Psychological Inflexibility Among Hispanic College Students: Introducing the 6-Item Acceptance and Action Questionnaire for Weight-Related Difficulties

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The purpose of this study was to examine the psychometric properties of the Acceptance and Action Questionnaire for Weight-Related Difficulties (AAQW) among Hispanic college students ($n = 313$). Results from exploratory and confirmatory factor analyses supported a 1-factor, 6-item solution, which we call the AAQW-6. Additionally, psychological inflexibility for weight-related difficulties was associated with higher levels of disordered eating and general psychological inflexibility and lower levels of mindfulness. The AAQW-6 added to prediction of disordered eating above and beyond body mass index (BMI) and general psychological inflexibility. This study provides initial psychometric support for using the AAQW-6 with Hispanic college students. Future studies should replicate the factor structure and related psychometrics of the AAQW-6 and further determine whether it allows clinicians and researchers to predict and influence relevant behaviors in the lives of individuals across demographics, Hispanic and otherwise.

Keywords: Acceptance and Action Questionnaire for Weight-Related Difficulties, Hispanic, psychological flexibility, disordered eating, weight

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Although college-age adults tend toward lower BMIs than older age brackets, a substantial number weigh in at unhealthy levels. Data from 93,034 college students indicated 22% could be categorized as overweight and 13% as obese (American College Health Association, 2015). Others have found even higher rates among college-age Hispanics, with 26% reporting overweight and 29% obese BMIs (Kaplan et al., 2014).

Hispanic college students face other weight-related issues. Eating disorder prevalence estimates range from 1% to 17% among college students (e.g., Diemer, Grant, Munn-Chernoff, Patterson, & Duncan, 2015; Hoerr, Bokram, Lugo, Bivins, & Keast, 2002), with Hispanics having similar lifetime prevalence rates of eating disorders as Caucasians (Alegria et al., 2007). Estimates of disordered eating (e.g., restrictive and emotional) in college students are even higher than eating disorders, ranging from 10% to 61% (Hoerr et al., 2002; Mond, Hay, Rodgers, Owen, & Beumont, 2004; Schaumberg, Anderson, Reilly, & Anderson, 2014). Hispanic and non-Hispanic Caucasian college students engage in similar rates of disordered eating (Rich & Thomas, 2008). Disordered eat-

ing is not limited to higher weight categories, and unhealthy management (e.g., laxatives, self-induced vomiting, fasting) is more prevalent among underweight and normal weight college women (e.g., Gordon, Heath, Holmes, & Christy, 2000). Weight concern and body image dissatisfaction have been linked to disordered eating, regardless of BMI (e.g., Brannan & Petrie, 2008; Cash, Morrow, Hrabosky, & Perry, 2004). It appears that Hispanic and non-Hispanic Caucasian adults report comparable body image dissatisfaction (Grabe & Hyde, 2006; Ricciardelli, McCabe, Williams, & Thompson, 2007).

Examining variables that influence weight-related difficulties may help improve treatment. One variable that has been linked to these difficulties is psychological inflexibility (e.g., Hill, Masuda, & Latzman, 2013; Lillis & Hayes, 2008; Sandoz, Wilson, Merwin, & Kellum, 2013). Considering the large and growing Hispanic population within the United States (United States Census Bureau, 2014), studying such variables using Hispanic samples is particularly important to effectively address weight-related concerns.

Psychological Inflexibility

Psychological inflexibility refers to difficulty engaging in values-based activities when doing so includes aversive experiences (e.g., worries, negative affect; Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Researchers have linked psychological inflexibility to a range of psychological difficulties, such as depression, anxiety, lower quality of life, and worker burnout (Hayes et al., 2004, 2006; Sandoz et al., 2013). Acceptance and commitment therapy (ACT) aims to decrease psychological inflexibility and change in this construct is theorized to be ACT's mechanism of action (Hayes et al., 2006). There is growing empirical support for the efficacy of ACT for a wide range of clinical and nonclinical difficulties (see Ruiz, 2010; Hayes et al., 2006 for reviews), including weight loss, body image dissatisfaction, and disordered eating (e.g., Lillis, Hayes, Bunting, & Masuda, 2009; Pearson, Follette, & Hayes, 2012; Weineland, Arvidsson, Kakoulidis, & Dahl, 2012).

Although ACT-based interventions likely need modifications based on cultural context (e.g., metaphors and exercises used), the processes targeted in ACT should be similar across cultures (Masuda, 2014), the evidence for which is growing (Hayes et al., 2006; Hayes, Muto, & Masuda, 2011). Among Hispanics, psychological inflexibility has been linked to distress and poorer life satisfaction among college students (Flynn, Berkout, & Bordieri, 2016), but more studies are needed to examine the model among Hispanics.

Weight-Related Psychological Inflexibility and Its Measurement

Weight-related psychological inflexibility entails efforts to avoid unwanted experiences pertaining to weight, particularly when efforts involve acting incongruently with one's values. Someone may restrict eating when she has the thought, "I'm fat," even though she values self-care. Or someone who deeply values friendships might not go to a pool party in an effort to escape or avoid negative feelings (e.g., embarrassment) or thoughts (e.g., "People will reject me if they see me in a swimsuit"). In both examples, the individual's acts are based on their unwanted thoughts or feelings rather than values.

The Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) and its revised version, the AAQ-II (Bond et al., 2011), are the most commonly used measures of psychological inflexibility. Due to the demonstrated usefulness of both (e.g., Bond et al., 2011; Hayes et al., 2006), researchers have proposed variations targeting specific domains, such as smoking urges (Gifford et al., 2004). Sometimes modifications have been more successful predictors than the general AAQs, a prime example of which is the Acceptance and Action Questionnaire for Weight-Related Difficulties (AAQW; Lillis & Hayes, 2008).

The AAQW (Lillis & Hayes, 2008) was developed to measure psychological inflexibility around weight-related issues. The 22 items (e.g., "I am not in control of what I eat") in the AAQW are assessed on a 7-point Likert-type scale (*never true* to *always true*). The first 10 items have the instruction prompt: "Please rate the truth of each statement as it applied to you." The instruction prompt for the remaining 12 items reads "Imagine that the following thoughts occurred to you right now. How valid

or believable would each be?" Five of the original 22 items are positively worded and reverse-scored, with the remaining items negatively worded.

In the initial validation study, the participants were middle-aged and in a weight-maintenance program (Lillis et al., 2008) and in a subsequent study, the participants were middle-aged bariatric surgery patients (Weineland, Lillis, & Dahl, 2013). The AAQW showed good internal consistency (α = .86–.88; Lillis et al., 2008; Weineland et al., 2013). Yet the subscale structure remains ambiguous. Of the two extant principle component analyses (PCAs), Lillis and colleagues reported a one-component solution, but Weineland and colleagues reported five components.

The AAQW correlates in the expected directions with related constructs, such as general psychological inflexibility, disordered eating, and body shape dissatisfaction, satisfaction with life, obesity-related quality of life, and self-reported workouts in the past week (Lillis et al., 2008; Weineland et al., 2013). Furthermore, in the sample of bariatric surgery patients, AAQW scores assessed at 6 months following surgery predicted satisfaction with life, negative affect, emotional eating, and disordered eating (Weineland et al., 2013). The AAQW has also shown utility in multiple treatment studies. Participants who received an ACT intervention for weight-maintenance had significantly lower AAQWs at the 3-month follow-up than those in the control condition (Lillis & Hayes, 2008). For participants in the ACT condition in this same study, AAQW mediated changes in BMI (Lillis et al., 2009) and binge eating (Lillis, Hayes, & Levin, 2011). Another study examining the efficacy of ACT for body dissatisfaction and disordered eating attitudes found that ACT participants had significantly lower AAQWs at the 2-week follow-up than those in the waitlist condition (medium effect size; Pearson et al., 2012).

According to the developers of the AAQW, the measure was designed to assess the "acceptance of weight-related feelings, defusion from weight-related thoughts, and the degree to which thoughts and feelings interfere with valued action" (Lillis & Hayes, 2008, p. 350). Although difficult weight-related thoughts and feelings are not limited to individuals who are overweight or obese, the psychometric properties of the AAQW have yet to be examined outside these samples. Additionally, the AAQW has yet to be investigated with college-age students, who also have high rates of being overweight, disordered eating, and body image dissatisfaction.

Measuring Psychological Inflexibility for Weight-Related Difficulties With Hispanics

Psychometric properties of the AAQW have not been examined using ethnically/racially diverse samples. Regarding the two AAQW psychometric studies, one study's sample was 93% Caucasian (Lillis et al., 2008) and the participants from the other study were from Sweden (Weineland et al., 2013) with no racial/ethnic information provided. It is important that Hispanic and other racial/ethnic minorities are adequately represented to determine whether psychological processes have similar functions. Findings of variability in symptom presentation (Earl et al., 2015) and treatment seeking (Cook et al., 2014) across ethnic groups highlight the potential for differential impact of psychological processes. Additionally, the extent to which a measurement instrument retains validity and psychometric properties may vary across ethnic groups due to distinct interpretation of items or differential item function (Groth-Marnat & Wright, 2016). Such examinations help determine when culture-specific measurement instruments (Cervantes, Fisher, Córdova, & Napper, 2012) are needed.

Current Study

This purpose of the current study was to add to the literature by further examining the psychometric properties of the AAQW. Though two studies have examined the AAQW using PCA, the number of well-defined constructs within the measure remains ambiguous. Additionally, Weineland and colleagues (2013) used an orthogonal Varimax rotation in their PCA and Lillis and Hayes (2008) did not report the rotation used. Problems arise when examining the structure of a measure using PCA and an orthogonal rotation, which is why factor analyses with oblique rotations are recommended instead (Preacher & MacCallum, 2003; Schmitt, 2011). Given inconsistencies among

the published factor structures of the AAQW and the utility of this measure in multiple treatment studies (e.g., Lillis & Hayes, 2008; Lillis et al., 2009; Pearson et al., 2012), we decided to split our sample and examine the factor structure of the AAQW using an exploratory analysis with an oblique rotation in our first subsample for Study 1, followed by a confirmatory factor analysis (CFA) in our second subsample for Study 2.

In addition to strengthening the extant literature on AAQW factor structure, we sought to examine its psychometrics in populations it hasn't been validated with: Hispanics, college students, and individuals in all BMI categories. To achieve these goals, our aims were to examine the AAQW's internal consistency, its associations with related constructs, and whether the AAQW accounts for unique variance above and beyond BMI and general psychological inflexibility in explaining disordered eating in both Study 1 and Study 2. Specifically, we hypothesized that psychological inflexibility for weight-related difficulties would positively correlate with BMI, disordered eating, and general inflexibility and negatively correlate with mindfulness. We also expected the AAQW should be a robust predictor of disordered eating.

Method

Measures

Demographic questionnaire. With a brief questionnaire, we assessed demographic characteristics, such as sex, age, race/ethnicity, country of origin, year in college, and self-reported height and weight. We used the World Health Organization's (1995) BMI classification system and calculated participants' BMI using self-reported heights and weights.

AAQW. The AAQW (Lillis & Hayes, 2008) was developed to measure psychological inflexibility around weight-related issues. AAQW scoring and psychometric properties were discussed earlier in this paper.

AAQ-II. The AAQ-II (Bond et al., 2011) is a seven-item measure of general psychological inflexibility and has been shown to have a one-factor structure in both Caucasian and Hispanic samples (e.g., Bond et al., 2011; Flynn et al., 2016). Statements such as "I'm afraid of my feelings" are rated on a 7-point Likert-type scale

(*never true* to *always true*). Higher scores indicate greater inflexibility. In our Study 1 subsample, Cronbach's alpha was .95, and in our second subsample, it was .94. In previous studies, the AAQ-II evidenced good predictive validity, convergent validity, discriminant validity, and incremental validity, including with Hispanic college students (e.g., Bond et al., 2011; Flynn et al., 2016).

Philadelphia Mindfulness Scale (PHLMS; Cardaciotto, Herbert, Forman, Moitra, & Farrow, 2008). The 20-item PHLMS assesses two aspects of mindfulness: present moment awareness and nonjudgmental acceptance. Items (e.g., I am aware of what thoughts are passing through my mind") use a 5-point Likert-type scale (*never* to *very often*). Higher scores reflect high levels of mindfulness. The PHLMS has demonstrated good internal consistency and concurrent, convergent, and discriminant validity (Cardaciotto et al., 2008) but has yet to be evaluated using Hispanic samples. For the current study, Cronbach's alpha was in the good range for both awareness (.81 Studies 1 and 2) and nonjudgmental acceptance (.87 Study 1 subsample and .85 Study 2 subsample).

Eating Attitudes Test–26 (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982). The EAT-26 is a 26-item self-report measure of disordered eating behavior that uses a 6-point Likert scale ranging from *always* to *never*. The EAT-26 has three subscales: Dieting, Food Preoccupation, and Oral Control. Dieting measures avoidance of fattening foods and preoccupations with becoming thinner. Food Preoccupation consists of items related to one's thoughts about food and bulimic behavior. Lastly, Oral Control includes items related to how highly individuals exert control over eating or felt pressure by others to gain weight or eat more. Additionally, a total score is widely used as a general indicator of disordered eating behaviors (Anderson, Lundgren, Shapiro, & Paulosky, 2004). Higher total and individual subscales scores signify greater disordered eating.

In previous studies, the EAT-26 evidenced good test–retest reliability, criterion-related validity, discriminant validity, and concurrent validity (e.g., Garner et al., 1982; Koslowsky et al., 1992; Mintz & O'Halloran, 2000). Joiner and Kashubeck (1996) found that the EAT-26 had good internal consistency and concurrent validity in a sample of adolescent Mexican

American females. Regarding the internal consistency of the EAT-26 in our Study 1 subsample, Cronbach's alphas for the total score and the three subscales were .85, .84, .79, and .53, respectively, suggesting fair internal consistency for the sum score and Dieting and Food Preoccupation, but poor internal consistency for Oral Control. Similar Cronbach's alphas for the sum score and three subscales were found in our second subsample (.85, .86, .79, and .53, respectfully). Oral Control was not used in the current study due to its poor internal consistency.

Attention check items. Due to problems associated with random or careless responders (Meade & Craig, 2012), attention check items, such as "Please respond with never for this item" were placed throughout the battery of measures.

Procedure

The institutional review board approved this study. Participants consisted of undergraduates at a public university on the Texas/Mexico border. Participants were recruited through introductory psychology classes during 2014 and earned course credit for their participation. Although non-Hispanics were allowed to participate, their data were not included in analyses. Participants completed survey measures online and all consented. Other portions of these data were used in a publication by Kurz, Flynn, and Bordieri (2016). Questionnaires were administered in English and in a set order. Using a random number generator, we split the sample into 156 participants for Study 1 and 157 participants for Study 2.

Statistical Overview

In both subsamples, the data included small amounts of missingness at the item and sumscore levels and the values were mildly skewed and kurtotic. To accommodate these characteristics, we performed all major analyses with the nonnormal robust maximum likelihood estimator in Mplus 7.4 (Muthén & Muthén, 2012). We assessed the fit of the factor models with the model χ^2, the root-mean-square error of approximation (RMSEA), the comparative fit index (CFI), and the standardized root-mean-square residual (SRMR). In good fitting models, the p value for χ^2 remains above the .05 cutoff, the

RMSEA and SRMR approach zero, and the CFI approaches one (Brown, 2015). In accordance with recent criticisms on the shortcomings of null-hypothesis significance testing (e.g., Cumming, 2014; Kline, 2013), we report 95% confidence intervals (CIs) in place of p values when possible.

Study 1 Results

Participants

Of the 156 Study 1 participants, 81.4% identified the United States as their country of origin, 17.3% identified Mexico, and 1.3% reported other. Their mean age was 21.59 ($Mdn = 20$, $SD = 5.56$) and 76.3% were female. Average self-reported weight was 153.81 pounds ($SD = 43.20$) and the mean BMI was 25.95 ($SD = 5.99$). For BMI classification, 4.5% were underweight, 50.3% normal, 23.1% overweight, and 21.8% obese. The men's BMI scores did not differ substantially from the women's. Their standardized mean difference (i.e., Cohen's d) for BMI was 0.09, $[-0.23, 0.40]$.

Preliminary Examination

Preliminary examination was conducted prior to splitting the data. Four hundred seventy-nine students participated in the study. Following Kline's (2011) suggestion, univariate outliers ($n = 13$) were winsorized, meaning scores with z values greater than 3 were replaced with the next within-bound value. As we believed these scores to be drawn from our population of interest, we chose to winsorize outlier values to reduce their impact on subsequent analyses (Tabachnick & Fidell, 2007). Additionally, four multivariate outliers (detected with Mahalanobis distance, critical $p < .001$) and 162 participants who failed one or more attention check items were removed, yielding a final sample of 313 participants.

Exploratory Factor Model

See the online supplemental material for item-level descriptive statistics. Following Brown (2015) and Schmitt's (2011) suggestion, we performed a parallel analysis with the first subsample. The scree plot suggested as many as three factors could be extracted. We then estimated a three-factor model with Oblimin rota-

tion to allow the factors to correlate. We used exploratory structural equation modeling (ESEM), rather than exploratory factor analysis (EFA). ESEM combines the exploratory characteristics of EFA with the rich statistical information associated with SEM, such as fit indices, modification indices, and confidence intervals (Asparouhov & Muthén, 2009; Marsh, Morin, Parker, & Kaur, 2014).

Similar to Brinkley, Diamond, Magaletta, and Heigel (2008), we judged items as good if they had a primary loading greater than .40 and if their 95% CIs did not straddle zero and that the CIs for secondary loadings did straddle zero. The fit for the initial three-factor model was poor (e.g., $\chi^2_{[168]} = 300$, $p < .01$; Table 1). Six items in Factor 1, two items in Factor 2, and one item in Factor 3 met our criteria as "good" (Table 2). However, Factors 2 and 3 appeared poorly defined with only one or two primary indicators, which led us to delete them (Brown, 2015). Only the primary six items from Factor 1 remained: 9–13, and 19.

Next, we reestimated the model with the six items from Factor 1. The six-item single-factor model fit the data well (e.g., $\chi^2_{[9]} = 4.5$, $p = .87$). The average loading was .71 with a range of .58–.80, the lower bounds for all CIs were well above zero, and there were no modification indices above the 3.84 cutoff. The factor determinacy coefficient was high at .93, suggesting factor score estimates would be highly correlated with the factor (see Brown, 2015). The items in this model include: "If I feel unattractive, there is no point in trying to be intimate," "If I'm overweight, I can't live the life I want to," "I need to feel better about how I look in order to live the life I want to," "If I gain weight, that means I have failed," "Other people make it hard for me to accept myself," and "If I eat something bad, the whole day is a waste." Because the items appear to cover many aspects of psychological inflexibility with respect to weight related issues, we believe the abbreviated measure is a good tool assessing the construct. Based on these results, we conducted the remaining analyses on the six-item AAQW (the AAQW-6).

Internal Consistency and Normative Data

Cronbach's alpha for the AAQW-6 was good, .86. The mean AAQW-6 sum score was 19.21 ($SD = 9.85$). The average sum scores for the normal and overweight/obese categories were 17.98 (9.39) and 20.62 (10.00), respectively. To examine their relation, we regressed the AAQW-6 sum score on BMI. The unstandardized regression coefficient was 0.25, 95% CI [−0.05, 0.54], and the R^2 suggested BMI predicted AAQW-6 variance, .02, [−.02, .07].[1] We conclude the evidence provided little reason to suspect individuals in different BMI categories would differ substantially on the AAQW-6.

Zero-Order Correlations

We estimated the correlations among the AAQW-6 sum scores and theoretically meaningful variables (Table 3). As hypothesized, psychological inflexibility for weight-related difficulties was significantly and positively correlated with measures of disordered eating (EAT-26 Dieting, EAT-26 Bulimia and Food Preoccupation, EAT-26 Total) and general psychological inflexibility (AAQ-II), and negatively correlated with mindfulness (PHLMS Acceptance). The AAQW was not significantly related to BMI or the PHLMS Awareness.

Predicting Disordered Eating

We used hierarchical linear regression to determine whether the AAQW-6 added to the prediction of disordered eating (EAT-26 Total) above and beyond BMI and the AAQ-II. We entered BMI and AAQ-II scores in the first step and the AAQW-6 in the second step. In the second step, the standardized coefficient for the AAQW-6 was about three times the magnitude of that for the AAQ-II. The AAQW-6 also added substantial predictive utility, in that the percent of variance explained in the model increased from 18% to 32%. Results are detailed in Table 4.

Study 2 Results

Participants

This second half of our sample consisted of 157 Hispanic college students, 85.4% of whom identified the United States as their country of origin, 13.4% identified Mexico, and 1.2% reported

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[1] We calculated the 95% CIs for the R^2 using the online calculator from Soper (2016).

Table 1
Fit Indices for ESEMs and CFAs

	χ^2			RMSEA			
Model	est.	df	p	est.	90% CI	CFI	SRMR
Study 1 ESEMs							
Three factor, 22 item	300.659	168	<.001	.071	[.058, .084]	.891	.045
One factor, 6 item	4.545	9	.872	.000	[.000, .046]	1.000	.018
Study 2 CFAs							
One factor	23.501	9	.005	.102	[.052, .153]	.944	.044
One factor, $\theta_{19,13}$	8.065	8	.427	.007	[.000, .094]	1.000	.024

Note. ESEM = exploratory structural equation modeling; CFA = confirmatory factor analysis; RMSEA = root-mean-square error of approximation; est. = point estimate; *df* = degrees of freedom; CI = confidence interval; CFI= comparative fit index; SRMR = standardized root-mean-square residual.

"other." Their mean age was 20.49 (*Mdn* = 19.5, *SD* = 5.56) and 81.5% were female. These students' average self-reported weight was 149.66 lbs. (*SD* = 37.54) and their mean BMI was 25.67 (*SD* = 5.58). Regarding BMI classification, 5.1% were underweight, 49.0% normal, 23.6% overweight, and 22.3% obese. The men's BMI scores did not differ substantially from the women's. Their standardized mean difference for BMI was 0.05, [−0.34, 0.43].

Confirmatory Factor Model

See the online supplemental material for full item-level descriptives. To produce estimates comparable to those from the ESEM in Study 1, we set the latent variable metric by fixing its variance to 1 and freely estimating all the factor loadings (Brown, 2015). The model fit results for the six-item CFAs are in Table 1. Overall, the model fit indices (e.g., significant χ^2) suggested we should reject the model. However, the CFI was within the adequate range and the 95% CIs for the standardized factor loadings were all above zero. The loadings were comparable to those from the ESEM, ranging from .46 to .80. The modification indices suggested a residual correlation between items 19 and 13 (i.e., $\theta_{19,13}$). The χ^2 for this amended model was no longer statistically significant and all other indices suggested good fit. In the amended model, the standardized factor loadings ranged from .39–.81, with a mean of .68 (Figure 1.). The residual correlation, $\theta_{19,13}$, was moderate in magnitude, .37, [.18, .55]. The wording of the items gave no clear reason why Items 19 and 13 should correlate stronger than other item pairs. Further, the ESEM did not indicate the need

for this residual correlation. We took this to suggest the residual correlation may have been a fluke of random sampling. As with the ESEM, the factor determinacy coefficient was high at .93.

Internal Consistency and Normative Data

Internal consistency reliability for AAQW-6 was also good in this second subsample (α = .85) and the mean AAQW-6 score was 18.83 (*SD* = 9.41). The relation between BMI and the AAQW-6 appeared negligible. The unstandardized regression coefficient was 0.37, [0.12, 0.62]. However, the R^2 effect size suggested BMI was a poor predictor for the variability in the AAQW-6, .05, [−.02, .11], statistically consistent with the null hypothesis.

Zero-Order Correlations

Similar to Study 1, AAQW-6 was significantly and positively associated with measures of disordered eating and general psychological inflexibility and negatively related to acceptance (see Table 3). As in Study 1, the correlation between the AAQW-6 the awareness subscale was weak. Unlike Study 1, there was a weak but significant positive relationship between the AAQW-6 and BMI.

Predicting Disordered Eating

Using a hierarchical regression, we examined whether the AAQW-6 added to the prediction of disordered eating (EAT-26 Total) above and beyond general psychological inflexibility and BMI. In the second step, the standardized coefficient for

Table 2
Factor Loadings and Correlations for the ESEMs

| | Three-factor model | | | | | | One-factor model | |
| | Factor 1 | | Factor 2 | | Factor 3 | | | |
Item	λ	95% CI	λ	95% CI	λ	95% CI	λ	95% CI
12	**.81**	**[.68, .94]**	−.06	[−.31, .18]	.08	[−.09, .24]	**.80**	**[.72, .89]**
11	**.80**	**[.66, .95]**	−.10	[−.25, .04]	−.11	[−.28, .07]	**.74**	**[.63, .85]**
9	**.75**	**[.62, .88]**	−.13	[−.28, .03]	.01	[−.25, .26]	**.73**	**[.64, .82]**
13	**.70**	**[.54, .86]**	.12	[−.07, .32]	.01	[−.21, .22]	**.76**	**[.67, .84]**
10	**.60**	**[.41, .78]**	.05	[−.19, .29]	.19	[−.03, .40]	**.67**	**[.54, .79]**
19	**.58**	**[.39, .78]**	.01	[−.31, .33]	.04	[−.28, .35]	**.58**	**[.46, .71]**
6	−.19	[−.35, −.03]	**.73**	**[.56, .90]**	.03	[−.26, .31]		
14	−.07	[−.24, .10]	**.71**	**[.52, .90]**	−.03	[−.29, .23]		
3	.03	[−.25, .31]	.02	[−.29, .33]	**.65**	**[.26, 1.05]**		
5	.27	[−.01, .54]	−.02	[−.28, .25]	**.52**	**[.16, .87]**		
2	.15	[−.08, .38]	.14	[−.36, .64]	**.47**	**[.03, .92]**		
1	.41	[.24, .58]	.21	[−.13, .55]	−.46	[−.72, −.21]		
4	.04	[−.16, .24]	.42	[−.03, .87]	.34	[−.10, .78]		
7	.18	[−.04, .40]	.48	[.21, .74]	−.34	[−.59, −.10]		
8	.05	[−.17, .28]	.17	[−.18, .52]	.25	[−.11, .61]		
15	.31	[.06, .55]	.34	[−.25, .93]	.39	[−.16, .93]		
16	.22	[−.05, .49]	.43	[−.23, 1.08]	.36	[−.34, 1.07]		
17	.25	[.00, .50]	.35	[−.10, .80]	.16	[−.35, .68]		
18	.23	[.03, .44]	.45	[.17, .73]	.07	[−.27, .40]		
20	.54	[.31, .77]	.38	[−.02, .77]	.08	[−.33, .49]		
21	.45	[.20, .71]	.15	[−.09, .38]	.22	[−.08, .51]		
22	.34	[.11, .58]	.35	[−.04, .74]	.18	[−.25, .61]		

Factor	Ψ	95% CI	Ψ	95% CI				
2	.40	[.16, .64]						
3	.36	[.10, .62]	.32	[.14, .51]				

Note. ESEM = exploratory structural equation modeling; λ = factor loading point estimate; Ψ = factor correlation point estimate. Loadings for which the 95% confidence intervals (CIs) do not straddle zero are in boldface.

the AAQW-6 was about twice the magnitude of that for the AAQ-II. The AAQW-6 also added substantial predictive utility, in that the percent of variance explained in the model went from 24% to 38% (see Table 4). Though regression coefficients varied between Study 1 and Study 2, they were largely consistent. Point estimates from Study 1 fell within the bounds of the corresponding confidence intervals from Study 2, and vice versa. In both studies we found no evidence that results were moderated by gender and/or country of origin. See the online supplemental material for detailed results.

Discussion

This is the first study to our knowledge to examine the factor structure of the 22-item AAQW using an ESEM and CFA and to examine the psychometrics of the AAQW with Hispanics, college students, and individuals across BMI. Results provided initial evidence that an abbreviated AAQW may be a useful and psychometrically sound measure for Hispanic college students regardless of weight.

We found support for a single-factor solution of a six-item version of the AAQW, the AAQW-6. The factors were well-defined in both of our subsamples by factor loadings of reasonable magnitude and CIs of moderate width. Our subsamples differed on whether they required a residual correlation among two of the items, 13 and 19. Though the content of those items overlapped (one concerned weight and the other eating), Item 11 also concerned weight and did not need additional residual correlations. Future research might examine if this issue replicates or if alternative factor structures, such as those allowing for ap-

Table 3
Descriptive Statistics and Correlations Among the BDI and Sum Scores

Variables	M	SD	Skew	Kurt.	No. M.	1	2	3	4	5	6	7	8
1. BMI	25.95	5.97	.06	.84	1		[−.09, .24]	[−.03, .33]	[−.37, −.09]	[−.18, .16]	[−.24, .09]	[−.40, −.08]	[−.27, .02]
	25.67	**5.56**	**.71**	**−.20**	**0**		**[−.01, .33]**	**[.07, .36]**	**[−.13, .21]**	**[−.09, .20]**	**[−.33, −.02]**	**[−.41, −.12]**	**[−.39, −.06]**
2. AAQ-II	18.07	11.60	−.15	.94	1	.08		[.45, .69]	[−.15, .15]	[.54, .72]	[−.56, −.28]	[−.46, −.14]	[−.57, −.30]
	17.62	**10.71**	**1.04**	**.27**	**2**	**.16**		**[.46, .70]**	**[−.28, .04]**	**[.40, .60]**	**[−.63, −.34]**	**[−.53, −.24]**	**[−.64, −.37]**
3. AAQW-6	19.21	9.85	−.98	.42	1	.15	.57		[−.25, .05]	[.25, .53]	[−.66, −.45]	[−.64, −.42]	[−.57, −.34]
	18.83	**9.38**	**.44**	**−.81**	**2**	**.22**	**.58**		**[−.28, .06]**	**[.16, .43]**	**[−.70, −.50]**	**[−.67, −.45]**	**[−.71, −.51]**
4. PHLMS$_{Aw}$	35.82	6.51	−.32	−.11	6	−.23	.00	−.10		[−.09, .29]	[−.16, .12]	[−.09, .18]	[−.07, .20]
	35.73	**6.55**	**.10**	**−.85**	**4**	**.04**	**−.12**	**−.11**		**[.02, .35]**	**[−.17, .16]**	**[−.17, .14]**	**[−.13, .22]**
5. PHLMS$_{Acc}$	30.81	8.04	−.69	−.25	3	−.01	.63	.39	.10		[−.51, −.22]	[−.41, −.11]	[−.46, −.21]
	31.54	**7.40**	**−.25**	**.03**	**2**	**.05**	**.50**	**.29**	**.19**		**[−.50, −.22]**	**[−.41, −.12]**	**[−.49, −.19]**
6. EAT$_{Total}$	118.18	16.32	.69	−.81	2	−.08	−.42	−.56	−.02	−.36		[.90, .95]	[.66, .83]
	117.12	**15.85**	**−.78**	**.77**	**7**	**−.17**	**−.48**	**−.60**	**−.01**	**−.36**		**[.91, .95]**	**[.67, .84]**
7. EAT$_{Diet}$	55.25	11.20	−.33	−.46	2	−.24	−.30	−.53	.05	−.26	.92		[.48, .70]
	54.46	**11.51**	**−.53**	**−.08**	**4**	**−.27**	**−.38**	**−.56**	**−.02**	**−.26**	**.93**		**[.49, .72]**
8. EAT$_{Bulimia}$	31.01	4.40	3.17	−1.55	0	−.12	−.44	−.46	.07	−.34	.74	.59	
	30.21	**4.63**	**−1.09**	**1.30**	**2**	**−.22**	**−.51**	**−.61**	**.05**	**−.34**	**.75**	**.60**	

Note. AAQ-II = Acceptance and Action Questionnaire (revised version); AAQW-6 = Acceptance and Action Questionnaire for Weight-Related Difficulties (6 item); BMI = body mass index; Kurt. = kurtosis, No. M. = number of missing values; PHLMS = Philadelphia Mindfulness Scale; PHLMS$_{Aw}$ = PHLMS Present Moment Awareness Subscale; PHLMS$_{Acc}$ = PHLMS Nonjudgmental Acceptance Subscale; EAT-26 = Eating Attitudes Test-26; EAT$_{Total}$ = EAT-26 Total score; EAT$_{Bulimia}$ = EAT-26 Bulimia and Food Preoccupation Subscale; EAT$_{Diet}$ = EAT-26 Dieting subscale. The values for Study 1 are in light type; those from Study 2 are in bold type. In the correlation matrix, the point estimates are in the lower triangle, the 95% confidence intervals are in the upper triangle.

Table 4
Incremental Validity for the AAQW-6 in Predicting the EAT-26

	Study 1				Study 2			
	b		β		*b*		β	
	est.	95% CI	est.	95% CI	est.	95% CI	est.	95% CI
Step 1								
AAQ-II	**−.58**	**[−.81, −.36]**	**−.41**	**[−.56, −.27]**	**−.70**	**[−.94, −.44]**	**−.47**	**[−.61, −.33]**
BMI	−.14	[−.55, .27]	−.05	[−.20, .10]	−.26	[−.65, .14]	−.09	[−.23, .05]
R^2			**.18**	**[.07, .28]**			**.24**	**[.13, .35]**
Step 2								
AAQ-II	−.21	[−.45, .03]	−.15	[−.32, .02]	**−.32**	**[−.58, −.05]**	**−.21**	**[−.38, −.04]**
BMI	.02	[−.37, .41]	.01	[−.14, .15]	−.08	[−.46, .29]	−.03	[−.16, .10]
AAQW	**−.78**	**[−1.08, −.48]**	**−.47**	**[−.63, −.31]**	**−.79**	**[−1.08, −.50]**	**−.47**	**[−.63, −.30]**
R^2			**.32**	**[.21, .44]**			**.38**	**[.27, .50]**

Note. AAQW-6 = Acceptance and Action Questionnaire for Weight-Related Difficulties (6 item); EAT-26 = Eating Attitudes Test-26; AAQ-II = Acceptance and Action Questionnaire (revised version); BMI = body mass index; AAQW = Acceptance and Action Questionnaire for Weight-Related Difficulties; *b* = unstandardized regression coefficient; β = completely standardized regression coefficient. The estimates (est.) for which the confidence intervals (95% CI) do not contain zero within their bounds are in boldface.

proximate zero correlations (cf., Kurz et al., 2016), are better suited. Lillis and Hayes (2008) designed the AAQW to assess defusion, acceptance, and interference of weight-related thoughts and feelings with pursuit of values. The AAQW-6 still broadly represents the content of the original scale. Its items sample for multiple domains of weight-related inflexibility: body image dissatisfaction, reactivity to judgments from others, inflexibility with regard to "overweight," inflexibility regarding physical attractiveness and intimacy,

reactivity to weight gain, reactivity to eating "bad" foods. These items tap into excessive attachment to weight-related thoughts, difficulties with acceptance of associated emotions, and challenges in pursuit of relationships, as intended by the measure developers (Lillis & Hayes, 2008). Yet the AAQW-6 does miss some aspects of weight-related inflexibility measured in the original version (e.g., exercise inflexibility). Although the measure does not capture all of the domains of the original AAQW, it efficiently covers good breadth
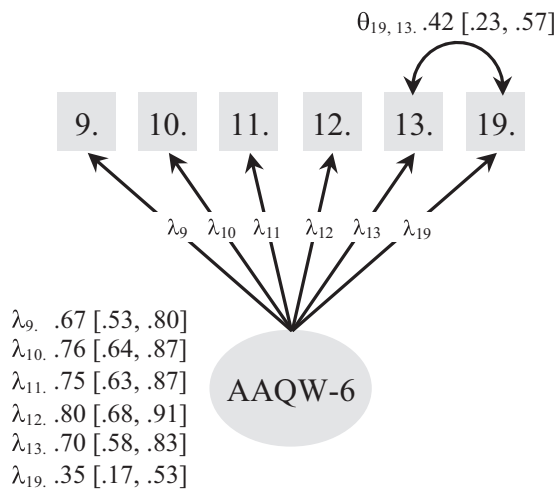

Figure 1. The amended confirmatory factor analysis (CFA) model. AAQW-6 = Acceptance and Action Questionnaire for Weight-Related Difficulties (6 item).

with only six items, which should reduce the assessment burden for clients and research participants.

As expected, psychological inflexibility of weight-related difficulties was moderately associated with greater general psychological inflexibility and disordered eating in both subsamples, consistent with previous studies (Lillis et al., 2008; Weineland et al., 2013). Regarding mindfulness skills, AAQW-6 scores correlated moderately with the acceptance, but not awareness, which is consistent with previous studies (e.g., Cardaciotto et al., 2008). The inverse relationship between acceptance and the AAQW-6 is also consistent with studies finding that eating-related problems are linked with avoiding thoughts and emotions (e.g., Anestis, Selby, Fink, & Joiner, 2007; Lavender, Jardin, & Anderson, 2009). Lastly, unlike Lillis and colleagues (2008) but similar to Weineland and colleagues (2013), the AAQW-6 correlated weakly with BMI in both our samples. Considering there was only a weak relationship between BMI and AAQW-6 and that scores varied little across BMI, the AAQW-6 may be a useful and psychometrically sound measure for individuals falling into any of the BMI categories. Worth noting, the rates of overweight and obese classifications in the current sample were similar to those found among Hispanic college students by others (Kaplan et al., 2014).

The AAQW-6 added to the prediction of disordered eating above and beyond BMI and general psychological inflexibility in both subsamples. Results showed that if the AAQW-6 moderates the relationship between BMI and disordered eating, the effect is weak at best. To our knowledge, this is the first study to examine the added predictive power of the AAQW, and findings suggest that the AAQW-6 has additional utility in understanding disordered eating.

Although our findings contribute substantially to the literature, there are limitations. First, BMI was based on self-reported weight and height so the BMIs of the participants may be higher than they stated (e.g., Wang, Patterson, & Hills, 2002). Second, the majority of participants were female (76.3% and 81.5%). However, findings from the incremental validity analyses from both studies gave little evidence that the results were moderated by gender. Third, our analyses do not tell us whether the AAQW-6 measures a successful mechanism of action for Hispanic college students of varying BMI categories, which would require

longitudinal data. Fourth, not all measures used in the current study have been adequately validated with Hispanic samples (i.e., PHLMS and EAT-26). Although culturally appropriate assessment is stressed in psychology, most measures are still examined in predominately Caucasian samples.

Our sample does not fully represent the diversity among Hispanic people. When conducting assessment-related research among ethnic groups, contextual variables are important to account for within- and between-group differences (Okazaki & Sue, 1995; van de Vijver, 2011). Two contextual variables included in the current study were country of origin and gender, which were not notable moderators for our results. Other important contextual variables to examine in the future include acculturation status, parental countries of birth, and length of time residing in the United States (United States Department of Health & Human Services, 2014). For example, Hispanics born in the United States and living in the United States for a longer period of time, have a higher risk for eating disorders (Alegria et al., 2007), which may be relevant when examining weight-related psychological inflexibility. Examining the utility of the AAQW-6 among other age groups and educational levels is also needed. Despite these limitations, the current study provides preliminary evidence that the AAQW-6 is a psychometrically sound measure of psychological inflexibility for weight-related difficulties among Hispanic college students across a range of BMI values. It adds to the growing body of evidence suggesting that general psychological inflexibility and psychological inflexibility for weight-related difficulties are useful constructs across multiple cultures (e.g., Hayes, Strosahl, & Wilson, 2012; Masuda, 2014).

Abstracto

El propósito de éste estudio fue el examinar las propiedades psicométricas del "Cuestionario de Aceptación y Acción para dificultades relacionadas al peso" (*Acceptance and Action Questionnaire for Weight-Related Difficulties, AAQW*) en estudiantes universitarios hispanos ($N = 313$). Los resultados de análisis factorial exploratorios y confirmatorios apoyaron una solución de un factor, seis elementos, la cual fué llamada AAQW-6. Además, la inflexibilidad psicológica de dificultades relacionadas al peso se asoció con niveles más altos de alimentación desordenada y flexibilidad psicológica general y niveles

más bajos de atención plena. El AAQW-6 añadió a la predicción de la alimentación desordenada por encima del Índice de Masa Corporal (IMC) y flexibilidad psicológica general. Este estudio proporciona apoyo psicométrico inicial para el uso del AAQW-6 de seis elementos con estudiantes universitarios hispanos. Estudios futuros deben replicar la estructura de factores y la psicometría relacionada al AAQW-6 de seis elementos y determinar si permite a los clínicos e investigadores predecir e influenciar comportamientos relevantes en las vidas de individuos a través de la demografía, tanto hispana como otras.

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