Factor Structure, Validity and Reliability of the Persian version of the Acceptance and Action Questionnaire (AAQ-II-7)

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Abstract

The aim of the present study was to examine the factor structure, validity and reliability the Persian version of the Acceptance and Action Questionnaire (AAQ-II-7) in Iranian population. This study was descriptive and was aimed at the standardization of AAQ-II-7. The sample was consisted of 661 undergraduate and postgraduate students in the University of Isfahan in 2012-2013 academic year. They were selected via a random sampling method. Participants were asked to answer AAQ-II-7, BDI-2 and GHQ-28. Results showed that Cronbach's alpha was 0.85 indicating that Persian version of AAQ-II-7 maintains the capability of predicting mental health and could be utilized for assessment processing of ACT. Explanatory factor analysis (EFA) extracted one factors accounted for 52% of the total variance. This structure was confirmed through confirmatory factor analysis (CFA). Thus, like English original version AAQ-II the Persian version of AAQ-II-7 had one-dimensional measure of avoidance experiential and had satisfactory and acceptable reliability and validity in Iranian population.

Key words: Acceptance and Action Questionnaire (AAQ-II-7), Factor Structure, Validity, Reliability, Persian version

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Introduction

Acceptance and Commitment Therapy (ACT) which is described as the third wave behavioral therapy, believes that psychological and behavioral difficulties occur through a psychological inflexibility in six core processing (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). The six processes of RFT/ACT in model of psychopathology and health include: Context with present moment/ Dominance of the Conceptualized Past and Feared Future, Acceptance/ Experiential Avoidance, Values/ Lack of Values, Commitment Action/ Inaction Impulsivity, or Avoidant Persistence, Self as context/Attachment to the Conceptualized Self/, fusion, defusion (Hayes, Strosahel, & Wilson, 2011). As a result, the aim of ACT in therapy is to decrease experiential avoidance (EA) and to increase flexibility rather than reduce of pathology (Biglan, Hayes, & Pistorello, 2008). A number of measuring tools used for evaluating the concepts of ACT model have been developed (Hayes, Levin, Plumb-Vilardaga, Villatte, & Pistorello, 2013). Acceptance and Action Questionnaire (AAQ) is a self report which is used to measure various aspects of acceptance/willingness versus experiential avoidance that measure several ACT processes that bear on psychological flexibility (Bond,et.al,2011). Experiential avoidance (EA) indicates the degree to which an individual fuses with thoughts, avoids feelings, and is unable to act in the presence of difficult private events. On the other hand, acceptance/willinngess means experiencing event (felling, thought, etc.) fully without defending or rejecting (Hayes, Luoma, Bond, Masuda,& Lillis, 2006). The utility of The Acceptance and Action Questionnaire(AAQ) to measure psychological flexibility in processes of ACT interventions((Bond &Bunce, 2003) have led to the development of many languages for the measuring of process changes in specific areas such as diabetes (Gregg, Callaghan, Hayes, &Glenn-Lawson, 2007) smoking (Gifford et al., 2004) weight (Lillis & Hayes, 2008) chronic

pain (McCracken, Vowles, & Eccleston, 2004) PTSD(Marx & Sloan, 2005) and Addiction (Forsyth, Parker, Finlay ,& 2003) in a variety of studies.

AAQ, which has been developed by Hayes (2004), has four validation versions with a number of different items (AAQ-9 AAQ-16, AAQ-22 , AAQ-49) with single and dual factor solution that used in various contexts and clearly measure components of experiential acceptance and effective action orientation (Hayes, Strosahel, &Wilson, 2011). Several studies using different samples showed that higher scores of AAQ are positively linked with several facets of psychopathology such as depression and anxiety (Hayes, Luoma, Bond, Masuda, &Lillis2006., Boelen,& Reijntjes,2008). Bond, et.al (2011) have developed second version of AAQ-II for addressing shortcomings of AAQ-I. To do so, Bond, et.al (2011) made use of a stringent method to identify 10 items for AAQ-II. Exploratory factor analysis (EFA) revealed two distinct factors that accounted for a good proportion of the variance shared by the items. The results showed that the seven items are comprised of Factor 1, and were negatively worded, and three items, which loaded on Factor 2 and were positively worded, (items 1, 6 and 10) showed wording distinction which indicates the two factors may not actually represent different constructs. Ultimately, they omit three items because they do not maintain internal and external validity of the questionnaire combined and reduced to 7 items with Likert-style scale. Confirmatory factor analysis to test the fit and parameters of AAQ-II-7 showed satisfactory structure, reliability, and validity of this measurement. They noted that shorter version (7 items) is better to be used in research and assessment on ACT model (Bond,et. al 2011). Nowadays, Acceptance and Commitment Therapy (ACT) is turning into a powerful theory with much experimental evidence. That is why various versions of AAQ are widely used and have been translated into many different languages (Spanish, Dutch, Arabic, Italian, etc). With regard to the above mentioned researches, the purpose of this

paper was to determine Psychometric Properties of the Acceptance and Action Questionnaire–II-7 in Iranian sample.

Method

Participants

The sample comprised of 661 undergraduate and postgraduate students with an age range of 18-32 years (mean age = 25.08 years and SD = 3.48). Proportion of men was 49.7%(n=314) of the sample (mean age = 25.01 years; SD = 3.46), whereas proportion of women was 50.3%(n=347) (mean age = 25.15 years; SD =3.49). Employment state of the participants was as follow: 144 had a permanent job, 247 were in temporary jobs, and 270 were students or unemployed. Participation in the study was voluntary.

Instruments

Beck Depression Inventory–II (BDI-II)

The BDI-II is a self- report measure which measures the intensity of depression in clinical and nonclinical samples during last week. Scale includes 21 items designed to assessing the severity of current depression symptoms (Beck & Steer, 1990). This scale has been shown good psychometric properties in both clinical and non clinical sample (Beck, Steer, & Brown, 1998).

General Health Questionnaire (GHQ-28)

The GHQ-28 developed as a screening tool in by Goldberg in 1978 And until now has been translated into 38 languages (Nagyova., et.al, 2000). GHQ-28 with 28 item measure emotional distress including four subscales of somatic symptoms, anxiety/insomnia, severe depression and social dysfunction. Several studies have supported the psychometrics of GHQ-28(Sterling, 2011).

Acceptance and Action Questionnaire(AAQ-II)

The Acceptance and Action Questionnaire (AAQ-II: Bond et al., 2011) is a questionnaire including 7 items that assesses a person's experiential avoidance, immobility, acceptance and action. The items on the AAQ-II are rated on a 7 point Likert-type scale from 1 (never true) to 7 (always true). High scores on the AAQ-II are reflective of greater experiential avoidance and immobility, while low scores reflect greater acceptance and action.

Procedure

Back translation, from Persian to English, was used to obtain the face validity. At first, English version was translated into Persian by a PhD student in clinical psychology who was an expert on ACT model. Then, the translated version was given to three professors of psychology, who were familiar with ACT model, to assess and modify the content of the translated AAQ. Then, Persian version of AAQ was translated back by a postgraduate student in English translation, who had not seen the original text. After that, the original English version and the translated English version were given to a professor of English language- he did not know the link between the two texts- to compare them. After he confirmed the translation, the Questionnaire was used in the research.

Analysis

To obtain evidence of psychometric properties of Persian version of AAQ-II-7 we used reliability Exploratory factor analysis (EFA) and Confirmatory factor analysis (CFA) with equation modeling software program AMOS -18 and SPSS-20.

Results

Exploratory factor analysis (EFA)

Results supported of sufficient sample size for EFA (KMO=0.89; X2=1501.97; sig=0.0005). EFA (by Varimax rotation) showed only one factor with Eigen value greater than 1 (Eigen value=3.66, Variance accounted=52.29). Second factor had small Eigen value (Eigen value= 0.83; Variance accounted=11.93).

Confirmatory factor analysis of the AAQ-2

Measurement in variance was tested by examining the measurement model of the latent construct of AAQ-II. Although in some cases, The fit indices for the structural model was acceptable (X^2= 101.03, N=661 p=0.0, CFI=0.97, RFI=0.90, RMSEA=0.10, GFI=0.96, TLI=0.92), it did not support a good fit (figure 1 and model 1 in table1). Except RMSEA, other indices were proper. Modification indexes proposed significant relationship between items 2 and 3, and the 6 and 7. To solve this problem, for each of the pair items, another level was added to the questionnaire. (figure2). Indexes for this model showed an acceptable fit (x2 /df=1.31, P=.06, GFI=0.99, CFI=1.00, TLI=0.99, RFI=0.98, NFI=0.99, RMR=0.04, RMSEA=0.03), which is reflected in figure 2 and table1. This change in the model, caused to remarkable decrease in RMSEA (values greater than 0.10 to acceptable value of 0.03).

Table 1: Model fit indices for the model of the Iranian version of the AAQ-II

| Model	X^2	df	sig	GFI	CFI	TLI	RFI	NFI	RMR	RMSEA
Model1	101.03	14	.000	.96	.94	.92	.90	.94	.10	.10
Model2	20.31	12	.06	.99	1.00	.99	.98	.99	.04	.03
Model3	85.6	41	.00 *	.98	.97	.95	.97 *	.04		
Model4	64.3	18	.00 *	.98	.96	.95	.97 *	.06		

Note: N: number of participants; GFI: Goodness of Fit Index; AGFI: Adjusted Goodness-of-Fit Index; RMR: Root Mean Square Residual; SRMR: Standardized Root Mean Square Residual.

Fig. 1. Factor structure of the AAQ-II in a community-based sample of Iranian.
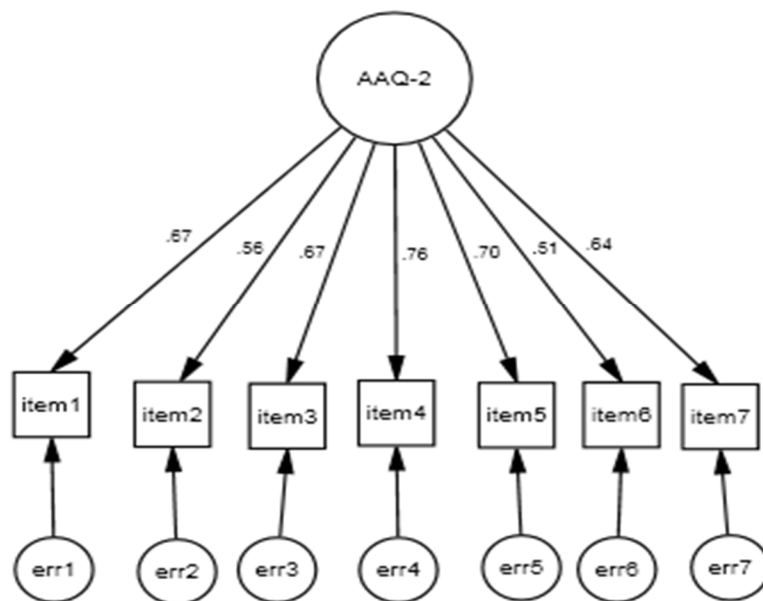
Predictive validity

AAQ-II model was measured if it would be able to predict the BDI-2 (model 3) and GHQ-28 (model 4).

As shown in Table (1) the predictive validity of the model was verified, and AAQ-II was positively associated with (BDI-2) and GHQ-28 (P<0.001). (Table2)
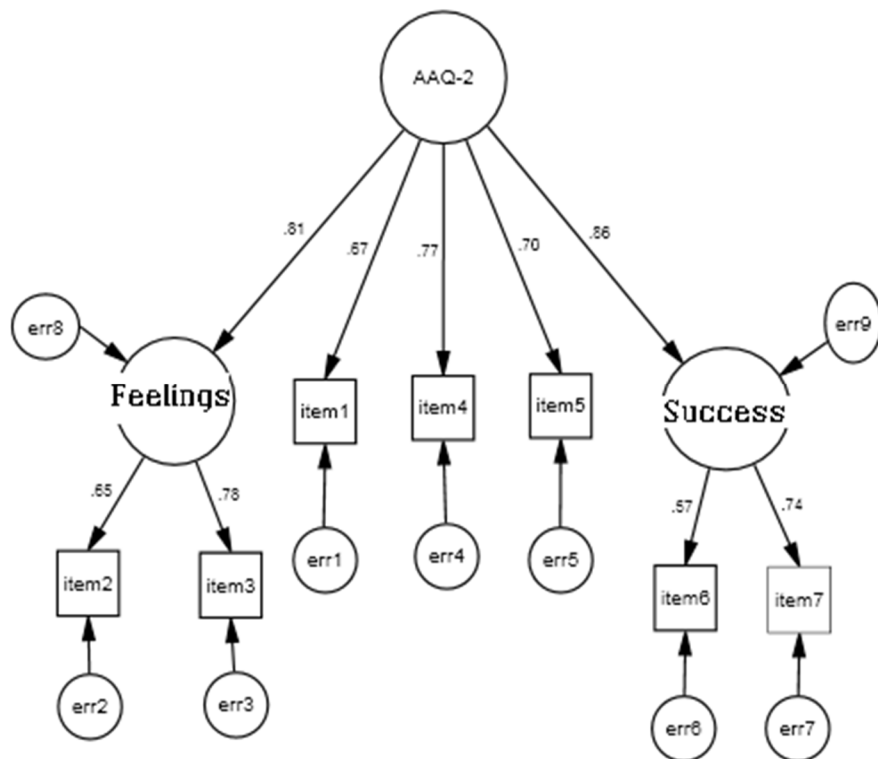
Table 2: correlation results of AAQ-II with (BDI-2) and GHQ-28.

Variable	AAQ-II
(BDI-2)	0.67
Total GHQ-28	0.71
Significance	0.001

Internal consistency

Internal consistency coefficients were computed for Persian version of the AAQ-II. Cronbach's alpha coefficients of the total score were generally high, indicating a high degree of homogeneity. The Item -Total Correlation of the items were moderate to high, with Cronbach's alpha values 0.85 (see Table 3). The total correlations for 7 items were above 0.50.

Table 3: reliability coefficient (of Cronbach's Alpha) of (AAQ-I).

	Item1	item2	item3	item4	item5	item6	item7
Item -Total Correlation	0.60	0.58	0.61	0.68	0.63	0.52	0.59
Factor Loadings	0.72	0.71	0.73	0.79	0.75	0.64	0.71

Alpha Cronbach=0.85

Discussion

The aim of this research was   to assess Factor Structure, Validity and Reliability of the Persian version of the Acceptance and Action Questionnaire (AAQ-II-7). The results from this study indicate the utility, adequate structure and reliability and validity of the Persian version of AAQ-II-7. Exploratory factor analysis showed that there was only one factor, in which "confirmatory factor analysis" was confirmed (CFA).

Although modification indexes suggest significant relationship between questions 2 and 3, and questions 6 and 7; however, these items could not be taken into account as another dimension. The reason is that only one factor with Eigen values greater than one was identified. As there not appear to be any semantic differences among the items, only items 2 and 3 were able to measure the experiential avoidance and immobility and action associated with success, and items 6 and 7 associated with feelings. Other items were able to measure experiential avoidance and immobility and action in certain aspects independently. Furthermore, our results support the one-dimensional structure of AAQ-II-7 as earlier suggested by Bond et.al (2011).

 As it is shown in figure 2, in each pair of questions (2,3 and 6,7) the level of interrelationship was more than the standard level. It causes that the structure of main model would have more errors in each pair of question. Although the findings

supported one-dimensional AAQ-II-7, it seems that in order to obtain a better relationship between two pair of questions, a more reasonable decision ought to be made. For instance, either the content of each pair questions should be unified in one question, or if the combination of each pair questions lead to distortion in content validity of AAQ-II, in order to enhance facial independence of questions, the content of the questions should be expressed in a more different ways.

Other results showed that there is a correlation between AAQ-II-7 and level of depression in both (BDI-2) and mental health (GHQ-28). Studies purported AAQ to be important determinant in psychological disturbances such as anxiety, PTSD, and trichotillomania (Boelen, Reijntjes,2008). As Hayes, Luoma, Bond, Masuda, &Lillis (2006) in a meta analysis (27 studies involved 5, 616 participants a) showed 0/67 relationship between AAQ and psychological distress, suggesting that higher levels of inflexibility might be related to higher emotional distress. In the same lines with above mentioned researches, this study has shown usefulness of Persian version of AAQ-II-7 in predicting the mental health and depression. So it could be stated that the Persian version of AAQ-II-7 has a good Predictive validity in Iranian population.

This indicates that Persian version of AAQ-II-7 is able to measure psychopathological entities, based on psychological inflexibility. Findings on internal consistency shown that Persian version of AAQ-II-7 similar to its original version has a high degree of homogeneity (Alpha Cronbach =0.85). Therefore, Persian version of the AAQ-II-7 is a useful tool to be utilised in clinical trials and research. A limitation of this study was that the sample was only comprised of students, while some students due to their frequent experiences in completing similar questions might not be representative of the original population. Therefore, further studies should be conducted with other samples, particularly clinical samples.

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