One of the strengths of this study is that the sample was composed of women, men, and nonbinary adults (although the majority were women). Likewise, it is noteworthy that the instrument has been validated in a population group with a varied BMI and can be applied to all individuals regardless of their current body weight. Further, it is notable that a subsample of our participants was recruited from primary care units, which acts as an initial gateway to public health care for people of varying socioeconomic status, which favors the generalizability of the results. However, the present study also has limitations that should be considered. In particular, most of the data were collected via self-report instruments. Furthermore, data on weight and height to obtain BMI were collected using different methods (i.e., self-reported and measured by researchers), which can be a source of bias. Future studies should assess BMI with the same method, being more accurate to measure it by researchers using the same devices, thus avoiding social desirability bias. Moreover, in spite of the broad age range of our sample, the study participants

included only adults, making it impossible to generalize our findings to adolescents or children. Besides, discriminant validity was not examined in the present study, being unable to statistically ensure that conceptually different constructs are not highly correlated, actually. In addition, no equivalence testing was conducted, not being able to make statements about measurement invariance of the model across groups. Hence, future research ought to specifically analyze discriminant validity and equivalence, to further explore the construct validity and invariance of the Spanish AAQW-R.

Overall, our findings support the use of the Spanish AAQW-R to assess weight-related experiential avoidance in adults from the Spanish context. Furthermore, the present study suggests that the Spanish AAQW-R can be applied not only in research but also in the clinical setting.

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