

Reliability and Validity Study of the Turkish Version of the Acceptance and Action Questionnaire for Weight-Revised

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Abstract

Being overweight, a severe public health problem, is associated with experiential avoidance. This study aims to examine the reliability and validity of the Turkish version of the Acceptance and Action Questionnaire for weight-revised (AAQW-R) in people with a BMI above 25. The sample consisted of 169 participants with a Body Mass Index (BMI) above 25. The participants who gave informed consent were asked to fill out a demographic form, AAQW-R (Acceptance and Action Questionnaire-2), AAQ-2, Weight Self-Stigma Questionnaire (WSSQ), and General Health Questionnaire (GHQ). Internal consistency and item-total correlation were evaluated using Cronbach's alpha coefficient. Cronbach's alpha coefficient was used to test the factor structure. The temporal stability was assessed with the test-retest method. AAQW-R has significant correlations with BMI, AAQ-2, WSSQ, and GHQ. CFA demonstrates a three-factor structure ($\chi^2=57.0$, $df=31$; RMSEA=0.0714; RMSEA 90% CI lower bond=0.0411, RMSEA 90% CI upper bond=0.100, CFI=0.968; TLI=0.954). AAQW-R and subscales of AAQW-R have significant correlations with AAQ-2, AAQW-R, BMI, WSSQ, and GHQ ($p<0.05$). Correlation analysis stated temporal stability for all items in Spearman correlation analyses ($p<0.05$). According to the results of this study, AAQW-R is a reliable and valid scale that can measure experiential avoidance in the context of psychological flexibility among overweight and obese people.

Keywords: acceptance and commitment therapy, body mass index, overweight, obesity, stigmatization

Öz

Gözden Geçirilmiş Kilo İçin Kabul ve Eylem Formunun Türkçe Versiyonunun Güvenilirlik ve Geçerlilik

Ciddi bir halk sağlığı sorunu olan fazla kilolu olmak, yaşantısal kaçınma ile ilişkilidir. Bu çalışmanın amacı, Gözden Geçirilmiş Kilo İçin Kabul Ve Eylem Formunun (AAQW-R) Türkçe versiyonunun Beden kitle indeksi (BKİ) 25'in üzerinde olan kişilerde güvenilirliğini ve geçerliliğini incelemektir. Örneklem 169 katılımcıdan oluşmaktaydı. Bilgilendirilmiş onam veren katılımcılardan bir demografik form, AAQW-R, Kabul ve eylem formu-2 (AAQ-2), Kilo Açısından Kendini Damgalama Ölçeği (WSSQ) ve (Genel Sağlık Anketi - 12) GHQ doldurmaları istendi. İç tutarlılık ve madde-toplam puan korelasyonları Cronbach alfa katsayısı kullanılarak değerlendirildi. Faktör yapısını test etmek için Doğrulamalı faktör analizi (DFA) kullanıldı. Zamansal güvenilirlik test-tekrar test yöntemi ile değerlendirildi. AAQW-R, BKİ, AAQ-2, WSSQ ve GHQ ile önemli korelasyonlara sahiptir. DFA, üç faktörlü bir yapı gösterdi ($\chi^2=57,0$, $df=31$; RMSEA=0,0714; RMSEA %90 GA alt bağ=0,0411, RMSEA %90 GA üst bağ=0,100, CFI=0,968; TLI=0,954). AAQW-R ve AAQW-R'nin alt ölçekleri, AAQ-2, AAQW-R, BMI, WSSQ ve GHQ ile anlamlı korelasyona sahiptir ($p<0,05$). Korelasyon analizi zamansal güvenilirlik gösterdi ($p<0,05$). Bu çalışmanın sonuçlarına göre, AAQW-R fazla kilolu ve obez kişilerde psikolojik esneklik bağlamında deneyimsel kaçınmayı ölçebilen geçerli ve güvenilir bir ölçektir.

Anahtar Kelimeler: kabul ve kararlılık terapisi, vücut kitle indeksi, fazla kilo, obezite, damgalanma

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Received / Geliş: November 06, 2022

Accepted / Kabul: January 30, 2023

Online published / Çevrimiçi yayın: February 17, 2023

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Cite this article as: Burhan, H.Ş., Kuru, T. (2023). Reliability and Validity Study of the Turkish Version of the Acceptance and Action Questionnaire for Weight-Revised. J Cogn Behav Psychother Res; 12(1), 65-70. <https://doi.org/10.5455/JCBPR.127897>

INTRODUCTION

Obesity is one of the most important public health problems, can be associated with different health problems, and is accepted as a dangerous pandemic because its prevalence is increasing worldwide (Ulusoy, 2020). Health problems such as diabetes, hypertension, heart disease, obstructive sleep apnea, asthma, non-alcoholic fatty liver disease, osteoarthritis, and polycystic ovary syndrome are associated with obesity, and weight loss is part of the treatment for these diseases (Engin, 2017; Malnick & Knobler, 2006; WHO, 2018).

Experiential avoidance has a relation to both the emerging and maintenance of different clinical problems. Experiential avoidance means an individual's unwillingness to experience and attempts to alter –especially negative– senses, emotions, and thoughts (Yavuz et al., 2016). Lower self-esteem, higher emotional eating, impulsivity, and rigid control of eating and losing weight to avoid being criticized by others or by the self can be conceptualized as a pattern of experiential avoidance (Palmeira et al., 2016). Both unhealthy eating habits that lead to weight gain and some behaviors to struggle with obesity can be experiential avoidance. For example, having ruminative thoughts about weight loss and eating to suppress unwanted thoughts and emotions that causes weight gain may be a kind of experiential avoidance (Ulusoy, 2020).

People with obesity have a greater risk for psychiatric disorders, especially depression and impaired functioning (Fabricatore & Wadden, 2004; M. Karadere et al., 2020; Lillis et al., 2010; Ulusoy, 2020). Also, self-stigma and self-devaluation are some problems for obese individuals. As weight increases, self-stigma and related psychological effects may also increase (Palmeira et al., 2016; Ratcliffe & Ellison, 2015).

According to BMI, 18.5– 24.9 kg/m² is the normal range, 25.0–29.9 kg/m² is overweight, 30.0 kg/m² and more is obesity, 35.0–39.9 kg/m²:class 2-obesity, equal or greater 40 kg/m²:class 3-obesity (Engin, 2017).

Although AAQ-2 is available in various languages, including Turkish, to evaluate experiential avoidance (Bond et al., 2011; Yavuz et al., 2016), various scales have been developed to evaluate experiential avoidance specific to a disease or condition, and some of them have been adapted to Turkish (Aydin et al., 2020; Karadere et al., 2019; Karadere & Burhan, 2021; Kuru et al., 2021). There are

two scales named Acceptance and Action Questionnaire for Weight-Related Difficulties (AAQW) and Acceptance and Action Questionnaire for Weight-Related Difficulties Revised (AAQW-R) to measure experiential avoidance in overweight and obese individuals, but neither of them has Turkish validity and reliability (Lillis & Hayes, 2008; Palmeira et al., 2016). This study aims to validate AAQW-R in Turkish. The study's main hypothesis is that the Turkish version of AAQW-R is a valid and reliable tool to measure experiential avoidance in overweight and obese individuals. Turkish-speaking population. A second hypothesis is that experiential avoidance measured by AAQW-R is related to experiential avoidance in general, shame or guilt about weight, and psychological distress.

METHODS

Sample

The participants were 169 Turkish people from the general population. Individuals with a BMI above 25 and those who volunteered to participate with consent were included in the study. There were no exclusion criteria based on psychiatric or medical conditions.

Measurements

Sociodemographic Form: It is developed by researchers for this research and includes questions about the age, gender, and educational status of the participants.

Acceptance and Action Questionnaire for Weight-Related Difficulties Revised (AAQW-R): The Scale developed by Palmeira et al. to measure experiential avoidance of weight-specific thoughts, feelings, and bodily sensations. It has ten items rated on a 7-point scale and derived from AAQW, which includes 22 items. AAQW-R has ten items and three subscales as food as control (AAQW-R-fc), weight as barrier to living (AAQW-R-wb), and weight-stigma (AAQW-R-ws) AAQW-R-fc measures the tendency to consume food as a coping mechanism to deal with negative emotions. AAQW-R-wb measures the tendency to move away from a valued life because of one's weight or body shape; AAQW-R-ws measures experiences of self-stigma related to one's weight. higher scores indicate more experiential avoidance. (Palmeira et al., 2016).

Acceptance and Action Questionnaire-2 (AAQ-2). Bond and Hayes developed the scale to measure experiential avoidance in general based on AAQ (Bond et al., 2011). It

has seven items AAQ-2 is adapted to Turkish by Yavuz et al. (Yavuz et al., 2016).

Weight Self-Stigma Questionnaire (WSSQ): The Scale is developed by Hayes et al. to measure feelings of shame or guilt about weight. Weight Self-Stigma Questionnaire has 12 items and three subscales, as self-devaluation refers to self-stigmatization (WSSQ-sd), and fear of enacted refers to social discrimination (WSSQ-fe) (Lillis et al., 2010). Weight Self-Stigma Questionnaire is adapted to Turkish by Doğan et al. (Doğan & Çiray-Gündüzoğlu, 2017).

The General Health Questionnaire (GHQ): The Scale is developed by Goldberg et al. to measure general psychological health. It has 12 items, and higher scores indicate greater psychological distress (Goldberg & Williams, 2000). General Health Questionnaire is adapted to Turkish by Kiliç (Kiliç, 1996).

Procedure

The research was conducted following the Helsinki Declaration. The study protocol was approved by the Alanya Aladdin Keykubat University Medical Faculty Ethical Committee (Date: September 26, 2019, No: 10-3). Approval was obtained by e-mail from the authors who developed the original scale. The English form of the scale was translated into Turkish separately by three psychiatrists who can speak English. The Turkish version of the scale is based on these translations. After the revisions, Turkish version of AAQW-R was re-translated into English by two out-of-field translators for reliability. The participants who gave informed consent were asked to fill out a demographic form and AAQW-R. And some of the participants were also asked to fill out AAQ-2, WSSQ, and GHQ. For the test-retest analysis, 20 participants filled out the AAQW-R Scale one week later.

Statistical Analysis

For descriptive statistics and psychometric analysis, we used Jamovi version 2.0.0.0. The data were tested for univariate and multivariate normality, linearity, and homogeneity of sample variances. All items were in acceptable ranges. The presence of outliers was also controlled. Internal consistency and item-total correlation were evaluated using Cronbach's alpha coefficient and Pearson's correlation coefficients. The temporal stability was assessed with the test-retest method after two weeks from the baseline assessment by the Spearman correlation test. Confirmatory Factor Analysis (CFA) was used to test the factor structure.

RESULTS

Demographic and Clinical Data

The 169 participants who were informed about the study volunteered to participate, and 165 provided sufficient data to analyze. The ages of participants are between 21–65, and the mean age is 39.6 (SD: 11.4) 98 of the participants are female (59.4 %), 119 (72.6%) were married, 25 (22.1%) have psychiatric history, and 55 (33.7%) have a chronic medical condition. The mean BMI of the sample is 32.3 (SD: 6.76).

Confirmatory Factor Analysis

To adapt AAQW-R in Turkish, CFA was performed to determine the construct validity. The CFA of the AAQW-R verified the three-factor and 10-item structure as AAQW-R in English (Palmeira et al., 2016). Fit indices from the analysis showed an acceptable fit. ($\chi^2=57.0$, $df=31$; RMSEA=0.0714; RMSEA 90% CI lower bond=0.0411, RMSEA 90% CI upper bond=0.100, CFI=0.968; TLI=0.954). In addition, all factor loading values are significant ($p<0.001$) (Table 1).

Table 1: Factor loading of confirmatory factor analysis

Factor	Indicator	Estimate	SE	Z	p
Food as control	AAQWR 1	1.50	0.145	10.33	<0.001
	AAQWR 6	1.82	0.135	13.48	<0.001
	AAQWR 7	1.66	0.156	10.67	<0.001
Weight as barrier	AAQWR 4	1.61	0.152	10.60	<0.001
	AAQWR 5	1.68	0.141	11.85	<0.001
	AAQWR 2	1.49	0.158	9.45	<0.001
Weight-stigma	AAQWR 3	1.20	0.133	9.06	<0.001
	AAQWR 8	1.41	0.153	9.22	<0.001
	AAQWR 9	1.56	0.122	12.86	<0.001
	AAQWR 10	1.36	0.124	11.01	<0.001

AAQW-R: Acceptance and Action Questionnaire for Weight-Related Difficulties Revised; SE: standard error.

Reliability

The Cronbach's Alpha coefficient was calculated as 0.906, and McDonald's omega coefficient was calculated as 0,908 in the analysis performed to evaluate the internal consistency of the AAQW-R. And Cronbach's Alpha coefficient for the subscale of food as control, weight as a barrier, and weight-stigma were calculated as 0.825, 0.781, and 0.817, respectively. In the item-total score analysis, the items-to-total correlation is between 0,580 and 0,764 (Table 2).

To determine the temporal reliability, AAQW-R was refilled by 20 people from the sample one week later. Spearman correlation analysis was used to determine test-retest relationships between items. Correlation coefficients were determined between 0.568–0.800 for AAQW-R and subscales, and all values were statistically significant ($p < 0.01$).

Convergent and Concurrent Validities

To conduct a convergent validity analysis, the correlation between AAQW-R, subscales of AAQW-R, and AAQ-2 are examined. Pearson's correlation shows statistically significant positive correlations for AAQW-R, subscales of AAQW-R, and AAQ-2. To conduct concurrent validity analysis, correlations among AAQW-R, BMI, WSSQ, and GHQ. Pearson's correlation shows statistically significant correlations for AAQW-R, subscales of AAQW-R with BMI, WSSQ, subscales of WSSQ, and GHQ ($p < 0.001$) correlation coefficients are shown in Table 3.

DISCUSSION

This study aimed to test the validity and reliability of the AAQW-R in Turkish developed to measure experiential avoidance in the context of psychological flexibility related to weight. To analyze the construct validity of the scale, at least 5–10 people per variable is recommended to calculate the sample size (Pallant, 2015). The sample consisted of 165 people with a BMI above 25. One of the hypotheses of this study is that AAQW-R in Turkish also has a three-factor structure, as the original form of AAQW-R. Cronbach's alpha coefficient was used to test this hypothesis, and AAQW-R has a three-factor structure. The fit indices show that the goodness-of-fit values are acceptable.

Cronbach's alpha coefficient was 0.906, and McDonald's omega coefficient was 0,908 for AAQW-R. And Cronbach's alpha coefficients for subscales of AAQW-R ranged between

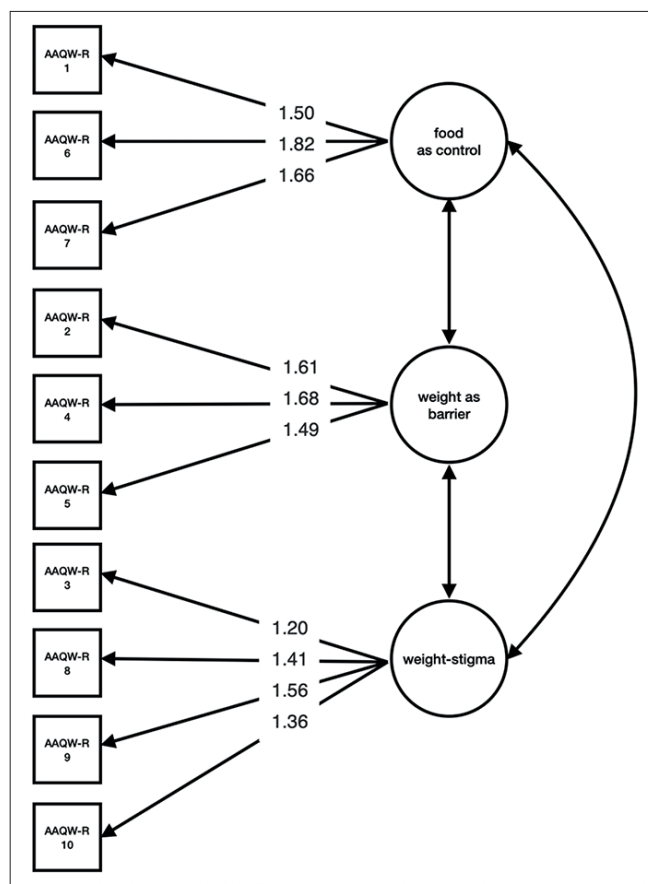


Figure 1. AAQW-R with three-factor model and Factor loading Estimate for Each Item (AAQW-R: Acceptance and Action Questionnaire for Weight-Related Difficulties Revised).

Table 2: Item-total statistics, Cronbach's alpha if the item deleted

Item	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
AAQW-R 1	0.649	0.897
AAQW-R 2	0.622	0.899
AAQW-R 3	0.620	0.899
AAQW-R 4	0.668	0.896
AAQW-R 5	0.709	0.893
AAQW-R 6	0.764	0.890
AAQW-R 7	0.643	0.898
AAQW-R 8	0.580	0.902
AAQW-R 9	0.741	0.892
AAQW-R 10	0.661	0.897

AAQW-R: Acceptance and Action Questionnaire for Weight-Related Difficulties Revised.

0.781–0.825. These numbers indicate good internal consistency for AAQW-R and all subscales. Item-total correlations show that all items have a positive relationship with one another and a total score of AAQ-HS. If item deleted Cronbach's alpha coefficients, item-total correlations also indicate internal consistency. In test-retest correlations

Table 3: Relation among scales by Pearson correlation analysis

	AAQWR		AAQW-R-fc		AAQW-R-wb		AAQWRc		AAQ-2	
AAQW-R	-									
AAQW-R-fc	0.801	***	-							
AAQW-R-wb	0.834	***	0.688	***	-					
AAQW-R-ws	0.795	***	0.616	***	0.691	***	-			
AAQ-2	0.600	***	0.448	***	0.414	***	0.523	***	-	
WSSQ	0.512	***	0.635	***	0.426	***	0.438	***	0.343	***
WSSQ-sd	0.467	***	0.386	***	0.450	***	0.491	***	0.377	***
WSSQ-fe	0.534	***	0.562	***	0.476	***	0.504	***	0.391	***
GHQ12	0.437	***	0.388	***	0.339	***	0.409	***	0.548	***
BMI	0.359	***	0.186	*	0.351	***	0.310	***	0.031	

AAQW-R: Acceptance and Action Questionnaire for Weight-Related Difficulties Revised; AAQW-R-fc: Acceptance and Action Questionnaire for Weight-Related Difficulties Revised-food as control; AAQW-R-wb: Acceptance and Action Questionnaire for Weight-Related Difficulties Revised-weight as barrier; AAQW-R-ws: Acceptance and Action Questionnaire for Weight-Related Difficulties Revised-weight-stigma; AAQ-2: Acceptance and Action Questionnaire-2; WSSQ: Weight Self-Stigma Questionnaire; WSSQ-sd: Weight Self-Stigma Questionnaire-self-devaluation; WSSQ-fe: Weight Self-Stigma Questionnaire-fear of enacted; GHQ12: General Health Questionnaire, BMI: Body Mass Index.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

analysis, the scores of scales at different times did not significantly change over time. This result suggests the temporal stability of AAQW-R subscales of AAQW-R. According to this result, AAQW-R can be used in longitudinal studies, and studies include follow-up.

Being overweight, a severe public health problem, is associated with psychological constructs (Karadere et al., 2020). Two prominent and frequently researched ones are experiential avoidance and psychological flexibility, closely related to being overweight (Lillis et al., 2010; Lillis & Hayes, 2008; Palmeira et al., 2016). For this reason, there is a need for a specialized scale that can measure experiential avoidance and psychological flexibility related to being overweight.

Context-specific experiential avoidance scales may be more sensitive than generic ones. They were considering the context-dependence of experiential avoidance from the psychological flexibility perspective. AAQW-R can be more sensitive than other previous scales that measure experiential avoidance in general, like AAQ-2. The results of this study stated a relationship between AAQW-R and BMI, but no association was found between AAQ-2 and BMI. These results also support this hypothesis. Other studies also calculated a correlation between AAQW and BMI but not between AAQ-2 and BMI (Palmeira et al., 2016; Sairanen et al., 2015). Like the results of this study, in another study, the change in BMI acceptance and commitment therapy intervention was predicted by AAQW but not by AAQ (Lillis & Hayes, 2008).

Statistically significant correlations between AAQW-R, subscales of AAQW-R, BMI, AAQ-2, WSSQ, subscales of WSSQ, and GHQ12 state that AAQW-R can measure weight-related experiential avoidance, psychological flexibility, weight-related stigma, and general psychological health like previous studies. The stigma is related to being overweight or obese. Two kinds of stigma can be defined. The first one is related to discrimination of people by their social environment: and enacted stigma, and the second one is devaluating thoughts about themselves and fears of being stigmatized: self-stigma (Palmeira et al., 2016). Stigma related to being overweight may lead to depressive symptoms, poor psychological, occupational, and social functioning, and difficulties in weight loss (Lillis et al., 2010; Ulusoy, 2020). The AAQW-R can measure both enacted stigma and self-stigma as there is a high positive correlation between the WSSQ. The high correlation calculated between AAQW-R-ws and WSSQ supports this hypothesis.

Some limitations of this study need to be mentioned. First, the sample consists of people with a BMI of 30 and above but not people with a BMI in a normal range. A study including normal, overweight, and obese people may provide more descriptive results. The second limitation is the not to address possible medical causes of obesity. Addressing medical conditions separately could have produced more detailed results for subgroups. Another limitation is the testing of possible alternative models with CFA.

Overall, the results of this study indicated that the AAQW-R is a reliable and valid scale that can measure

experiential avoidance in the context of psychological flexibility among overweight and obese people. This scale can help to measure experiential avoidance, which has an important role in the emergence and maintenance of obesity psychopathology, more effectively and quickly. It can be used to observe changes in behavioral intervention programs for the management of obesity and or overweight.

Ethics Committee Approval: The study was approved by the Alanya Aladdin Keykubat University Medical Faculty Clinical Research Ethics Committee (date and number of approval: 26.10.2019 / 10-3).

Informed Consent: Informed consent was obtained from all individual participants included in the study.

Peer-review: Externally peer-reviewed.

Conflict of Interest: The authors declare no conflict of interest.

Financial Disclosure: No financial disclosure was received.

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