Journal of Evidence-Based Psychotherapies,
Vol. 14, No. 2, September 2014, 179-196.

PSYCHOMETRIC PROPERTIES OF THE TURKISH VERSION OF THE ACCEPTANCE AND ACTION QUESTIONNAIRE-II (AAQ-II)

Bahar MEUNIER[*]*, Sinem ATMACA, Elçin AYRANCI,*
Burcu Pınar GÖKDEMIR, Tuğba UYAR, Gülbahar BAŞTUĞ
Middle East Technical University

Abstract
The aim of the study was to evaluate the psychometric properties of the Turkish version of the Acceptance and Action Questionnaire-II (AAQ-II). This instrument was designed to assess psychological inflexibility, a key construct in Acceptance and Commitment Therapy (ACT). The participants were 291 university students. The test-retest stage was conducted with 80 participants over a 2-month period. Confirmatory Factor Analysis (CFA) supported a one-factor model with seven items. Internal consistency was high (.88) and test-retest reliability was good (.78). Higher AAQ-II scores were associated with higher levels of depression, anxiety, and thought suppression supporting the concurrent and convergent validity. This study provides further evidence of the improvement shown by the 7-item version of the AAQ-II in terms of psychometric properties compared with the previous versions. Our results suggest that the Turkish version of the AAQ-II is a reliable and valid measure of psychological inflexibility.

Keywords: psychological inflexibility, experiential avoidance, acceptance and commitment therapy, acceptance and action questionnaire-II, psychometric properties

Introduction

Third wave Cognitive Behavior Therapies (CBT) such as Mindfulness Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2001), Dialectical Behavior Therapy (DBT; Linehan, 1993), Metacognitive Therapy (Wells, 2000), and Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), seek to modify the individual's relationship with one's negative cognitions and emotions through strategies like mindfulness or

[*] Correspondence concerning this article should be addressed to:
E-mail: bhr.topcu@gmail.com

psychological flexibility, rather than focusing on changing these psychological events directly (Teasdale, 2003). The term "*psychological flexibility*", a key concept in ACT, involves the ability to be in full contact with the present moment, thoughts, and feelings without needless defense, and the ability to maintain goals and values oriented behavior (Hayes et al., 2006). Conversely, psychological inflexibility entails the rigid dominance of psychological reactions over chosen values. The underlying theory of the ACT explains that the rigidity occurs when people fuse with their evaluative and self-descriptive thoughts (e.g. instead of observing their thinking process as "the thought that I am no good, crossed my mind", they labeled themselves with their thought as "I am no good") and attempt to avoid experiencing negative thoughts and emotions, considered as dangerous (Bond et al. 2011).

Psychological inflexibility and flexibility are important concepts. On the one hand, psychological inflexibility is a key process in the etiology and maintenance of psychopathology, while on the other hand psychological flexibility is a positive psychological skill, not merely a method of avoiding psychopathology (Hayes et al., 2006). Findings from various studies indicate that psychological inflexibility (a) is positively related to a wide range of disorders such as depression, anxiety, substance abuse, posttraumatic stress, social phobia, blood injury phobia, agoraphobia, trichotillomania, (b) mediates the relationship between maladaptive coping and psychological distress, and (c) predicts general mental health (Chawla & Ostafin, 2007; Fledderus, Bohlmeijer, & Pieterse, 2010; Hayes et al., 2006; Ruiz, 2010). Moreover, some review studies showed the effectiveness of ACT - whose primary goal is to reduce psychological inflexibility - on the treatment of a large number of psychological disorders (Hayes et al., 2006; Öst, 2008; Ruiz, 2010). The psychological inflexibility assessment is useful not only within ACT, but also in other third wave cognitive behavioral therapies. For example, it predicts drop-out from DBT (Rüsch et al., 2008). Furthermore, reductions in psychological inflexibility predict corresponding decreases in depression in the DBT treatment for borderline personality disorder (Berking, Neacsiu, Comtois, & Linehan, 2009). Finally, psychological inflexibility influences individuals' well-being because it is negatively related to quality of life, perceived physical health, positive emotional experiences, and well-being at work (Hayes et al., 2004; Bond & Bunce, 2003; Kashdan, Barrios, Forsyth, & Steger, 2006).

As psychological flexibility/inflexibility has clinical relevance, its assessment is of critical importance for clinical practice and research. The most widely used measure of psychological flexibility/inflexibility is the Acceptance and Action Questionnaire (AAQ; Hayes et al. 2004). The first version of the AAQ represented different components of psychological inflexibility such as negative evaluations of feelings, avoidance of negative private events, cognitive fusion, and inability to take needed action in the face of private events. The interest in the concept of cognitive inflexibility has led to a growing number of

versions of the AAQ that were tailored to particular applied areas or specific populations, such as pain (McCracken, Vowles, & Eccleston, 2004), smoking (Gifford et al., 2004), food craving (Juarascio, Forman, Timko, Butryn, & Goodwin, 2011), body image (Ferreira, Pinto-Gouveia, & Duarte, 2011), diabetes management (Gregg, Callaghan, Hayes, & Glenn-Lawson, 2007), coping with epilepsy (Lundgren, Dahl, & Hayes, 2008), coping with psychotic symptoms (Shawyer et al., 2007), and social anxiety (MacKenzie & Kocovski, 2010), among others.

Although the AAQ was broadly useful for the assessment of psychological inflexibility and for the evaluation of ACT treatment results (Bond et al. 2011), in many studies the internal consistency of the AAQ was low-to-moderate, and its factorial structure somewhat unstable (Bond & Bunce, 2003; Hayes et al., 2004; Tull, Gratz, Salters, & Roemer, 2004). The low internal consistency of the scale was explained, at least partially, by unnecessary item complexity and the subtlety of the concepts addressed (Bond et al., 2011). In order to produce a more stable and psychometrically sound instrument, a new version of the questionnaire, the AAQ-II, has been developed (Bond et al., 2011). In this process, items generated by a panel of the ACT research were examined in terms of internal consistency and structure validity. Final scale was constituted of 10 items, out of which three were reversed for scoring purposes. Findings from 2816 participants across six samples suggested that the AAQ-II is a valid and reliable measure of the psychological inflexibility with better psychometric properties than the AAQ (Bond et al., 2011).

The initial factor analyses of the scale yielded a two-factor solution, with the second factor consisting of the three reversed items. However, the factor analysis implied that these are two sides of the same coin and that the two-factor solution could result from a differential response to positively and negatively worded items. Hence the authors recommended using the last version of the questionnaire with 7 items after removing the reversed items. To date, studies have provided evidence that the 7-item version AAQ-II has better psychometric properties than the 10-item version and the AAQ (Bond et al., 2011; Pennato, Berrocal, Bernini, & Rivas, 2013). However, there are still rather few studies examining the psychometric properties and usefulness of the 7-item version of the scale (Fledderus et al., 2012; Pinto-Gouveia et al. 2012; Pennato et al., 2013).

Another important point is that Monestès et al. (2010) conducted a study across Europe comparing the psychometric properties of the 10-item AAQ-II among Dutch, English, French, Greek, and Italian languages versions. The results pointed out that globally all versions had similar psychometric properties and the small discrepancies in results were due to variances in translations. The authors concluded that psychological flexibility is a transcultural psychological variable. However, the sample consisted of mainly individualistic societies. As the psychological flexibility involves accepting one's negative thoughts and emotions and pursuing one's values and goals, it would be interesting to investigate the

psychometric characteristics of the AAQ-II in a collectivistic society, such as Turkey (Hofstede, 2001).

The psychological flexibility is an important concept not only for the treatment of psychological disorders but also for improving the quality of life. Given the growing interest for the third wave CBT therapies in Turkey, the main purpose of this study is to validate and provide preliminary data on the psychometric properties of the Turkish version of the AAQ-II. This study aims also to provide further empirical support for the validity, reliability, and usefulness of the 7-item version of the AAQ-II in a collectivistic culture.

Method

Participants

The sample consisted of 291 undergraduate and graduate students majored in different departments in various universities of Turkey. The age of participants ranged between 18 and 50 (M = 22.59, SD = 3.25). There were 183 female (62.9%) and 108 male (37.1%) participants. The test-retest reliability of the questionnaire was explored in 80 participants, whose ages ranges between 19 and 31 years (M = 22.81, SD = 2.32). There were 59 females (73.8%) and 21 males (26.3%) participants.

Measures

Acceptance and Action Questionnaire-II (AAQ-II; Bond et al. 2011), the 7-item version of this questionnaire was used in this study to assess psychological inflexibility. The items are evaluated on a Likert-type scale that runs from 1 (never true) to 7 (always true), with higher scores indicating greater levels of psychological inflexibility.

Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a 21 item, self-report inventory that measures characteristic attitudes and symptoms of depression in terms of emotional, physiological and cognitive symptoms. The completion of BDI takes approximately 10 minutes (Groth-Marnat, 1990). Internal consistency for the BDI ranges from .73 to .92 with a mean of .86 (Beck, Steer, & Garbin, 1988). In the Turkish version of the inventory, reliability and validity analysis of the BDI was made by Hisli (1988), who, compared participants' BDI scores with MMPI's depression subscale scores to determine BDI validity. The correlation between inventories was found adequate (r = .63).

Beck Anxiety Inventory (BAI; Beck, Brown, Epstein, & Steer, 1988) is a 21-item, 3 point Likert type scale, self-report inventory that measures the severity of anxiety. Higher scores indicate higher anxiety level. The BAI had high internal consistency (Cronbach's α = .92) and test-retest reliability score was adequate (r = .75). Besides, the BAI was moderately correlated with the Hamilton Anxiety Rating Scale-Revised (r = .51), and was only mildly correlated with the Hamilton

Depression Rating Scale-Revised (r = .25) (Beck et al., 1988). Reliability and validity study in Turkey was made by Ulusoy, Şahin and Erkmen (1998). According to their results, the scale's item total correlations ranged between .46 and .72.

White Bear Suppression Inventory (WBSI; Wegner & Zanakos, 1994) is a self-report instrument designed to measure the tendency of thought suppression. In addition, WBSI is a 15 item, 5 point Likert type self-report instrument, designed to measure the tendency of thought suppression. The answers scored as 1 (strongly disagree) to 5 (strongly agree). Total score changes between 15 to 75 points and higher scores indicate greater tendencies to suppress thoughts. The WBSI demonstrates excellent convergent validity and has significant correlations with several measures including the BDI, the Maudsley Obsessive-Compulsive Inventory, and the State-Trait Anxiety Inventory (STAI) (Wegner & Zanakos, 1994). The analysis of reliability and validity of the Turkish version of WBSI indicated adequate psychometric properties in a Turkish sample. Internal consistency, split-half and test-retest reliability coefficients were satisfactory (Altın & Gençöz, 2009).

Marlowe-Crowne Social Desirability Scale (MCSDS; Crowne & Marlowe, 1960) is a 33-item self-report inventory to measure social desirability without connection to psychopathology. The short version of the scale adapted to the Turkish culture (Ural & Özbirecikli, 2006) was used in this study as it was the only accessible version with a validation study. This scale has 7 items evaluated on a 6-point Likert scale.

Procedure

After obtaining permission from the developers of the original questionnaire, ethical approval was obtained from the university ethical committee. Two authors fluent in both Turkish and English translated the 7-item AAQ-II items into Turkish. The scale was then translated back into English by two different authors. Discrepancies between both versions were checked and discussed by the authors and a professional translator. In the second part of the study, data were collected by questionnaires completed via internet or on hard copies. Written informed consent was obtained from all participants with a full explanation of the purpose. The completion of questionnaires took approximately 30 minutes. After filling questionnaires, debriefing forms were given to participants. In the retest step, two months after the initial assessment, the AAQ-II questionnaire was given to participants to measure reliability of the scale.

Data analysis

Before performing analyses, the data of 303 participants were examined in terms of accuracy of data entry, missing values, multicollinearity and fit between their distributions and the assumptions of single-factor model analysis. Normality, homoscedasticity and linearity assumptions were met. Data from

participants who have z scores out of the -3.29 to +3.29 interval were deleted from the database as univariate and multivariate outliers (Tabachnick and Fidell, 2007). Final analyses were done with 291 participants.

In order to test the factor structure of the AAQ-II, confirmatory factor analysis (CFA) was performed, as CFA is considered a more efficient procedure than exploratory factor analysis (EFA) when investigating already existing models (Bollen, 1989). A one-factor model was tested using a maximum likelihood (ML) algorithm with EQS. 6.1. Due to the violation of multivariate normality (Mardia's z = 25.07), chi square and fit statistics robust to non-normality are used (i.e. Satorra-Bentler scaled chi-square). As the chi-square statistic is very sensitive to sample size, it is recommended to use several fit indices, each of them evaluating different aspects of the model fitting (Bollen, 1990). Three indicators, i.e., the root-mean square error of approximation (RMSEA), the standardized root-mean-square residual (SRMR), and the comparative fit index (CFI), were reported in this study as suggested by Byrne (2008). For the RMSEA values less than .06 indicate a good fit, values as high as .08 a reasonable fit, and those ranging from .08 to .10 a mediocre fit (Browne & Cudeck, 1993; MacCallum, Browne, & Sugawara, 1996). For the SRMR values less than .08 and for the CFI values greater than .95 are considered as indicating a good fit (Hu & Bentler, 1998). Two models were compared with Satorra-Bentler scaled chi-square test with nested models (Satorra & Bentler, 2001) through Crawford & Henry's program (2003). Descriptive statistics, correlation and regression analyses, and independent-samples *t*-tests were conducted with SPSS Version 20.

Results

The results section is presented in three parts. First, the structure validity was tested by confirmatory factor analyses. In the second part, the reliability of the AAQ-II, more precisely the internal consistency and the test-retest reliability, was examined. Finally, concurrent, convergent, criterion, and discriminant validity of the scale are presented. Mean scores and standard deviations for each measure used in the study can be found in Table 1.

Confirmatory Factor Analyses

At the first step of the CFA, a one-factor model with psychological inflexibility as the latent variable and the seven items as indicators was tested. The first model for the AAQ-II showed poor overall fit with Satorra-Bentler scaled χ^2 (14) = 81.28, p < .001, CFI = .90, RMSEA = .13, SRMR = .07. Lagrange Multiplier test recommended adding the estimates of the covariance between the errors of Items 1 and 4. Because several previous CFAs of the AAQ-II noted a pronounced method effect in responses to Items 1 ("My painful experiences and memories make it difficult for me to live a life that I would

value") and 4 ("My painful memories prevent me from having a fulfilling life.") due to their highly similar content and, in particular, the use of the same key terms (e.g., "painful memories") (Bond et al., 2011; Gloster, Klotsche, Chaker, Hummel, & Hoyer, 2011; Fledderus et al. 2012; Pinto-Gouveia, Gregório, Dinis, & Xavier, 2011), a second model where the error terms between these items were allowed to correlate was tested. The results showed that this correlation was significant (r = .56, p < .05). Although the value of the Chi-square was statistically significant, the second model fitted the data well according to the fit indices (Satorra-Bentler scaledχ^2 (13) = 35.42, p< .001, CFI = .97, RMSEA = .08, SRMR = .05).

Table 1. Mean scores and standard deviations for each measure.

	Mean	*SD*
AAQ-II	20.26	8.80
BDI	9.38	7.39
BAI	10.96	9.32
WBSI	49.75	12.19
MCSDS	31.24	4.57

Note. *SD* = Standard deviations; AAQ-II = Acceptance and Action Questionnaire-II; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; WBSI = White Bear Suppression Inventory; MCSDS = Marlowe-Crowne Social Desirability Scale.

Table 2. Confirmatory Factor Analysis Fit Indices for the One Factor Model with and without Correlated Errors (N =291).

	Satorra-Bentler scaledχ^2(*df*)	CFI (robust statistics) (≥ .95)	GFI (≥ .90)	NFI (≥.90)	RMSEA (robust statistics) (≤ .06)	SRMR (≤ .08)
Model 1: One-factor solution	81.28 (*14*)*	.90	.87	.88	.13	.07
Model 2: One-factor solution with correlated errors	35.42 (*13*)*	.97	.93	.93	.08	.05

Note. * p < .001. CFI = comparative fit index; GFI = goodness of fit index; NFI = normed fit index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual; values in parentheses define good model fit for the respective fit index.

Table 2 presents the two models and their fit statistics. The Model 2 showed a significant improvement over the Model 1, ΔS-Bχ^2(1) = 97.88, p < .001. Additionally, all factor loadings were statistically significant (p < .05), with

standardized coefficients ranging from .63 to .81 above the rule of thumb .40 (Tabachnick & Fidell, 2007) and with coefficients of determination (r^2) ranging from .40 to .65. As a conclusion, CFA supported the one-factor model after taking into account the overlapping content of Items 1 and 4.

Internal consistency and test-retest reliability

The calculated Cronbach's alpha value (.88) indicated a good internal consistency of the Turkish version of the AAQ-II. Corrected item-total correlation and the value of Cronbach's alpha if item deleted are listed in Table 3.

The Turkish version of AAQ-II was given to 80 participants for the purpose of examining the test-retest reliability, two months after the initial assessment. The results showed that the reliability of the questionnaire was satisfactory (r = .78).

Table 3. Item-total statistics of the AAQ-II.

	If Item Deleted	Variance If Item Deleted	Item-Total Correlation	Alpha If Item Deleted
1. My painful experiences and memories make it difficult for me to live a life that I would value.	-.20	20.00	.64	.86
2. I'm afraid of my feelings.	-.19	19.73	.68	.86
3. I worry about not being able to control my worries and feelings.	-.17	20.45	.60	.87
4. My painful memories prevent me from having a fulfilling life.	-.21	19.87	.66	.86
5. Emotions cause problems in my life.	-.19	19.42	.73	.85
6. It seems like most people are handling their lives better than I am.	-.21	19.87	.66	.86
7. Worries get in the way of my success.	-.19	20.08	.64	.86

Convergent, concurrent, criterion, and discriminant validity

Regarding the convergent validity, the AAQ-II scores were expected to correlate positively with thought suppression scores measured by the WBSI, as avoiding unpleasant thoughts is one of the components of psychological inflexibility. In the line with the original study, the correlation between the AAQ-II and the WBSI was statistically significant and positive (r = .50) (see Table 4).

Table 4. Correlation coefficients of AAQ-II with other scales.

	AAQ-II	BDI	BAI	WBSI	MCSDS
AAQ-II	1				
BDI	.58***	1			
BAI	.37***	.48***	1		
WBSI	.49***	.44***	.43***	1	
MCSDS	-.16**	-.12*	-.10	-.09	1

Note. * $p<.05$, ** $p<.01$, *** $p<.001$. AAQ-II = Acceptance and Action Questionnaire-II; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; WBSI = White Bear Suppression Inventory; MCSDS = Marlowe-Crowne Social Desirability Scale.

Concurrent validity was assessed by calculating the Pearson correlation coefficients between the AAQ-II and other scales measuring depression (BDI) and anxiety (BAI), which can be found in Table 4. As expected, psychological inflexibility was positively and significantly associated with depression (r = .58) and anxiety (r = .37).

The criterion validity is generally investigated by comparing scores coming from a clinical sample with those coming from a non-clinical sample. However, without a clinical sample, in this study we compared the mean AAQ-II scores of participants with lower/higher depression scores with the mean AAQ-II scores of those with lower/higher anxiety scores in order to investigate more thoroughly the clinical use of the Turkish AAQ-II. The cut-off score of 10 on the BDI indicates a mild depression (Beck, Steer, & Garbin, 1988) and 8 on the BAI a mild anxiety (Beck & Steer, 1993). Therefore the sample is divided into two groups with lower/higher depression with the cut-off score of 10 on the BDI, and then into two groups with lower/higher anxiety with the cut-off score of 8 on the BAI. The results showed that participants with at least a mild depression had a higher mean score of psychological inflexibility than participants with no depression according to the BDI, $t(289) = 8.85$, $p < .001$. Furthermore participants with at least a mild anxiety had higher psychological inflexibility scores than participants who do not experience anxiety, $t(289) = 5.45$, $p < .001$. *T*-test results comparing lower/higher depression sub-groups and lower/higher anxiety sub-groups are listed in the Table 5 and 6.

Although the AAQ-II was not devised to diagnose mental disorders, AAQ-II scores associated with the cut-off scores of the BDI and the BAI indicating a mild psychological distress were calculated for this sample. To this purpose, regression analyses were conducted. After checking the data for assumptions, results suggested that a significant proportion of the total variation in the AAQ-II scores was explained by the BDI and BAI scores, respectively $F(1, 289) = 143.38$, $p < .001$ and $F(1, 289) = 45.47$, $p < .001$. Furthermore, the AAQ-II scores were predicted by the BDI and the BAI scores, $t(289) = 11.97$, $p < .001$ and $t(289) = 6.74$, $p < .001$. Inserting the cut-off values of BDI and BAI on the

regression equations, we found that the cut-off score of 10 on the BDI was associated with a score of 21 on the AAQ-II. As for the cut-off score of 8 on the BAI, it was associated with a score of 19 on the AAQ-II. Thus in this sample, participants with AAQ-II scores above the range of 19-21 may have at least a mild psychological distress.

Table 5. *T*-test results comparing no depression and mild to severe depression subgroups.

	No Depression (n = 180)		Mild to Severe Depression (n = 111)		t-test (n = 291)
	Mean	SD	Mean	SD	t value
AAQ- II	17.08	7.05	25.43	8.93	-8.38*

Note. *p < .001. SD = Standard Deviation; No Depression: BDI < 10 point, Mild to Severe Depression: BDI ≥ 10.

Table 6. *T*-test results comparing no anxiety and mild to severe anxiety subgroups.

	No Anxiety (n = 135)		Mild to Severe Anxiety (n = 156)		t-test (n = 291)
	Mean	SD	Mean	SD	t value
AAQ-II	17.38	7.35	22.76	9.20	-5.54*

Note. *p < .001. SD = Standard Deviation; No Anxiety: BAI < 8 point, Mild to Severe Anxiety: BAI ≥ 8.

The discriminant validity was assessed by calculating the correlation between the AAQ-II and the Marlowe-Crowne Social Desirability Scale (MCSDS). Dissimilarly to the original study's findings showing no relationship between social desirability and psychological inflexibility, the results showed a very weak but significant negative correlation between the Turkish AAQ-II and the short version of the MCSDS (r = -.16) (Table 4). Given the significant correlation between the AAQ-II and the MCSDS, the participants' responses to AAQ-II may have been influenced by social desirability. However, the correlations between the AAQ-II and the BDI (r = .57), the BAI (r = .34), and the WBSI (r = .49) were practically unchanged and still statistically significant (p < .001) after controlling for the effects of the MCSDS scores.

Results from this study are compared to the results from the original study in Table 7.

Table 7. Comparison of results from the original article and the Turkish version of the AAQ-II.

		Original Scale	Turkish Version
Correlations between the AAQ-II and other measures	BDI	.71**	.58**
	BAI	.58**	.37**
	MCSDS	-.09 (ns)	-.16**
	WBSI	.60**	.49**
Cronbach's α		.78	.88
Test-retest reliability		.81 (3 months)	.78 (2 months)

Note. *p < .05, **p < .01. From the original article, results of studies conducted with the 7-item version of the scale and the student samples are shown in the table, except for the correlations with MCSDS and the test-retest reliability, which were studied on samples of employees; The second version of the BDI was used at the original study, a short version of the MCSDS was used on the Turkish study; ns = non significant.

Discussion

The present study focused on reporting the preliminary results on psychometric properties and on validation of the 7-item Turkish version of the AAQ-II. Structure validity, internal consistency, test-retest reliability, concurrent, convergent, criterion, and discriminant validity of the scale were examined.

Regarding the factor structure of the AAQ-II, the CFA results supported a one-dimensional structure after taking into account the overlapping content of Items 1 ("My painful experiences and memories make it difficult for me to live a life that I would value") and 4 ("My painful memories prevent me from having a fulfilling life"). Several previous studies reported the same method effect in responses to these items (Bond et al., 2011; Gloster et al., 2011; Fledderus et al. 2012; Pinto-Gouveia et al., 2011). Future versions of the AAQ may benefit from changes in the key terms in these items or discarding one of them if the items are proven to be redundant.

The reliability coefficient of the scale (.88) was good, illustrating that a coherent and meaningful representation of psychological inflexibility has been sampled by AAQ-II. The coefficient was higher in our sample than in the student sample from the original study (.78) (Bond et al. 2011). One possible explanation might be the difficulty in the Turkish language to distinguish the expressions "*a life that I would value*" from the Item 1 (translated in Turkish as "*anlamlı bir hayat*") and "a fulfilling life" from the Item 4 (translated as "*doyurucu bir hayat*"), which would result in item redundancy.

The test-retest reliability was .78 over a two-month period and met expectations about the stability of the scale. Longer intervals for the test-retest reliability of the scale should be investigated by future studies on the Turkish version of the AAQ-II.

Regarding the convergent validity, higher levels of psychological inflexibility were associated with higher levels of thought suppression, as measured by the WBSI (r = .50). In spite of being enough for convergent validity, the correlation between the two instruments is not adequate to assert that psychological inflexibility and thought suppression are the same constructs. As a matter of fact, psychological inflexibility involves not only avoidance of thoughts, but also avoidance of emotions, negative evaluations of feelings, and inability to take needed action in the face of the negative private events.

The study also provided additional support for the concurrent validity of the 7-item version of the scale similar to the 10-item version. In compliance with the literature findings, psychological inflexibility seems to be an important determinant of psychological distress since greater levels of inflexibility was related with greater levels of depression (measured by the BDI) and anxiety (evaluated by the BAI). Furthermore, the results showed that participants with at least a mild depression had a higher mean score of psychological inflexibility than participants with no depression. Additionally, participants experiencing a mild to severe anxiety had higher psychological inflexibility scores than participants with no anxiety. In this sample of unselected students, the cut-off score of 10 on the BDI was associated with a score of 21 on the AAQ-II and the cut-off score of 8 on the BAI with a score of 19 on the AAQ-II. Thus in this sample, participants with AAQ-II scores above the range of 19-21 may experience at least a mild psychological distress. These preliminary results indicate that the Turkish AAQ-II might be used also in the clinical settings such as the evaluation of the results of third wave CBT treatments. Nonetheless, additional researches with clinical samples are needed in order to fully investigate the discriminative validity and the clinical applications of the Turkish AAQ-II. Further research should also explore the concurrent validity of the Turkish AAQ-II with additional scales evaluating other psychological disorders but also other dimensions related to well-being such as the quality of life.

Bond at al. (2011) argued that the participants' responses to the AAQ-II were not influenced by any need that they had to react in a culturally appropriate and acceptable manner so significant relationship between psychological inflexibility and social desirability is not expected. However, in the current study a weak negative correlation was found between the Marlowe-Crowne Social Desirability Scale and the Turkish version of AAQ-II. Nonetheless, results showed that the strength of the correlations between the AAQ-II and other measures -BDI, BAI, WBSI - was only slightly reduced when controlling for the effects of social desirability. Therefore, the Turkish AAQ-II is a valid measure of the psychological inflexibility despite the effects of social desirability in responses.

The negative correlation between MCSDS and AAQ-II can be explained by the collectivistic nature of the Turkish culture and the usage of a short form of MCSDS adapted to the Turkish culture (Ural and Özbirecikli, 2006), instead of

the 33 items version (Crowne & Marlowe, 1960). Ural and Özbirecikli (2006) suggested that although their scale can be used as a general measure of social desirability in the Turkish population, its items came only from the factor called "management of social relations", leaving out the factors "violations of social norms and control of behaviors", "ambition and personal achievement". Items "*I have never intensely dislike anyone*", "*I am always careful about my manner of dress*", "*No matter who I'm talking to, I'm always a good listener*" are examples of this short version of the MCSDS. As the Turkish culture is a collectivist one, having culturally approved relations, therefore not having very low scores on "management of social relations" or on the Turkish MCSDS may be expected from a Turkish sample. This view is supported by studies showing that East Asians (also a collectivistic culture), have higher MCSDS scores than U.S. born subjects (Middleton & Jones, 2000; Keillor, Owens, & Pettijohn, 2001). Additionally, Johnson (1998) has reported findings from a study in the United States that documented a positive correlation between the MCSDS and a collectivist orientation scale (0.20) and a negative correlation between the MCSDS and a measure of individualism (-0.19). Therefore in this sample, participants' AAQ-II responses may be influenced by the importance they give to "good" social relations, for the items on the "action" component (in other words having a meaningful and fulfilling life) of psychological flexibility rather than the items on the "acceptance" component (accepting unpleasant thoughts and emotions). The fact that there was no significant correlation between MCSDS and the WBSI measuring thought suppression supports this view. Taken together, these findings may suggest that in this sample of participants who have culturally approved social relations, and thus higher scores of the Turkish MCSDS, they have also a more meaningful and fulfilling life, and thus higher AAQ-II.

Additionally, this study's sample consisted of students whereas Bond and colleagues (2011) investigated the discriminant validity of the AAQ-II with a sample of financial service workers. Therefore more studies with different cultures, different samples, different social desirability scales are needed to clarify the relationship between the AAQ-II and the social desirability and to examine the discriminant validity of the AAQ-II.

One of the aims of this study was to provide findings on the psychometric properties of the AAQ-II in a collectivistic culture. The only difference between our findings and those of the previous studies in individualistic cultures was on discriminant validity of the AAQ-II. Our results showed that the participants' responses to the AAQ-II were in part influenced by the social desirability. Nonetheless, beside this difference, our results taken together supports the view of Monestès et al. (2010), stating that psychological flexibility is a cross-cultural construct.

Several limitations of this study must be mentioned. We decided to conduct our study on preliminary findings about the psychometric properties of the AAQ-II in a community sample consisted of unselected undergraduate and

graduate students. Thus, our study lacked a clinical sample. Although the inclusion of unselected students in the sample provided us preliminary information about the clinical use of the AAQ-II, with this inclusion our sample cannot be qualified as a non-clinical sample either. Moreover, the students from two largest cities of Turkey participated in our research, which constitutes a limit for the generalization of our findings, especially considering that one of the aims of the study was to present characteristics of the AAQ-II in a collectivistic society.

Considering these limitations, further research should be conducted with clinical samples and with more representative community samples. Additionally, future studies should focus on other psychometric properties of the AAQ-II such as its predictive or discriminative validity. Finally, additional researches in different applied areas or in specific populations may contribute to the usefulness of the Turkish AAQ-II.

As a conclusion, the 7-item Turkish version of AAQ-II is a valuable tool for measuring psychological flexibility/inflexibility with good values of reliability (internal consistency and test-retest) and validity (structural, concurrent, and convergent). Our findings also support the literature suggesting that the 7-item version of AAQ-II has better psychometric properties over previous versions of the questionnaire and has a one-factor structure. Finally, similar results were obtained in our collectivistic sample with previous studies conducted in individualistic societies, suggesting that psychological flexibility is a transcultural construct.

REFERENCES

Altın, M. & Gençöz, T. (2009). Psychopathological correlates and psychometric properties of the White Bear Suppression Inventory in a Turkish sample. *European Journal of Psychological Assessment, 25*(1), 23-29.

Beck, A. T., Brown, G., Epstein, N. & Steer, R. A. (1988). An inventory for measuring clinical anxiety: psychometric properties. *Journal of Consulting and Clinical Psychology, 56* (6), 893-897.

Beck, A. T., Steer, R.A. & Garbin, M.G. (1988) Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. *Clinical Psychology Review, 8*(1), 77-100.

Beck, A. T. & Steer, R. A. (1993). *Beck Anxiety Inventory Manual*. San Antonio: Harcourt Brace and Company.

Beck, A.T., Ward, C. H., Mendelson, M., Mock, J. & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.

Berking, M., Neacsiu, A., Comtois, K. A., & Linehan, M. M. (2009). The impact of experiential avoidance on the reduction of depression in treatment for borderline personality disorder. *Behaviour Research and Therapy*, 47, 663–670.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley& Sons.

Bollen, K. A. (1990). Overall fit in covariance structure models: Two types of sample size of Psychopathology. *Journal of Consulting Psychology, 24*, 349-354.

Bond, F. W. & Bunce, D. (2003). The role of acceptance and job control in mental health, job satisfaction, and work performance. *Journal of Applied Psychology, 88*, 1057–1067.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K. et al. (2011). Preliminary psychometric properties of the acceptance and action questionnaire - II: A revised measure of psychological flexibility and experiential avoidance. *Behavior Therapy*, 42, 676–688.

Browne, M. W. & Cudeck, R. (1993). *Alternative ways of assessing model fit.* In Bollen, K. A., & Long, J. S. (Eds.), Testing structural equation models (pp. 136-162).Newbury Park, CA: Sage.

Byrne, M. B. (2008). *Structural Equation Modeling with EQS: Basic Concepts, Applications, and Programming* (2nd ed.). New York, NY: Psychology Press.

Chawla, N. & Ostafin, B. (2007). Experiential avoidance as a functional dimensional approach to psychopathology: An empirical review. *Journal of Clinical Psychology*, 63, 871–890.

Crawford, J. R. & Henry, J. D. (2003). The Depression Anxiety Stress Scales: Normative data and latent structure in a large non-clinical sample. *British Journal of Clinical Psychology*, 42, 111-131.

Crowne, D.P. & Marlowe D. (1960). A New Scale of Social Desirability Independent effects. *Psychological Bulletin*, 107, 256-259.

Ferreira, C., Pinto-Gouveia, J. & Duarte, C. (2011). The validation of the body image acceptance and action questionnaire: Exploring the moderator effect of acceptance on disordered eating. International *Journal of Psychology and Psychological Therapy*, 11 (3), 327-345.

Fledderus, M., Bohlmeijer, E. T. & Pieterse, M. E. (2010). Does experiential avoidance mediate the effect of maladaptive coping styles on psychopathology and mental health? *Behavior Modification*, 34, 503–519.

Fledderus, M., Oude Voshaar, M. A. H., ten Klooster, P. M. & Bohlmeijer, E. T. (2012). Further evaluation of the psychometric properties of the acceptance and action questionnaire-II.*Psychological Assessment*, 24(4), 925-936.

Gifford, E. V., Kohlenberg, B. S., Hayes, S. C., Antonuccio, D.O., Piasecki, M. M., Rasmussen-Hall, M. L. & Palm, K. M. (2004). Applying a functional acceptance based model to smoking cessation: An initial trial of acceptance and commitment therapy. *Behavior Therapy*, 35, 689–705.

Gloster, A. T., Klotsche, J., Chaker, S., Hummel, K. V. & Hoyer, J. (2011). Assessing psychological flexibility: What does it add above and beyond existing constructs? *Psychological Assessment*, 23, 970–982.

Gregg, J. A., Callaghan, G. M., Hayes, S. C. & Glenn-Lawson, J. L. (2007). Improving diabetes self-management through acceptance, mindfulness, and values: A randomized controlled trial. *Journal of Consulting and Clinical Psychology*, 75(2), 336–343.

Groth-Marnat G. (1990). *The handbook of psychological assessment* (2nd ed.). New York: John Wiley & Sons.

Hayes, S. C., Luoma, J. B., Bond, F.W., Masuda, A. & Lillis, J. (2006). Acceptance and commitment therapy: Model, processes and outcomes. *Behavior Research and Therapy*, 44, 1–25.

Hayes, S. C., Strosahl, K. D., Wilson, K. G., Bissett, R. T., Pistorello, J., Toarmino, D., Polusny, M. A. et al. (2004). Measuring experiential avoidance: A preliminary test of a working model. *Psychological Record*, 54, 553–578.

Hayes, S. C., Strosahl, K. & Wilson, K. G. (1999). *Acceptance and commitment therapy: An experiential approach to behavior change*. New York: Guilford Press.

Hisli N. (1988). Beck Depresyon Envanteri'nin geçerliği üzerine bir çalışma. *Psikoloji Dergisi*, 6(22), 118-122.

Hu, L. T. & Bentler, P. M. (1998). Fit indices in covariancestructure modeling: Sensitivity to underparameterized modelmisspecification. *Psychological Methods*, 3, 424–453.

Johnson, T.P. (1998). *"Empirical evidence of an association between individualism/ collectivism and the trait social desimbility."* Paper presented at the Third ZUMA Symposium on Cross-Cultural Survey Methodology, Leinsweiler, Germany.

Juarascio, A., Forman, E., Timko, C. A., Butryn, M, & Goodwin, C. (2011). The development and the validation of the food craving acceptance and action questionnaire (FAAQ). *Eating Behaviors*, 12 (3), 182-187.

Kashdan, T. B., Barrios, V., Forsyth, J. P. & Steger,M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behavior Research and Therapy*, 9, 1301–1320.

Keillor, B., Owens, D., & Pettijohn, C. (2001). A cross-cultural/crossnational study of influencing factors and socially desirable response biases. International Journal of *Market Research*, 43, 63-84.

Linehan, M. M. (1993). *Cognitive behavioral treatment of borderline personality disorder*. New York: Guilford Press.

Lundgren, T., Dahl, J. & Hayes, S. C. (2008). Evaluation of mediators of change in the treatment of epilepsy with acceptance and commitment therapy. *Journal of Behavior Medicine*, 31, 225–235.

MacCallum, R. C., Browne, M.W. & Sugawara, H.M. (1996). Power analysis and determination of sample size for covariance structure modeling. *Psychological Methods*, 1, 130-149.

MacKenzie, M. B. & Kocovski, N. L. (2010). Self-reported acceptance of social anxiety symptoms: Development and validation of the social anxiety - acceptance and action questionnaire. *International Journal of Behavioral Consultation and Therapy*, 6(3), 214-232.

McCracken, L. M., Vowles, K. E. & Eccleston, C. (2004). Acceptance of chronic pain: Component analysis and a revised assessment method. *Pain*, 107, 159–166.

Middleton, K.L. & Jones, J.L. (2000). Socially desirable response sets: The impact of country culture. *Psychology & Marketing*, 17, 149-163.

Monestès, J. L., Jacobs, N., Kleen, M., De Groot, F., A-Tjak, J., Karekla, et al. (2010). *"Babel's AAQ-II. Do different languages result in different outcomes in Europe?"*. Paper presented at the Annual ACBS World Conference VIII, Nevada Reno, June 21-24.

Öst, L. G. (2008). Efficacy of the third wave of behavioral therapies: a systematic review and meta-analysis. *Behaviour Research and Therapy*, 46, 296–321.

Pennato, T., Berrocal, C., Bernini, O., & Rivas, T. (2013). Italian Version of the Acceptance and Action Questionnaire-II (AAQ-II): Dimensionality, Reliability, Convergent and Criterion Validity. *Journal of Psychopathology and Behavioral Assessment*, 35(4), 552-563.

Pinto-Gouveia, J., Gregório, S., Dinis A. & Xavier, A. (2012). Experiential avoidance in clinical and non-clinical samples: AAQ-II Portuguese version. International *Journal of Psychology & Psychological Therapy*, 12, 2, 139-156.

Ruiz, F. J. (2010). A review of acceptance and commitment therapy (ACT) empirical evidence: correlational, experimental psychopathology, component and outcome studies. *International Journal of Psychology and Psychological Therapy*, 1, 125–162.

Rüsch, N., Schiel, S., Corrigan, P. W., Leihener, F., Jacob, G. A.,Olschewski, M., Lieb, K., et al. (2008). Predictors of dropout from inpatient dialectical behavior therapy among women with borderline personality disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, 39, 497–503.

Satorra, A. & Bentler, P. M. (2001).A scaled difference chi-square test statistic for moment structure analysis. *Psychometrika*, 66, 507-514.

Segal, Z. V., Williams, J. M. G. & Teasdale, J. T. (2001). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford Press.

Shawyer, F., Ratcliff, K., Mackinnon, A., Farhall, J., Hayes, S. C., & Copolov, D. (2007). The Voices Acceptance and Action Scale (VASS). Pilot data. *Journal of Clinical Psychology*, 63, 593–606.

Tabachnick, B.G. & Fidell, L.S. (2007).*Using Multivariate Statistics* (5th ed.). Boston, MA: Pearson Education.

Teasdale, J. T. (2003). *Mindfulness and the third wave of cognitive-behavioural therapies*. Paper presented at the European Association for behavioural and cognitive therapies annual congresses, Prague, Czech Republic.

Tull, M. T., Gratz, K. L., Salters, K. & Roemer, L. (2004). The role of experiential avoidance in posttraumatic stress symptoms and symptoms of depression, anxiety, and somatization. *The Journal of Nervous and Mental Disease*, 192, 754–761.

Ulusoy, M., Şahin, N. & Erkman, H. (1998). Turkish version of the Beck Anxiety Inventory: psychometric properties. *Journal of Cognitive Psychotherapy*, 12, 28-35.

Ural, T. & Özbirecikli, M. (2006). Is ethical judgment influenced by social desirability in responding? An analysis on Turkish accountants. *Sosyal Bilimler Enstitüsü Dergisi, 15*(1), 393-410.

Wegner, D. M. & Zanakos, S. (1994). Chronic thought suppression. *Journal of Personality, 62*, 615-640.

Wells, A. (2000). *Emotional disorders and metacognition: Innovative cognitive therapy*. Chichester, UK: Wiley

Appendix-A

KABULLENME VE EYLEM ÖLÇEĞI II

Aşağıda birtakım ifadeler göreceksiniz. Lütfen her bir ifadenin sizin için ne kadar doğru olduğunu aynı satırda bulunan sayıları yuvarlak içine alarak değerlendiriniz. Seçiminizi aşağıdaki ölçeği kullanarak yapınız.

1 **Hiçbir zaman doğru değil**	**2** **Çok nadiren doğru**	**3** **Nadiren doğru**	**4** **Bazen Doğru**	**5** **Sıklıkla doğru**	**6** **Neredeyse her zaman doğru**	**7** **Her zaman doğru**

1.	Acı verici deneyimlerim ve anılarım anlamlı bir hayat yaşamamı zorlaştırıyor.	1	2	3	4	5	6	7
2.	Duygularımdan korkarım.	1	2	3	4	5	6	7
3.	Kaygılarımı ve duygularımı kontrol edememekten endişe duyarım.	1	2	3	4	5	6	7
4.	Acı verici anılarım doyurucu bir hayat yaşamamı engelliyor.	1	2	3	4	5	6	7
5.	Duygular hayatımda sorunlara yol açar.	1	2	3	4	5	6	7
6.	Çoğu insan hayatını benden daha iyi idare ediyor gibi görünüyor.	1	2	3	4	5	6	7
7.	Endişelerim başarılı olmamı engelliyor.	1	2	3	4	5	6	7