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Reliability and Validity Study of the Turkish Version of the Brief Social Anxiety-Acceptance and Action Questionnaire

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What is known on this subject?

The Brief Social Anxiety-Acceptance and Action Questionnaire (B-SA-AAQ) can measure psychological inflexibility in context of social anxiety.

What this study adds?

Turkish version of the B-SA-AAQ.

ABSTRACT

Objective: Experiential avoidance is closely related to social anxiety, which is a condition characterized by intense fear in social situations, including social interactions and performing in front of others.

Material and Methods: The sample of this study consisted of 113 people. The data were obtained using a demographic form, Brief Social Anxiety-Acceptance and Action Questionnaire (B-SA-AAQ), Acceptance and Action Questionnaire-II (AAQ-II), and hospital anxiety and depression scale (HADS). Internal consistency and item-total correlation were evaluated with Cronbach's alpha coefficient. Confirmatory factor analysis (CFA) was used to test the factor structure. Temporal stability was assessed using the test-retest method.

Results: The Turkish adaptation of the B-SA-AAQ was found to have good internal consistency with a Cronbach's α coefficient of 0.899. CFA indicated a two-factor structure with acceptable fit indices [χ^2: 22.8, degrees of freedom: 13; root mean square error of approximation (RMSEA): 0.0817; RMSEA 90% confidence interval (CI) lower bond: 0.013, RMSEA 90% CI upper bond: 0.136, CFI: 0.978; Tucker-Lewis index: 0.965)]. The B-SA-AAQ and its subscales were significantly correlated with the AAQ-II and HADS ($p<0.05$). The results of the test-retest correlation analysis indicated temporal stability.

Conclusion: Therefore, the B-SA-AAQ is a reliable and valid scale for measuring experiential avoidance and psychological flexibility in the context of social anxiety.

Keywords: Acceptance and commitment therapy, social phobia, anxiety, depression

Introduction

Social anxiety disorder (SAD) is a prevalent psychiatric condition that affects individuals globally. The defining feature of SAD is an intense fear of social situations, including social interactions and performing in front of others. Individuals with SAD often experience significant distress when subjected to negative evaluations from others and may cope by avoiding social interactions. Worldwide, lifetime prevalence has been reported between 0.2% and 12.1%. People with SAD rarely get better on their own. Symptoms tend to be persistent and chronic. Additionally, it is often associated with an increased risk

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of secondary depression, other anxiety disorders, mood disorders, and impulse control disorders (1,2).

SAD is related to experiential avoidance (3,4). Experiential avoidance refers to a behavioral pattern in which an individual avoids contact specific undesired experiences, including fear-related sensations, thoughts, feelings, memories, and urges to take certain actions. This avoidance behavior is aimed at escaping or evading these psychological events and the situations that trigger them (5). Attempting to escape or avoid a social situation for not experiencing humiliation, social fear, physiological discomfort, and emotional distress may be stated as experiential avoidance related to social phobia. Generalized experiential avoidance may lead to repertoire narrowing (6). Avoidance may act as a barrier to experiencing meaningful social interactions (4). Psychological inflexibility can be defined as the inflexible and rigid prioritization of psychological reactions over chosen values and contingencies when guiding one's actions. This often manifests when individuals try evading or avoid unwanted internal experiences such as thoughts and emotions (7). To put it simply, psychological inflexibility refers to a pattern where an individual's thoughts exert excessive control over their behavior, feelings, and other internal experiences. Alternatively, they may choose to avoid these experiences at the cost of more effective and meaningful actions. These behaviors are believed to play a role in the development, continuation, and worsening of various psychological issues. Both psychological inflexibility and experiential avoidance are thought to contribute to a wide range of mental health problems (8). Numerous studies have been conducted to evaluate the effectiveness of acceptance and commitment therapy, which is rooted in the principles of psychological flexibility, on social anxiety (SA) (9).

Hayes (5) first created the acceptance and action form (AAQ) to assess psychological flexibility/inflexibility. Although it has been widely used for a while, due to low internal consistency, difficulty to understand, and unstable factor structure, a shorter acceptance and action form-II (AAQ-II) was developed (10). This scale is one of the most frequently used scales to evaluate psychological flexibility/inflexibility, which the participant himself filled in.

Experiential avoidance studies show the need for new measures-so AAQ forms for specific contexts or problems (11,12,13). One of them is Social Anxiety-Acceptance and Action Questionnaire (SA-AAQ) (14). Later, MacKenzie et al. (15) developed the short form of SA-AAQ (brief SA-AAQ), aiming to create a scale that can be filled in a shorter time and more easily applied. Using the SA-AAQ as a foundation, researchers constructed an eight-item, two-factor (acceptance and action) model that included. This model has favorable levels of reliability, as well as convergent, discriminant, and incremental validity. The model also showed a strong positive correlation with the 19-item SA-AAQ in both clinical and non-clinical populations. Cronbach's alpha values of the entire scale, acceptance, and action factors were 0.81, 0.84, and 0.72, respectively (15).

A scale to evaluate the psychological flexibility model, which plays a role in developing and treating anxiety disorders, will provide an essential tool for clinicians and researchers working with SA. Therefore, this study examined the psychometric properties and factor structure of the Turkish adaption of the brief Social Anxiety-Acceptance and Action Questionnaire (B-SA-AAQ) in non-clinical samples. The primary aim of the study was to assess the validity and reliability of the B-SA-AAQ in a Turkish-speaking non-clinical population. Specifically, the study confirms the two-factor structure of the original scale and establish its effectiveness as a tool for measuring experiential avoidance related to SA. A second hypothesis is that experiential avoidance measured by B-SA-AAQ is related to experiential avoidance in general, depression, and anxiety.

Material and Methods

Participants

The individuals, aged 18-65, accepted to participate in the research voluntarily included in this research. The sample consisted of 122 individuals who work in research and training hospital. Nine of 122 participants were identified as outliers by the box plot method, and the data analyzed in the study were collected from 113 individuals.

Procedure

The study was approved by the Ethics Committee of Alaattin Keykubat University (decision no: 11-01, date: 02.11.2022). Before conducting the study, permission was obtained from the developers of the original B-SA-AAQ questionnaire. The Turkish translation of the scale was developed by translating the items into Turkish and then back to English by two bilingual psychiatrists to ensure its accuracy. The Turkish B-SA-AAQ and socio-demographic forms were then administered to the participants. The AAQ-II and hospital anxiety and depression scale (HADS) were also used as measures of psychopathology to investigate the validity of the scale.

Measurement Tools

Demographic Form: The form was developed by researchers and includes questions about age, gender, education, and psychiatric history.

B-SA-AAQ: It was developed to assess the psychological flexibility associated with social phobia by MacKenzie et al. (15). The 7-point Likert-type scale consists of 8 items. The original scale was confirmed using a clinical and a non-clinical sample. Results indicated that an eight-item, two-factor model (acceptance and action) provided a good fit for the B-SA-AAQ in both samples (15).

AAQ-II: It was developed by Bond et al (10). The validity and reliability analyses of the AAQ's new version, which consists of seven items, provided strong statistical evidence across both clinical and non-clinical samples. Furthermore, elevated scores on the scale were found to be indicative of increased levels of psychological inflexibility, leading to a rise in experiential avoidance. The Turkish adaption study of AAQ-II was conducted by Yavuz et al. (16).

HADS: Zigmond and Snaith (17) developed a scale comprising 14 items, of which seven are aimed at assessing anxiety symptoms, and the remaining seven measure depression symptoms. Participants rate the items on a 4-point Likert scale, and scores can range from 0 to 3. The Turkish adaptation of HADS was conducted by Aydemir (18).

Statistical Analysis

For descriptive statistics and psychometric analysis, we used Jamovi version 2.3.21.0. The data underwent tests for univariate and multivariate normality, linearity, and homogeneity of sample variances. Outliers were also checked for. Cronbach's alpha and Pearson's correlation coefficients were used to evaluate internal consistency and item-total correlation. The temporal stability of the Turkish B-SA-AAQ was evaluated by the test-retest correlation, which involved a follow-up assessment a week after the baseline assessment, and then evaluated the results using Pearson's correlation test. To test the two-factor structure obtained from the original form, confirmatory factor analysis (CFA) was used. Their goodness of fit to data can also evaluate the quality of models. Chi-square (χ^2) is very sensitive to sample size; for this reason, relative chi-square was used, which is the chi-square fit index divided by degrees of freedom (χ^2/df), making χ^2 less dependent on sample size. Additionally, also the comparative fit index (CFI), the Tucker-Lewis index (TLI), and the root mean square error of approximation (RMSEA) were used to evaluate the goodness of fit.

Results

Descriptive Statistics

Analyses were conducted with data from 113 people. Seventy-nine were females (69.9%). The mean age was 29.1 (standard deviation: 6.11, range between 18 and 58) (Table 1).

Reliability Analysis

The Cronbach's alpha coefficient was calculated as 0.825 for the internal consistency of the B-SA-AAQ scale with the initial eight items. In the item-total score analysis, the lowest correlation was -0.15 for the 7th (B-SA-AAQ-7) item (Table 2). When the 7th item was deleted, Cronbach's alpha coefficient increased significantly (0.825 to 0.899), and the correlation of this item was significantly lower than other items. For this reason, item 7 has been removed from the scale for ongoing analysis.

For the temporal reliability analysis, 12 participants from the sample refilled B-SA-AAQ one week later the test-retest analysis. Correlation coefficients were calculated by Spearman correlation analysis between 0.824-0.858 for B-SA-AAQ and subscales, and all values were statistically significant ($p<0.001$). The Cronbach's alpha coefficient was calculated as 0.899 for the internal consistency of the B-SA-AAQ Action subscale 0.774 and 0.865 for the SA-AAQ acceptance subscale.

Construct Validity

CFA was conducted to validate the construct of B-SA-AAQ in Turkish. The CFA of the 7-item structure of B-SA-AAQ was validated and found to have the same two-factor structure as the original B-SA-AAQ in English. Fit indices from the analysis showed good to excellent (χ^2: 22.8, df: 13; RMSEA: 0.0817; RMSEA 90% CI lower bond: 0.013, RMSEA 90% CI upper bond: 0.136, CFI: 0.978; TLI: 0.965). Additionally, all factor loading values are significant ($p<0.001$) (Table 3).

Criterion Validity

The relationships between B-SA-AAQ, AAQ-II, and HADS with B-SA-AAQ were evaluated by pearson correlation analysis for criterion-related validity (Table 4).

Table 1. Socio-demographic variables

Age mean, SD		29.1	6.11
Sex (n, %)	Women	79	69.9
	Men	34	30.1
Education level (n, %)	High school	4	3.6
	University	57	50.4
	Postgraduate	52	46.0
History of psychiatric disorder (n, %)	Yes	33	70.8
	No	80	29.2

n=113, SD: Standard deviation

Discussion

This study aimed to assess the reliability and validity of the Turkish version of B-SA-AAQ, which measures experiential avoidance in SA based on the SA-AAQ. A sample size of at least 5-10 participants per variable was recommended for the analysis of the scale's construct validity. The sample size for this study was 113 individuals who met this criterion. One of the study's hypotheses was that the Turkish version of B-SA-AAQ would preserve the two-factor structure of the original version. CFA was conducted to test this hypothesis, and it showed that B-SA-AAQ has a two-factor structure, with acceptable goodness-of-fit values.

Table 2. Item-total statistics, Cronbach's alpha if item deleted for initial eight items

Item	Cronbach's alpha if item deleted	Corrected item-total correlation
B-SA-AAQ-1	0.785	0.693
B-SA-AAQ-2	0.770	0.776
B-SA-AAQ-3	0.766	0.826
B-SA-AAQ-4	0.791	0.640
B-SA-AAQ-5	0.802	0.572
B-SA-AAQ-6	0.807	0.537
B-SA-AAQ-7	0.899	-0.150
B-SA-AAQ-8	0.780	0.730

B-SA-AAQ: Brief Acceptance and Action Questionnaire for Social Anxiety

The first, third, and fifth items constitute the action subscale, and the second, fourth, sixth, and eighth items constitute the acceptance subscale. The Cronbach's Alpha coefficient was 0.82 for the action subscale, 0.87 for the acceptance subscale, and 0.90 for the total score on the original scale. The study's results indicated adequate internal consistency of the Turkish version of B-SA-AAQ and its subscales. Furthermore, the temporal stability of the scale was assessed through a test-retest reliability analysis conducted one week after the baseline assessment. In test-retest analysis, two scores of B-SA-AAQ at two different times have a strong correlation for all items ($p<0.001$). This result indicates the temporal stability of B-SA-AAQ and the subscales of B-SA-AAQ.

Pearson's correlation coefficients were used to evaluate the relationships between the action and acceptance subscales, total scores of B-SA-AAQ and the AAQ-II. Given that both scales measure psychological inflexibility and experiential avoidance, it was expected that there would be moderate-to-strong correlations. The results revealed significant correlations ($p<0.001$) between the total and subscale scores of B-SA-AAQ and AAQ-II, supporting the hypothesis that B-SA-AAQ can measure psychological inflexibility by assessing experiential avoidance. This result provides evidence of convergent validity, and previous studies had similar results (14,15). B-SA-AAQ may have two advantages over AAQ-II. The first is that it makes a context-specific assessment of SA. Tools for measuring experiential avoidance in a specific context can be more sensitive than generic ones such as AAQ-II. The second advantage is that it has a two-factor structure:

Table 3. Model-fit results of confirmatory factor analysis for Turkish B-SA-AAQ

Factor	Item	Estimate	SE	Z	p
Action	B-SA-AAQ-1	1.186	0.138	8.60	<0.001
	B-SA-AAQ-3	0.987	0.144	6.86	<0.001
	B-SA-AAQ-5	1.542	0.144	10.71	<0.001
Acceptance	B-SA-AAQ-2	1.289	0.146	8.84	<0.001
	B-SA-AAQ-4	1.680	0.154	10.93	<0.001
	B-SA-AAQ-6	1.655	0.133	12.40	<0.001
	B-SA-AAQ-8	1.423	0.180	7.92	<0.001

B-SA-AAQ: Brief Acceptance and Action Questionnaire for Social Anxiety, SE: Standard error

Table 4. Pearson Correlation coefficients for criterion-related validity analysis

	B-SA-AAQ-action	B-SA-AAQ-acceptance	B-SA-AAQ -total
AAQ-II	0.520**	0.465**	0.516**
HADS-anxiety	0.315**	0.203*	0.262*
HADS-depression	0.308**	0.255*	0.293*

**p<0.05, **p<0.01. AAQ-II: Acceptance and action questionnaire-II, HADS: Hospital anxiety and depression scale, B-SA-AAQ: Brief Acceptance and Action Questionnaire for Social Anxiety*

acceptance and action. Acceptance refers to the willingness to experience unwanted internal events, and action refers to acting consistently with values.

Psychological inflexibility and experiential avoidance in general and in people with social phobia are correlated with depression and anxiety as hypotheses (15,16). The correlations of HADS, total scores, and subscales of B-SA-AAQ evidenced the convergent validity of B-SA-AAQ. The action subscale of B-SA-AAQ correlates moderately with anxiety and depression subscales of HADS ($r=0.315$, $r=0.308$, $p<0.001$). Additionally, the acceptance subscale ($r=0.203$, $r=0.255$, $p<0.05$) and total scores ($r=0.262$, $r=0.293$, $p<0.05$) of B-SA-AAQ correlate small with the anxiety and depression subscales of HADS. According to these results, despite B-SA-AAQ being developed to assess experiential avoidance related to SA, it can also be a valuable tool for predicting depression and anxiety in general in the context of SA.

The lack of psychological flexibility is considered a critical factor in SAD and leads to the disorder's continuation or persistence and intensification (19). There is a need for easily applicable tools for the rapid assessment of SA and related psychological processes. The abbreviation of the original scale and its translation into Turkish can be helpful in this respect. SA-AAQ has been translated into Korean, Persian, Portuguese, and Thai. However, there is no reliability and validity study for B-SA-AAQ other than the original language. Thus, this may be one of the first versions of B-SA-AAQ other than the original language.

Study Limitations

This study has some limitations that need to be taken into consideration. First, the sample used in the study was non-clinical. Therefore, the results of this study may not be generalized to clinical populations. The primary aim of the study was to provide a Turkish adaptation of the B-SA-AAQ, which offers preliminary evidence for its validity and reliability in the Turkish language. Second, the severity of SA symptoms in the participants was not assessed. Third, due to the cross-sectional design of the study, causal relationships cannot be determined. Future longitudinal studies are needed to explore causal relationships.

Overall, the results of the current result indicated that the B-SA-AAQ is a reliable and valid scale that can measure experiential avoidance. B-SA-AAQ can be an alternative to the AAQ-II and other psychological inflexibility scales for measuring experiential avoidance and psychological inflexibility in people with SA. Furthermore, this scale can be used to tract changes in interventions for managing SA.

Conclusion

In conclusion, the result of the current study stated that the form for the Turkish adaption of the B-SA-AAQ has acceptable reliability and validity, despite some limitations. This measurement tool can examine studies on psychological inflexibility, which has a place in developing and maintaining SA in the national literature and clinical practices. Including this scale in the existing collection of context-specific versions of the AAQ in Turkish can make a valuable contribution to the research on psychological inflexibility and experiential avoidance. Therefore, it may be recommended to support the scale's psychometric properties with samples with different characteristics in the future.

Ethics

Ethics Committee Approval: The study was approved by the Ethics Committee of Alaattin Keykubat University (decision no: 11-01, date: 02.11.2022).

Informed Consent: Participants were instructed on the purpose and design of the study, and informed consent was obtained.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: F.B.A., H.Ş.B., T.K., Concept: F.B.A., Design: F.B.A., H.Ş.B., Data Collection or Processing: H.Ş.B., Analysis or Interpretation: F.B.A., H.Ş.B., Literature Search: F.B.A., T.K., Writing: F.B.A., H.Ş.B., T.K.

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