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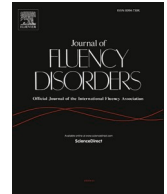


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Reliability and validity of the unhelpful thoughts and beliefs scale for Persian-speaking adults who stutter (UTBAS-P): A cross-cultural examination of social anxiety in people who stutter

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ABSTRACT

Background and Aim: An increasing body of research indicates that many adults who stutter (AWS) experience anxiety in social and verbal situations. The Unhelpful Thoughts and Beliefs about Stuttering (UTBAS) scales were developed to assess speech-related anxiety and negative cognitions associated with stuttering. This study aimed to translate the UTBAS into Persian, investigate its psychometric properties for Persian-speaking AWS, and compare the results with previously published UTBAS scores across various cultures.

Method: The UTBAS scales were translated into Persian according to the protocols of the International Quality of Life Assessment Project and the World Health Organization. Sixty-two adults with developmental stuttering, aged between 18 and 51 years, participated in this study. The psychometric properties of UTBAS-P were investigated using similar measures to those used in previous studies where valid and reliable versions were available. Additionally, UTBAS-P scores were compared to UTBAS scores previously reported for Australian, Japanese, and Turkish participants.

Results: The results showed that UTBAS-P had an acceptable face, content, and construct validity. It was significantly correlated with other anxiety-related measures. Additionally, its low and negative correlations with unrelated constructs, such as the NEO-PI-R domains of openness, agreeableness, and conscientiousness, confirmed its divergent validity. Regarding reliability, the significant test-retest reliability score (Pearson $r = 0.87$, $p < 0.001$) confirmed the stability of UTBAS-P scores over time, and its internal consistency was confirmed by Cronbach's alpha of 0.99. Similarities and differences were found between participants' UTBAS scores across different cultures.

Conclusion: All four currently translated versions of the UTBAS have demonstrated high levels of validity and reliability, showing strong correlations with well-known anxiety measures. These findings suggest that the UTBAS has potential for use both clinically and in cross-cultural studies.

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1. Introduction

Stuttering is recognized as more than occasional speech disruptions (Tichenor & Yaruss, 2019) and is associated with various psychosocial complexities, particularly as children who stutter age (Bernard & Norbury, 2023; Bernard et al., 2022; Iverach et al., 2011). Previous research has confirmed that people who stutter (PWS) may develop an expectation of social harm, which, when not addressed, may result in social anxiety disorder (Messenger et al., 2004). Stuttering stereotypes have been documented across various cultural and societal contexts (Ma et al., 2023). Individuals who stutter may internalize these societal attitudes, leading to self-stigmatizing thoughts that contribute to psychosocial harm (Boyle, 2015). The anticipation of social harm often originates from past stuttering experiences and can intensify anxiety over time.

Research results support the higher prevalence of social anxiety in individuals who stutter compared to the general population (Blumgart et al., 2010; Kraaimaat et al., 2002; Messenger et al., 2004; St Clare et al., 2009) across various age groups (Eggers et al., 2022; Tomisato et al., 2022) with some features specific to PWS (Iverach et al., 2018). Iverach, O'Brian and colleagues (2009) found that 21.7 % of adults who stutter met the criteria for social anxiety disorder which was significantly higher than adults without stuttering (1.2 %). Additionally, in a study involving school-age children the researchers discovered that 24 % of the participants with stuttering met the criteria for social anxiety (Iverach, Jones, et al., 2016). Anxiety disorders are more frequently observed in women than in men. Data from the National Comorbidity Survey and other large epidemiological studies report a lifetime prevalence of social anxiety disorder exceeding 13 %, with women more likely than men to develop SAD, showing odds ratios between 1.2 and 1.5 (as cited in Jalnapurkar et al., 2018). A recent systematic review by Farhane-Medina et al. (2022) found that, in terms of comorbidity, women are more likely to experience internalizing disorders, such as depression, while men are more prone to developing externalizing disorders, like substance abuse. Various psychological, cultural, and biological factors likely contribute to these sex differences, with biological influences playing a significant role in shaping the presentation of these disorders in men and women (Bangasser & Cuarenta, 2021). However, further research is necessary to explore the nuances of social anxiety in PWS, particularly about potential gender differences. Clinically, speech pathologists need to assess speech-related social anxiety and negative cognitions in adults who stutter (AWS) because the presence of social anxiety may hinder the maintenance of stuttering treatment gains (Iverach, Jones, et al., 2009; St Clare et al., 2009). Several researchers have called for the integration of psychological measures and treatments into standard speech pathology practice to address the unique speech and psychological needs of AWS (Craig, 1998; Ratner, 2005; Susca, 2006). Treatment programs such as Cognitive Behavior Therapy (CBT) have been shown to reduce speech-related social anxiety and improve the quality of life among AWS and can be combined with speech treatments (Helgadóttir et al., 2009; Menzies et al., 2008, 2009, 2019). However, accurate and detailed assessment of anxiety and negative cognitions associated with stuttering is needed to inform treatment targets and to measure outcomes of treatment. Since measurement is a critical part of evidence-based practice (Onslow, 2006), development and use of measures for evaluating speech-related anxiety and negative thoughts among AWS is needed, including those who speak languages other than English.

Anxiety is a multifaceted construct that includes cognitive, behavioral, and physiological components (Clark & Wells, 1995). The cognitive component involves unhelpful thoughts and beliefs about situations that provoke anxiety, while the behavioral component includes avoidance of feared situations. The physiological component encompasses the bodily responses to anxiety, such as increased heart rate, sweating, and muscle tension. Previous studies suggested a potential link between coping strategies and the development of social anxiety, as those in the high social-anxiety group were more likely to adopt maladaptive coping strategies compared to those in the low social-anxiety group (Tomisato et al., 2022).

Based on Clark and Wells (1995) model of social phobia, socially anxious AWS may experience three types of assumptions when entering a feared social situation: (1) very high standards for acting in the social situations, e.g., "I should always speak fluently"; (2) Conditional beliefs in which the person worries about the consequence of their act, e.g., "If I stutter, people think that I am stupid"; and (3) Unconditional beliefs in which the person thinks negatively about the self, e.g., "I am odd/different" (Clark, 2001). With such assumptions in mind, an AWS may experience social anxiety in speaking and social situations.

The Unhelpful Thoughts and Beliefs about Stuttering (UTBAS) scales were developed to investigate the thoughts and beliefs associated with stuttering which may cause AWS feel anxious. UTBAS was shown to be valid and reliable for English-speaking AWS in Australia and New Zealand (Iverach et al., 2015; St Clare et al., 2009). UTBAS consists of four scales: UTBAS I measures the frequency of unhelpful thoughts and beliefs; UTBAS II indicates how much a person believes in that thought, UTBAS III measures the anxiety perceived in association with these thoughts, and UTBAS Total measures the total frequency, belief, and the anxiety associated with these thoughts (Iverach et al., 2015). More recently, the UTBAS scales were translated, validated and found to be reliable for Japanese (Chu et al., 2017) and Turkish AWS (Aydin Uysal & Ege, 2020). However, some similarities and differences were highlighted between the UTBAS scores of AWS in those countries. For example, Turkish AWS reported lower UTBAS scores compared to AWS in Australia and New Zealand (Aydin Uysal & Ege, 2020). The result was explained in the context of a universal study that reported a lower social anxiety rate in people living in developing countries compared with the inhabitants of high-income countries (Stein et al., 2010). Regarding the relationship between anxiety and gender in PWS, the study on Japanese AWS (Chu et al., 2017) found no significant differences in total UTBAS scores between male and female participants. In contrast, the Turkish study (Aydin Uysal & Ege, 2020) showed higher UTBAS total scores for female participants.

Since speech therapy services are widespread in Iran (Karimi & Nilipour, 2011; Tahmasebi et al., 2018), a Persian version of the UTBAS is needed to measure speech-related social anxiety among AWS. Cross-cultural studies on social anxiety are important because they can provide insights into how culture influences the expression and experience of anxiety and inform culturally sensitive treatment approaches. There is evidence that prevalence (Stein et al., 2010), sub types (Kotera & Taylor, 2022), and even seeking professional help (Hsu & Alden, 2008) for social anxiety might be different from one culture to another. Adaptation of the UTBAS

scales for people with different sociocultural and linguistic backgrounds can further our understanding of components of social anxiety in AWS across different cultures and will enhance its usage as a cross cultural tool to be widely used in both clinical and research setting (Aydın Uysal & Ege, 2020). There are reports on the translation and adaptation of various stuttering-related measures, such as the Overall Assessment of Speaker's Experience of Stuttering (OASES: Yaruss & Quesal, 2006), for people who stutter across different languages and cultures. These adaptations have been conducted in Australia (Blumgart et al., 2012), Holland (Lankman et al., 2015), Japan (Sakai et al., 2017), Portugal (Rocha et al., 2019), Sweden (Lindström et al., 2020), Poland (Węsierska et al., 2023), and China (Ma et al., 2023). The results of these studies suggested variations in the experiences of PWS across different cultures. For instance, AWS in China reported more adverse experiences related to stuttering compared to their counterparts in Western or developed countries, possibly due to increased social stigma against people with disabilities and the limited professional support they receive for their stuttering.

To our knowledge, cross-cultural study on social anxiety in people who stutter is largely unexplored territory. However, there is evolving evidence that indicates similarities and differences in frequency and symptoms of social anxiety in AWS from different cultures. Safety behaviours have shown to be widely used by both Australian and Iranian AWS (Azarinfar et al., 2022; Helgadottir et al., 2014). Safety behaviors are cognitive or behavioral strategies such as avoidance that might be used by people who have anxiety to prevent negative consequences from occurring (Azarinfar et al., 2022). These behaviours fail to reduce social anxiety in long term, although they might reduce anxiety in the short term (Lowe et al., 2021). Frequently used safety behaviours, reported by over 50 % of Australian and Persian participants, included 'general avoidance' and 'practice and rehearsal.' However, Persian AWS also commonly employed behaviors categorized as 'choose safe and easy people.' The high rate of safety behaviours in Persian speaking AWS was interpreted with regard to the south Asian culture of Iranian people (Javidan & Dastmalchian, 2003) in which individual identities are defined in the context of their group. In such cultures people try to satisfy expectations of other members of the group and they should be careful not to dismay the other members by what they say or how they say it (Azarinfar et al., 2022).

It would be beneficial to compare the published UTBAS data and explore potential variations in the cognitive component of anxiety among AWS across different cultures. Therefore, the primary research question in this study was to investigate the psychometric properties of the UTBAS among Persian-speaking AWS and to report on the scale's validity and reliability in this population. We hypothesized that the Persian-UTBAS is a valid and reliable scale that has a positive correlation with anxiety-related measures and no significant correlation with non-related anxiety measures such as depression and personality scales. The second research question explored potential differences in UTBAS scores across different cultures. This exploration examines how cultural factors might shape the thoughts and beliefs of AWS in various countries. The third aim of this study was to explore unhelpful thoughts and beliefs among male and female AWS, as well as among those with and without current or previous stuttering treatments, and to investigate the relationship between participants' age and their UTBAS scores to assess whether UTBAS scores decrease with increasing age.

2. Method

2.1. Translation process

Following permission from developers of the UTBAS, the English version (Iverach et al., 2015) was translated into Persian based on the International Quality of Life Assessment (IQOLA) method (Bullinger et al., 1998) and the World Health Organization protocol (World Health Organisation, 2011). Speech pathology researchers have recommended these methods when formally translating an assessment instrument from one language to another (Karimi et al., 2011).

The first step in IQOLA protocol is forward translation. Two experienced translators who were independent of the study translated the English version of UTBAS into Persian and then agreed on a preliminary forward translation in a meeting with the researchers. Then, two bilingual (English–Persian) experienced psychologists rated the quality of the preliminary forward translation in terms of conceptual equivalence, clarity, and use of common language. The limitations of the IQOLA protocol became apparent during the initial stages of translation. Despite the expertise of the translators and psychologists involved, they arrived at a preliminary translation that was considered too formal for research or clinical purposes. In response, we recognized the need to incorporate additional measures to ensure the appropriateness of our translation. Therefore, alongside the IQOLA protocol, we also integrated certain aspects of the World Health Organisation (WHO) protocol that were not present in the former. This approach aimed to enhance the accuracy and suitability of the translated material for our study's objectives. Unlike the IQOLA method, which did not involve a panel of experts for finalizing the preliminary forward translation, the WHO protocol mandates expert consensus on the final preliminary forward translation. Therefore, in addition to the first two original translators and the investigators, three additional speech pathologists with extensive knowledge of both English and Persian languages, and a minimum of 8 years of experience working with PWS, were also consulted about the Persian–translated version. Based on this consultative process, the final version of forward translation was obtained.

Based on IQOLA and WHO methods, the second step in the translation process was for the forward translation to be translated back into English by an independent translator. Therefore, the Persian version was sent to a bilingual psychologist with experience in both CBT and stuttering for backward translation. At this stage in the translation process, item 48 ("I can't speak to people I find sexually attractive") was changed due to Iranian laws and religious issues to "I can't speak with individuals I like (of the opposite sex)". Finally, the developers of the UTBAS compared the backward translation with the original UTBAS and confirmed that the backward translation was semantically like its original version.

2.2. Participants

Sixty-two adults who stutter were recruited into the present study to evaluate the psychometric properties of the UTBAS-P. Ten AWS were initially recruited into a pilot study, and an additional 52 AWS were recruited into the main study. The pilot study was conducted to assess face validity, content validity and test-retest reliability of the UTBAS-P. The main study was conducted to assess the construct validity (divergent and convergent) and internal consistency of the UTBAS-P. The participants were drawn from three major cities of Iran (Tehran, Isfahan and Shiraz) to represent a wide range of Persian-speaking AWS. Criteria for inclusion in the study were: (1) age 18 years or older, (2) self-reported onset of developmental stuttering before age 12, as provided by participants at the time of the study (Iverach et al., 2011), (3) confirmation of stuttering presence at the time of the study by both the participant and the speech pathologist during an informal 10-minute conversation, and (4) ability to read and complete questionnaires. Those who received any type of medical or psychological treatment for anxiety in the six months prior to participating in this study, or who presented with a concomitant speech disorder identified by a speech pathologist, were excluded from the study. These criteria were selected to match those specified in previous studies (Iverach et al., 2015) and to facilitate comparison of results between studies. All participants signed an informed consent form approved by the ethics committee at the Isfahan University of Medical Sciences.

The 52 participants in the main study ranged in age from 18 to 51 years (Mean = 26.4, S.D. = 6.4). The demographic characteristics of these participants are shown in Table 1.

2.3. Psychological measures

Participants in both the pilot and main studies completed a range of psychological measures to evaluate convergent and divergent and discriminant validity. The measures were selected based on the availability of validated and reliable Persian-translated measures that have been used in the original UTBAS study or similar studies.

The Beck Anxiety Inventory (BAI, Beck et al., 1988) and the Beck Depression Inventory (BDI-II, Beck et al., 1996) are widely used 21-item measures for assessing general anxiety and depressive symptoms, respectively, both with strong psychometric properties, including in Persian (Ghassemzadeh et al., 2005; Kaviani & Mousavi, 2008). The State Trait Anxiety Inventory (STAI-T, Spielberger, 1984), the Social Phobia Anxiety Inventory (Turner et al., 1996), and the Brief Fear of Negative Evaluation Scale (BFNE, Leary, 1983) are additional anxiety measures used in this study. The 20-item STAI-T assesses trait anxiety, the SPAI measures social anxiety, and the 12-item BFNE measures fear of negative evaluation. All three have confirmed psychometric properties in both English and Persian (Fathi Ashtiani & Dastani, 2009; Nazarboland, 2001; Shokri et al., 2008; Willoughby & Edens, 1996). The NEO Personality Inventory (NEO-PI-R, Costa & McCrae, 1992), a 240-item measure of the five personality domains—Extraversion, Openness, Agreeableness, and Conscientiousness—also has strong psychometric properties in both English and Persian (Garousi et al., 2001).

2.4. Assessing the psychometric properties of the UTBAS-P

2.4.1. Face and content validity

Face validity refers to the extent to which a measurement tool or test appears, on its face, to be measuring what it is intended to measure. Content validity, on the other hand, refers to the extent to which a measurement tool or test adequately covers all the important aspects or domains of the construct being measured (Wynd et al., 2003). To test face and content validity, the UTBAS-P was sent to six experts from different research or clinic settings and ten AWS. Five of the experts were Speech and Language Pathologists (SLPs) who were familiar with the process of test development and had a minimum of 5 years' experience working with AWS. The last expert was a psychologist who had three years' experience using CBT with AWS.

For the purposes of establishing face validity, the six experts and ten AWS from the pilot group were required to rate each of the 66

Table 1
Demographic characteristics of 52 adults who stutter.

| Demographic characteristics | n (%) |
|---------------------------------|-------------|
| Sex | |
| Male | 43 (82.7 %) |
| Female | 9 (17.3 %) |
| Marital status | |
| Single | 37 (71.2 %) |
| Married | 15 (28.8 %) |
| Educational status | |
| Year 11 or under | 5 (9.6 %) |
| Diploma | 26 (50.0 %) |
| Bachelor | 18 (34.6 %) |
| Postgraduate | 3 (5.8 %) |
| Experience of speech therapy | |
| In childhood | 2 (3.8 %) |
| In adulthood | 24 (46.2 %) |
| No previous treatment | 26 (50.0 %) |
| Both in adulthood and childhood | 0 (0 %) |

Persian-translated UTBAS items using a 5-point Likert scale ranging from 0–4, where 0 = I have no idea about this item, 1 = It is not understandable, is unclear and vague, 2 = approximately understandable, clear and grammatically correct, 3 = understandable, clear and grammatically correct, and 4 = absolutely understandable, clear and grammatically correct. Mean scores for the experts and AWS were calculated for each of the 66 items of the UTBAS. In addition, AWS were asked for their opinions about the 66 items of the UTBAS, to determine whether there are any additional unhelpful thoughts and beliefs about stuttering in Persian-speaking AWS which were missing in the English UTBAS. All discussions with AWS occurred face-to-face using pen and pencil method while conversations with experts took place online.

For the purposes of establishing content validity, the six experts rated each of the 66 Persian-translated UTBAS items in terms of: (1) relevance to the ultimate purpose of the scale, and (2) necessity and importance of each item, using a 5-point Likert scale ranging from 0–4, where 0 = I have no idea about this item, 1 = not related to the scale's ultimate purpose and is not necessary; 2 = approximately relates to the scale's ultimate purpose and is necessary to some extent, 3 = relates to the scale's ultimate purpose and is necessary, and 4 = this item absolutely relates to the scale's ultimate purpose and is completely necessary (Lawshe, 1975). The mean content validity score for each item was calculated based on the scores obtained from each of the six experts. The experts involved in assessing face and content validity were independent and not affiliated with the study. The entire content validity testing process was conducted online. The original English UTBAS (St Clare et al., 2009) did not undergo formal face and content validity testing. Instead, items were derived from a ten-year audit of stuttering cases in a cognitive-behavioral therapy program, with two researchers independently refining the scale by removing overlapping items.

2.4.2. Convergent and discriminant validity

To test the two aspects of construct validity (convergent and discriminant validity), 52 AWS from the main study completed the UTBAS-P and additional psychological self-report measures. Measures that were as similar as possible to those used in the original English study (St Clare et al., 2009) were utilized, provided that valid and reliable translated versions were available in Persian. Convergent validity was evaluated using the Beck Anxiety Inventory, the Brief Fear of Negative Evaluation Scale, the State-Trait Anxiety Inventory, the Neuroticism dimension of the NEO Personality Inventory, and the Social Phobia Anxiety Inventory. Discriminant validity was evaluated using the Beck Depression Inventory and the NEO Personality Inventory dimensions of Conscientiousness, Openness, Agreeableness, and Extraversion.

2.4.3. Reliability

Reliability refers to the overall consistency of a measure and whether it yields consistent outcomes under similar conditions. Test-retest reliability evaluates the consistency of scores obtained across two administrations of the same measure. To evaluate test-retest reliability in the present study, 10 AWS from the pilot group completed the UTBAS-P twice, 15 days apart. It is consistent with practices in previous studies, including the Turkish and Japanese versions of the UTBAS, which used intervals of one to four weeks (Aydm Uysal & Ege, 2020; Chu et al., 2017). In addition, internal consistency evaluates the relationship between different items of the same measure. Optimally, items which are supposed to assess the same construct should have similar scores and high correlations with each other. Therefore, the relationships between the items of the UTBAS-P as well as the relationship between the UTBAS-P I, II, and III scales were tested for this purpose.

2.5. Data Analysis

In evaluating face and content validity, the mean rating for each item of the UTBAS-P was calculated. For face validity, a mean rating 3 or above was deemed acceptable (3 = understandable, clear, and grammatically correct, 4 = absolutely understandable, clear and grammatically correct). A mean rating 3 or above was also deemed acceptable for content validity (3 = relates to the scale's ultimate purpose and is necessary, and 4 = this item absolutely relates to the scale's ultimate purpose and is completely necessary). The wording of items with a mean rating between 2 and 3 were modified by an expert panel. For example, if for an item one respondent selected "2 = approximately understandable, clear, and grammatically correct", and another respondent selected "3 = understandable, clear, and grammatically correct", this item was brought into a panel. The wording was then modified considering the respondents' suggestions and the team's points of view in the expert panel. Pearson correlation coefficients were used to evaluate convergent and discriminant validity between the UTBAS-P and psychological measures of related and unrelated constructs, and to assess test-retest reliability. We also used Pearson correlation for investigating the correlation between age and UTBAS scores. Cronbach's alpha was used to assess internal consistency.

Mann-Whitney U was used where appropriate to investigate the relation between experience of speech therapy and mean of Total UTBAS. All statistical analyses were conducted using SPSS software-version 30 (IBM, 2023). No statistical test was used to compare the UTBAS results of male and female participants, as there were only nine women in this study; however, descriptive statistics including the mean and standard deviation of the scores for both genders were provided.

2.5.1. Post Hoc power analysis

Following the primary analyses, a post hoc power analysis was performed using G*Power 3.1 software (Faul et al., 2009). The analysis determined the statistical power achieved in detecting significant effects for the correlation tests that have been used to assess divergent and convergent validity of the Persian translated version. This analysis provides insight into the likelihood that the study could have detected true relationships, given the sample size and observed effect sizes.

3. Results

Most participants completed the UTBAS within 20 minutes, and speech pathologist spent about 15 minutes explaining the instrument and answering questions for each participant. Therefore, the total completion time for each participant was approximately 35 minutes. In terms of face and content validity, 97 % of UTBAS-P items were rated as understandable, clear, and grammatically correct. In addition, 82 % of items were rated as necessary and related to the scales ultimate purpose. Ratings from AWS also confirmed those of the experts, with 97 % of items rated as understandable, clear, and grammatically correct. Some of the UTBAS items were subtly reworded and six new items were added to account for cultural differences between the English and Persian versions of the UTBAS based on AWS's comments during the face and content validity study. The thoughts that were mentioned by several AWS but were not mentioned in the original English version were added to the Persian version. In addition, item 24 from the UTBAS-P ("People will think I can't speak Persian") was omitted because of its low content validity and poor internal consistency. Using Persian language in Iran is different from using English in Australia, which is a multicultural country with many migrants. None of the experts including AWS agreed that it might be a possible thoughts or beliefs for a Persian-speaking AWS.

All other 65 items of the UTBAS-P obtained high face and content validity scores and therefore were retained. The six new items that were added to the UTBAS-P include: (1) I always worry about the speech fluency of my children in future, (2) If I stutter people will think I don't understand well, (3) I cannot introduce myself appropriately, (4) Because I stutter I cannot find the job I wish for, (5) Due to my long blocks, taxi drivers never stop where I want, (6) People ignore my faults because they take pity on me. These six specific items were commonly identified as unhelpful thoughts and beliefs among Persian-speaking AWS. To retain as many relevant items as possible in the Persian version, we aimed to preserve the breadth of experiences reported by PWS, as emphasized by [St Clare et al. \(2009\)](#), the original developers of the questionnaire in English. Therefore, we adopted a 50 % cut-off in this study, ensuring that items mentioned by at least half of the participants in the pilot study were retained.

3.1. Cross-cultural comparison of the UTBAS results

The mean scores and a range of UTBAS scales are shown in [Table 2](#) for the UTBAS-P and are compared to the corresponding scores for Australian (UTBAS), Turkish (UTBAS-TR) and Japanese (UTBAS-J) studies. [Table 2](#) provides a broad comparison of unhelpful thoughts and beliefs about stuttering in different societies, despite the number of items varying between the Persian and other versions of the UTBAS scales. Additionally, the mean score for each item on the scales has been provided to facilitate comparisons between societies. Each item could get a score from 1 to 5 in which 1 = "never or not at all", 2 = "rarely or a little", 3 = "sometimes or somewhat", 4 = "often or a lot", or 5 = "always or totally". As can be seen on [Table 2](#), the mean score for each item of the UTBAS Total varies from 2.1 for UTBAS-TR, 2.2 for both UTBAS-J and UTBAS-P, and 2.4 for the Australian participants.

Upon further analysis of the data, it was discovered that some of the unhelpful thought and beliefs about stuttering was reported by a significant number of participants in this study. Unfortunately, comparable data is not available from other UTBAS studies for cross-cultural comparison. [Table 3](#) provides the frequency of the thoughts that at least half of the study participants reported experiencing on a frequent or consistent basis (UTBAS score ≥ 3).

Table 2
Mean Unhelpful Thoughts and Beliefs About Stuttering (UTBAS) scores for Persian-speaking adults who stutter compared with those of other cultures.

| Different UTBAS versions | Number of scale's items | UTBAS I [#] | | UTBAS II [#] | | UTBAS III [#] | | UTBAS total | |
|--|-------------------------|-----------------------|-----------------|-----------------------|-----------------|------------------------|-----------------|-----------------------|-----------------|
| | | Mean scale score (SD) | Mean item score | Mean scale score (SD) | Mean item score | Mean scale score (SD) | Mean item score | Mean scale score (SD) | Mean item score |
| UTBAS-P (Present study) | 71 * | 153.0 (49.9) | 2.2 | 184.0 (45.6) | 2.6 | 165.7 (62.4) | 2.3 | 465.3 (151.4) | 2.2 |
| English UTBAS (Iverach et al. 2011) | 66 * | 164.8 (52.2) | 2.5 | 145.2 (52.9) | 2.2 | 159.1 (61.9) | 2.4 | 468.5 (160.0) | 2.4 |
| UTBAS-J (Japanese) (Chu et al., 2017) | 66 * | 135.7 (50.1) | 2.1 | 139.2 (58.3) | 2.1 | 160.1 (67.6) | 2.4 | 435 (147.2) | 2.2 |
| UTBAS-TR (Turkish) (Aydin Uysal & Ege, 2020) | 66 * | 154 (52) | 2.3 | 136 (35) | 2.1 | 157 (57) | 2.4 | 424 (112) | 2.1 |

The UTBAS-I scale includes an assessment of the frequency of unhelpful thoughts and beliefs about stuttering, the UTBAS-II scale assesses belief in these thoughts, the UTBAS-III scale assesses the anxiety associated with these thoughts, and the UTBAS Total scale assesses the total frequency, belief, and anxiety associated with these thoughts.

* Possible scores for the English, Turkish, and Japanese versions of UTBAS scale range from 66 to 330 for scales I, II, and III, and from 198 to 990 for the total UTBAS score. For the Persian version of this scale which has 71 items, scores ranged as follows: UTBAS I, II, and III (71–355), total UTBAS (213–1065). The mean item scores can be from 1 to 5, in which 1 = "never or not at all", 2 = "rarely or a little", 3 = "sometimes or somewhat", 4 = "often or a lot", or 5 = "always or totally".

Table 3
Frequency of Unhelpful Thoughts and Beliefs about Stuttering Scoring 3 or Above on UTBAS I in at Least 50 % of Study Participants.

| Item num. on UTBAS Scales | Unhelpful Thoughts and Beliefs About Stuttering | Frequency (Percent) |
|---------------------------|---|---------------------|
| 4 | It's all my fault – I should be able to control my stutter | 82.7 |
| 7 | I might stutter | 75.0 |
| 12 | Everyone in the room will hear me stutter | 75.0 |
| 8 | People focus on every word I say | 71.1 |
| 1 | People will doubt my ability because I stutter | 59.5 |
| 11 | I will stutter | 55.8 |
| 43 | People shouldn't have to wait so long for me to speak | 55.7 |
| 42 | People get tired of waiting for me to get my words out | 53.9 |
| 22 | I can't speak to people in positions of authority | 53.8 |
| 31 | I can't face these people | 51.9 |
| 38 | I can't convince people of anything I say because I stutter | 50.0 |
| 16 | I won't be able to answer their questions | 50.0 |

3.2. Construct validity

Table 4 presents mean scores on anxiety-related self-report measures for the present sample of 52 Persian AWS compared with the previous study with Australian AWS (Iverach et al., 2011). As it can be seen the two studies have used different self-report anxiety measures. STAI-T is a common measure among the two studies, which indicates similar mean anxiety scores among the participants (Persian STAI-T mean = 44.2, SD = 10.7; Australian STAI-T mean = 43.1, SD = 9.9). The same measure was also used in the UTBAS-TR study with Turkish AWS, but the authors only reported the correlations between UTBAS scales and the STAI scores and the raw data was not reported. The fear of negative evaluation was another anxiety-related measure that was used in both Persian and Australian studies, however, the two studies used two different versions of this measure. Table 4 shows that the average score of our participants in the BAI and STAI-T are within the range of mild to moderate anxiety based on the published Persian norms.

Table 5 shows the mean scores on other self-report measures (non-anxiety-related measures) for the present sample of 52 Persian AWS. These are the measures that are less relevant to the concept of anxiety; therefore, they had no significant relation with the UTBAS scores in previous studies.

As shown in Table 6, the UTBAS-P was positively and significantly correlated with anxiety-related measures, including the STAI-T, SPAI, BFNE, BAI, and NEO-N, thereby confirming the convergent validity of the UTBAS-P. Discriminant validity was also confirmed by low correlations between the UTBAS-P and measures of unrelated constructs, including the NEO-PI-R domains of Openness, Agreeableness, and Conscientiousness. However, the BDI-II was moderately but significantly correlated with the UTBAS-P Total score ($r = .35, p = .01$). Table 6 shows the correlations between the UTBAS-P and other psychological measures, in comparison with previous UTBAS studies.

3.3. Reliability

Test-retest reliability confirmed the stability of UTBAS-P scores over time (Pearson $r = 0.87, p < 0.001$). Internal consistency was also confirmed (Cronbach's $\alpha = 0.99$). As shown in Table 7, the UTBAS-P I, II, and III scales were highly correlated. Similar high and significant correlations were found between different UTBAS scales for Australian participants. Although both the UTBAS-TR and UTBAS-J studies have identified significant relationships between their respective scales, the correlation was found to be moderate for

Table 4
Mean scores on anxiety-related self-report measures for the present sample of 52 Persian adults who stutter compared with the previous study with Australian AWS (Iverach et al., 2011).

| Psychological scales | Persian AWS | | Australian AWS | |
|--------------------------------------|---------------|-------------|----------------|---------|
| | Mean (SD) | Range | Mean (SD) | Range |
| BAI (Range = 0–63) | 17.3 (11.2) | 0.0–44.0 | - | - |
| BFNE (Range = 12–60) | 35.9 (8.5) | 18.0–60.0 | - | - |
| FNE (Range = 0–30) | - | - | 16.1 (7.5) | 2–30 |
| SPAI Diff (Range 110–767) | 321.4 (128.6) | 110.0–599.0 | - | - |
| STAI-T (Range = 20–80) | 44.2 (10.7) | 20.0–69.0 | 43.1 (9.9) | 23–75 |
| EMAS-T-SE (Range = 15–75) | - | - | 48.4 (9.9) | 22.5–72 |
| EMAS-T-AM (Range = 15–75) | - | - | 44.6 (9.4) | 18–70 |
| NEO-PI-R Neuroticism (Range = 0–192) | 97.2 (20.6) | 60.0–142.0 | - | - |
| NEO-FFI- Neuroticism (Range = 0–48) | - | - | - | - |

Note. Two scales of *The Endler Multidimensional Anxiety Scales—trait (EMAS-T)* was used in the Australian study: *The Social Evaluation (EMAS-T-SE) scale and the New/Strange Situations (EMAS-TAM) scale*.

Persian norms: BAI 0–7 (No anxiety), 8–15 (Mild), 16–25 (Moderate), 26–63 (Severe); STAI-T 20–34 (No anxiety), 35–45 (Mild), 46–56 (Moderate), and 57–80 (Severe). (Fathi Ashtiani & Dastani, 2009; Kaviani & Mousavi, 2008)

Table 5
Mean scores on other self-report measures for the present sample of 52 Persian adults who stutter.

| Psychological scales | Mean (SD) | Range |
|--|--------------|------------|
| BDI-II (Range= 0–63) | 16.0 (11.4) | 0.0–55.0 |
| NEO-PI-R Extraversion (Range = 0–192) | 105.1 (18.5) | 63.0–144.0 |
| NEO-PI-R Openness (Range = 0–192) | 110.8 (14.0) | 77.0–154.0 |
| NEO-PI-R Conscientiousness (Range = 0–192) | 114.7 (17.0) | 53.0–138.0 |
| NEO-PI-R Agreeableness (Range = 0–192) | 115.1 (18.3) | 84.0–156.0 |

Note. Persian norm: BDI-II 0–13 (No depression), 14–19 (Mild), 20–28 (Moderate), and 29–63 (Severe).

Table 6
Correlations between UTBAS scores and psychological scales for the present sample of Persian-speaking adults who stutter, compared with two previous samples of English-speaking adults who stutter.

| Psychological scales | UTBAS-P Total (I, II, III) Present study N = 52 Pearson correlations | UTBAS-I Total* St Clare et al. (2009) N = 26 Pearson correlations | UTBAS Total (I, II, III) Iverach et al. (2011) N = 140 Spearman correlations |
|----------------------|---|--|---|
| BAI | 0.58 ($p < 0.001$) | 0.24 | - |
| BFNE/FNE* * | 0.48 ($p < 0.001$) | 0.53 ($p = 0.006$) | 0.64 ($p < 0.001$) |
| SPAI Diff | 0.58 ($p < 0.001$) | 0.72 ($p < 0.001$) | - |
| STAI – T | 0.57 ($p < 0.001$) | - | 0.57 ($p < 0.001$) |
| BDI-II | 0.35 ($p = 0.01$) | 0.27 | 0.54 ($p < 0.001$) |
| NEO-N | 0.49 ($p < 0.001$) | - | 0.57 ($p < 0.001$) |
| NEO-E | -0.50 ($p < 0.001$) | - | -0.25 ($p = 0.003$) |
| NEO-O | -0.16 ($p = 0.26$) | - | -0.05 ($p = 0.53$) |
| NEO-A | -0.14 ($p = 0.32$) | - | -0.11 ($p = 0.20$) |
| NEO-C | -0.14 ($p = 0.34$) | - | -0.10 ($p = 0.25$) |

Note. *St. Clare et al. (2009) only reported scores for the UTBAS-I scale.

* * The UTBAS-P study used BFNE while the other two studies used FNE.

Table 7
Correlations between different scales of the UTBAS (UTBAS I, II, and III) for different versions of the UTAS.

| | | UTBAS I | UTBAS II | UTBAS III |
|---------------|----------|---------|----------|-----------|
| UTBAS-P | UTBAS I | | 0.89 * * | 0.87 * * |
| | UTBAS II | | | 0.87 * * |
| English UTBAS | UTBAS I | | 0.93 * * | 0.80 * * |
| | UTBAS II | | | 0.83 * * |
| UTBAS-J | UTBAS I | | 0.68 * | 0.76 * |
| | UTBAS II | | | 0.53 * |
| UTBAS-TR | UTBAS I | | 0.29 * | 0.36 * |
| | UTBAS II | | | 0.32 * |

Note. UTBAS-P = UTBAS-Persian Version; UTBAS-J= UTBAS-Japanese Version; UTBAS-TR= UTBAS Turkish Version

*Significance at $p < 0.01$.

* *Significance at $p < 0.001$.

Japanese UTBAS scales and mild for Turkish UTBAS scales.

3.4. UTBAS scores and sex

No statistical test was used to compare the UTBAS results of male and female participants, as there were only nine women in this study. However, the mean and standard deviation of the total UTBAS scores for men ($M = 469$, $SD = 157.5$) and women ($M = 462$, $SD = 148.45$) seemed similar. Although male Turkish participants (436 ± 118) displayed significantly higher scores on most UTBAS scales in comparison to female Turkish participants (377 ± 72), [$t(98) = 2.0$, ($p = 0.04$)], the Japanese study did not reveal any such distinctions [$t(128) = 0.50$, ($P = 0.62$)].

3.5. UTBAS scores and the experience of speech therapy

There were no differences between having the experience of speech therapy and Total UTBAS-P ($p = 0.45$), UTBAS-P I ($p = 0.35$),

UTBAS-P II ($p = 0.36$) and UTBAS-P III ($p = 0.52$).

3.6. Correlation between age and UTBAS scores

There was no correlation between the age of AWS and their Total UTBAS-P ($r = 0.020$, $p = 0.89$), UTBAS-P I ($r = 0.020$, $p = 0.89$), UTBAS-P II ($r = -0.007$, $p = 0.96$) and UTBAS-P III ($r = 0.039$, $p = 0.78$).

Table 8 displays the correlations between age and UTBAS scores across various studies. It also compares the findings of the current study to previous UTBAS research. In the Persian and Turkish studies, there were no significant associations discovered between the UTBAS scores and the age of the participants. Nevertheless, for Japanese participants, a mild but statistically significant correlation was observed, where older participants were found to have lower UTBAS scores.

3.7. Post Hoc power analysis

Several correlation tests were conducted to evaluate convergent and divergent validity. The post hoc power analysis indicated that the study achieved a power of 0.99 for detecting an average correlation coefficient of 0.53 in the assessment of convergent validity. For divergent validity, the post hoc power analysis revealed an achieved power of 0.59 for detecting an average correlation coefficient of 0.26.

4. Discussion

The primary aim of the present study was to translate the UTBAS scales into Persian, and to assess the psychometric properties of the UTBAS-P with Persian-speaking AWS. We were interested in comparing UTBAS scores among male and female AWS, those with and without stuttering treatment experience, and investigating the correlation between age and UTBAS scores. For the translation process, the IQOLA translation protocol was supplemented by the WHO protocol, whereby all translators, investigators and a panel of experts discussed cultural, religious, legal and language implications to decide on the best wording for each item. Therefore, the final version of the UTBAS-P was regarded as being linguistically and culturally appropriate, and user-friendly to both experts and AWS.

The present study confirmed that UTBAS-P is easy to understand and use. All 71 items of the UTBAS-P tap into negative cognitions and speech-related anxiety. Although the 71 items of UTBAS-P are subtly different from the 66 items of English-UTBAS, positive correlations between the UTBAS-P and measures of related constructs (STAI-T, SPAI-Diff, BFNE, BAI, NEO-PIR Neuroticism) correspond with previous reports (Aydın Uysal & Ege, 2020; Iverach et al., 2015; St Clare et al., 2009) and confirms the convergent validity of the UTBAS-P as a measure of speech-related anxiety. A significant positive correlation was found between the UTBAS-P and neuroticism (NEO-N), and a significant negative correlation was found between the UTBAS-P and extraversion (NEO-E). Iverach and colleagues (2011) also reported a significant relationship between the English UTBAS and Neuroticism (NEO-FFI) (Iverach et al., 2011). Neuroticism is characterized by a proneness to anxiety, emotional instability and self-consciousness, and extraversion refers to positive emotion, assertiveness, and warmth (Iverach et al., 2011). Correlation between the UTBAS-P and neuroticism and extraversion in the present study correspond with Jylhä and Isometsä (2006), who reported a significant relationship between an anxiety-related measure (i.e., the BAI) and both neuroticism and extraversion in general population. Our findings show that neuroticism is significantly and positively correlated with speech-related anxiety for Persian-speaking AWS.

Absence of strong correlations between the UTBAS-P and measures of unrelated constructs such as the NEO-PIR personality

Table 8
Correlations among UTBAS scores and age in different studies.

| UTBS Scales | Correlation |
|-------------------|---|
| UTBAS-I | |
| UTBAS-P I | $r = 0.020$, $p = 0.89$ |
| UTBAS-TR I | $r = -.012$, P-Value was not available |
| UTBAS-J I | $r = -.326$, $p < 0.01$ |
| UTBAS-II | |
| UTBAS-P II | $r = 0.007$, $p = 0.96$ |
| UTBAS-TR II | $r = -.015$, P-Value was not available |
| UTBAS-J II | $r = -.0227$; $p < 0.01$ |
| UTBAS-III | |
| UTBAS-P III | $r = 0.039$, $p = 0.78$ |
| UTBAS-TR III | $r = -.01$, P-Value was not available |
| UTBAS-J III | $r = -.0338$; $p < 0.01$ |
| UTBAS-Total Score | |
| UTBAS-P-Total | $r = 0.020$, $p = 0.89$ |
| UTBAS-TR- Total | $r = -.012$, P-Value was not available |
| UTBAS-J Total | $r = -.0332$; $p < 0.01$ |

Note. Mean age (SD) and range of age for the current study (UTBAS-P) were 26.40 (6.40), 18–51; For Turkish study (UTBAS-TR) were 23.5 (5.5); and for the Japanese study were 41.8 (15.9), 18–74.

domains of openness, agreeableness, and conscientiousness also confirmed the discriminant validity of the scales. However, similar to Iverach and colleagues (2011), a significant correlation was found between the UTBAS-P and the BDI measure of depressive symptomatology. This finding may be attributed to the high rate of co-morbidity that is typically found for anxiety and depression (Beesdo et al., 2007; Sartorius et al., 1996).

The test-retest reliability and internal consistency of the UTBAS-P were consistent with reliability outcomes reported by St Clare and colleagues (2009) for the UTBAS-I, assuring clinicians and researchers of its consistent and reliable use.

The second objective of this research was to conduct a transcultural analysis of the UTBAS studies, considering the differences across various cultures and societies. To achieve this goal, the findings of the UTBAS-P were compared with those of the Australian, Turkish (UTBAS-TR), and Japanese (UTBAS-J) reports. Adding or omitting items from a questionnaire can complicate cross-cultural comparisons of participant scores, especially when the total number of items differs from the original version. The UTBAS-P contains 71 items, compared to 66 items in the original UTBAS and other translated versions. However, this variation allows for consideration of cultural differences. While there is evidence of cultural differences in the expression of social anxiety, the four studies compared in this research demonstrate some similarities in reported outcomes. For example, the mean item scores for the UTBAS Total were found to be relatively consistent across cultures, with Turkish participants scoring an average of 2.1, Japanese and Persian participants scoring 2.2, and Australian AWS scoring 2.4. This suggests that individuals from different cultures, on average, rarely (score 2) to sometimes (score 3) experience unhelpful thoughts and beliefs related to stuttering. Therefore, AWS from both individualistic and collectivistic cultures have self-reported experiencing unhelpful thoughts and beliefs about their stuttering, which has led to feelings of anxiety.

Although statistical comparison of the data obtained from these studies is not possible due to the unavailability of raw individual data, the mean and standard deviation of scores suggests similar results across different cultures. The concepts behind some of the newly added items to the Persian version of UTBAS may be relevant to the collectivist nature of Persian culture, although they may also be observed in other cultures. For example, concerns about the speech fluency of future generations, such as 'I always worry about the speech fluency of my children in the future,' or considerations about societal expectations, like 'People ignore my faults because they take pity on me,' reflect a collectivist mindset. However, this study does not provide a definitive answer to the question of how these new items may be relevant to participants' cultures. More in-depth qualitative studies are required for this purpose. The results obtained from the UTBAS and other anxiety measures in these four studies are consistent with previous research indicating that AWS may experience higher levels of anxiety and fear of negative evaluation compared to those who do not stutter, but not as high as clinically anxious individuals (Iverach et al., 2009, Messenger et al. 2004).

Overall, Persian, Turkish, and Japanese participants had lower mean UTBAS scores compared to Australian participants. However, Chu et al. (2017) found no significant difference in three out of the four UTBAS measures when comparing Japanese and Australian participants. The only significant difference observed was in UTBAS I, which was significantly lower for Japanese AWS. The authors suggested that cultural differences in disclosing negative attitudes or differences between the participants of the two studies, such as the fact that many Japanese individuals who stutter attend self-help groups, may explain these differences. Another potential reason for these differences may be related to the cultural differences between the participants of the two studies. Australian participants were those seeking professional help for their stuttering, while participants in the Persian and Japanese studies were recruited from both hospitals and stuttering associations, including those who did or did not seek professional help. Research suggests that people of Asian heritage may not feel impaired by their anxiety until the condition becomes more severe, and therefore, they may be less likely to seek professional help for mild to moderate social anxiety (Okazaki et al., 2002; Hsu & Alden, 2008). In contrast, people from Western cultures are more likely to delay treatment when they have mild social anxiety but seek professional help when they have moderate or severe symptoms (Hsu & Alden, 2008).

In addition, although the mean item scores of the UTBAS Total seems to be similar across different cultures, it is unclear which specific thoughts are most common in each culture. The total score, while providing some information, offers only a partial understanding of the complex phenomenon of anxiety in PWS. Therefore, it should be seen in conjunction with the analysis of prevalent unhelpful thoughts and beliefs within specific cultural contexts to provide clinicians with nuanced information to tailor interventions effectively. Unfortunately, the data for individual UTBAS items has not been published outside of this study. The study found that Persian AWS commonly reported 12 specific thoughts and beliefs related to stuttering, with at least 50 % of participants reporting them sometimes, often, or always. These included (1) the existence of excessively high standards of social performance (for example "People shouldn't have to wait so long for me to speak"), (2) beliefs about performing in a certain way in social situations, i.e., conditional negative self-beliefs (for example "People won't like me because I won't be able to talk"), and (3) unconditional negative self-beliefs (for example "Everyone in the room will hear me stutter" or "I can't speak to people in positions of authority").

During social situations, these assumptions signal that the situation is threatening, and negative self-processing prevents disconfirmation of the event as dangerous (Clark & Wells, 1995). The most frequently reported unhelpful thoughts and belief by Persian AWS were among unconditional and conditional negative thoughts, from which some were related to fear of negative evaluation by others such as "People shouldn't have to wait so long for me to speak" and "People get tired of waiting for me to get my words out". Almost two thirds of the participants frequently had the thought that "People focus on every word I say" and more than 82 % of participants believed that "It's all my fault – I should be able to control my stutter". These results provide support for previous studies that suggest Persian AWS commonly use safety behaviors such as avoidance, rehearsing, and practicing speech, and choosing easy and safe people to talk to when feeling anxious (Azarinfar et al., 2022).

We were unable to test the difference between the total UTBAS scores of male and female participants in this study due to the limited number of female participants (nine female compared to 43 male participants). Therefore, we only reported the mean and standard deviation scores. While no significant differences were reported between the total UTBAS scores of male and female participants in the Japanese study (Chu et al., 2017), the Turkish study provided some evidence for higher total UTBAS scores in female

participants (Aydn Uysal & Ege, 2020). The most important reason for this non-significant finding might be the low participation rate of females in the Japanese study (19.0 %). It might also be reflective of the existence of unhelpful thoughts and beliefs about stuttering in AWS regardless of their gender. Studies have also indicated that there are differences between sexes in reporting social anxiety and perceiving the level of anxiety in various situations (Caballo et al., 2008). Previous research has demonstrated a greater occurrence of social anxiety in AWS compared to non-stuttering adults of the same gender and age (Iverach et al., 2009). However, more research is needed to fully understand the nuances of social anxiety in PWS, including potential gender differences. The higher age of female participants in the Turkish study has been used to justify the difference between male and female AWS in that study (Aydn Uysal & Ege, 2020).

In both Persian and Turkish studies, the correlation between age and UTBAS scores were minimal and insignificant. However, the Japanese study reported a mild negative correlation between age of the participants and their UTBAS scores which were statistically significant. The reason for this could be attributed to the average age range of our participants (Mean: 26.4, range= 18–51), which is similar to that of UTBAS-TR (Mean: 23.5, range= 17–41), but notably lower than that of the participants in the Japanese study (Mean: 41.8, range= 18–74). This finding is consistent with previous research indicating that older individuals who stutter tend to be less fearful of the potential consequences of their stuttering and more accepting of it (Bricker-Katz et al., 2010).

Similar to the findings observed in Japanese participants, there were no significant differences in UTBAS scores between Persian AWS who received speech therapy and those who did not. The specific types of previous treatments were not explored in this study. However, these results may be attributed to the current approach to speech therapy in Iran, which primarily focuses on the motor aspects of stuttering, while addressing anxiety-related complications is considered a secondary goal, and sometimes even neglected, as noted in previous studies (Chu et al., 2017; Messenger et al., 2004). Thus, it is crucial to incorporate evidence-based interventions such as CBT to address speech-related anxieties, as CBT has shown promise in reducing anxiety in AWS and improving and maintaining treatment outcomes (Menzies et al., 2009). Another possible explanation relates to the nature of stuttering severity in individuals who seek treatment for their stuttering. While stuttering severity in PWS is positively skewed (Ilkhani et al., 2021; Karimi et al., 2013), those who seek treatment may experience more severe stuttering or higher anxiety than those who do not seek treatment. Therefore, further information is needed for a clearer interpretation of this result.

In the UTBAS studies conducted across different cultures, an interesting distinction was observed in the correlations between various UTBAS scales. The correlations between UTBAS-P I, II, and III scales were strong and statistically significant, similar to the findings in the original English version of the UTBAS for Australian participants (Iverach et al., 2015). However, the correlations between different scales were only moderate in the Japanese study and mild in the Turkish study (Aydn Uysal & Ege, 2020; Chu et al., 2017). In the Turkish study, significant differences were found between UTBAS-TR III scores and both UTBAS- I and UTBAS-TR II, indicating that these scales assess similar or closely related constructs, but their relationship is not linear. The frequency of unhelpful cognitions (UTBAS I) is distinct from the belief in these cognitions (UTBAS II) and associated anxiety (UTBAS III) from a clinical perspective. The Japanese AWS exhibited the highest mean UTBAS-J III score, indicating that the lower frequency of unhelpful cognitions and less belief in such unhelpful thoughts did not prevent them from being anxious. The difference observed in the findings might be interpreted from a cultural perspective or due to differences in the methodology of the studies.

UTBAS was originally developed in Australia (Iverach et al., 2015; St Clare et al., 2009) and was adapted to some other cultures such as Japan (Chu et al., 2017) and Turkey (Aydn Uysal & Ege, 2020). These societies are culturally different from each other and from Iran. Australia is an individualistic society while Japan is a collectivism society (Javidan & Dastmalchian, 2003; Kashima et al., 1995). It seems that Turkey is a multi-cultural society as there are evidences that the cultural perspective in this country is changing from a collectivism society to an individualism society (Kılıç, 2010). Iranian culture is grouped with other South Asian cultures like India, Indonesia, the Philippines, Malaysia, and Thailand. Iranians value personal achievements but also have strong ties to family and friends. They have high expectations of each other and use indirect language to avoid disappointing others (Javidan & Dastmalchian, 2003). Individuals from individualistic societies prefer to construct and promote independent self-construal which means that they tend to view themselves as autonomous and separate from the social context. They have their own internal attributes and goals, and their self-esteem is derived from their ability to distinguish themselves from other people in their environment. On the other hand, people from collectivist societies tend to value inter-dependent self-construal which means viewing themselves as being integrated and connected with others in the social group. Inter-dependent people adopt their behavior to thoughts, feelings and behavior of important others (Hofmann et al., 2010). Therefore, differences in self-construal will influence the way that people organize their experience and assess themselves in the world around them, and these differences may account for differences in social behavior and cognitive processing (Hofmann et al., 2010).

The developers of the original English version of UTBAS scales recently used item reduction to create a brief 6-item version of the UTBAS scales (UTBAS-6) (Iverach, Heard, et al., 2016). Decile ranges for brief UTBAS-6 scores provide reliable estimates of full UTBAS scores and yield valuable clinical information about whether psychological assessment for anxiety is warranted. This may be a future line of development for the UTBAS-P. However, it is important to note that the full UTBAS scales provide detailed and comprehensive information about negative cognitions associated with social anxiety in stuttering for clinical purposes (Iverach et al., 2011).

The analysis revealed a high achieved power of 0.99 for detecting the average correlation coefficient of 0.53 in the convergent validity assessment. This indicates a strong likelihood that the study successfully detected true correlations between the related constructs. The high power suggests that the sample size was sufficient to identify significant relationships, thereby supporting the robustness of the convergent validity results. In contrast, the power analysis for the divergent validity assessment revealed an achieved power of 0.59 for detecting an average correlation coefficient of 0.26. Although this power is lower than the conventional threshold of 0.80, it still suggests a moderate likelihood of detecting true correlations. However, the lower power indicates that the study may have been underpowered to detect weaker correlations, which could lead to Type II errors. This should be considered when interpreting the

results related to divergent validity, as some relationships may have gone undetected due to insufficient power. The findings from the post hoc power analysis underscore the reliability of the convergent validity results while highlighting potential limitations in the divergent validity assessment. Future research could benefit from larger sample sizes or alternative methodological approaches to enhance the power for detecting smaller correlations in the context of divergent validity. In future studies, factor analysis can aid in understanding the relationships between different items and identifying possible redundancies in the UTBAS-P. Such studies will require a larger participant pool, which would also allow for comparisons of UTBAS scores between male and female participants. Another limitation of this study is that we could not compare respondents' responses to each item of the UTBAS across different cultures, as the raw individual data for these cultures are not available. Although a statistical comparison of data from other studies was impossible due to the lack of raw item scores, the available mean and standard deviation scores suggest similar patterns across cultures. Access to raw scores for each item would allow for a more in-depth discussion, as demonstrated in Table 3, where we reported the frequency of unhelpful thoughts and beliefs about stuttering (scoring three or above) in at least 50 % of study participants.

In conclusion, the UTBAS is a valid and reliable measure specifically designed to assess the unhelpful thoughts and beliefs that may drive social anxiety in adults who stutter. All four currently translated versions of the UTBAS have demonstrated high levels of validity and reliability, showing strong correlations with well-known anxiety measures such as STAI-T. These findings suggest that the UTBAS has potential for use both clinically and in cross-cultural studies.

CRedit authorship contribution statement

Bijan Shafiei: Writing – review & editing, Validation, Supervision, Methodology, Conceptualization. **Sima Farpour:** Writing – original draft, Validation, Project administration, Methodology, Investigation, Data curation, Conceptualization. **Hamid Karimi:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Formal analysis, Conceptualization. **Ross Menzies:** Writing – review & editing, Validation, Methodology, Conceptualization.

Declaration of Competing Interest

All authors certify the absence of any conflicts of interest, including specific financial interests and relationships and affiliations relevant to the subject of this paper.

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Data Availability

Data will be made available on request.

References

- Azarinfar, M., Karimi, H., Jowkar, F., & Shafiei, B. (2022). Validity and reliability of safety behaviors questionnaire for Persian adults who stutter: A cultural perspective. *Journal of Communication Disorders, 100*, Article 106251.
- Aydn Uysal, A., & Ege, P. (2020). Reliability and validity of the UTBAS-TR (The unhelpful thoughts and beliefs scale-the Turkish version) in the Turkish population. *International Journal of Speech-Language Pathology, 22*(1), 24–29.
- Bangasser, D. A., & Cuarenta, A. (2021). Sex differences in anxiety and depression: circuits and mechanisms. *Nature Reviews Neuroscience, 22*(11), 674–684.
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893–897.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck depression inventory manual* (2nd ed.). Psychological Corporation.
- Beesdo, K., Bittner, A., Pine, D. S., Stein, M. B., Höfler, M., Lieb, R., & Wittchen, H.-U. (2007). Incidence of social anxiety disorder and the consistent risk for secondary depression in the first three decades of life. *Archives of General, 64*(8), 903–912.
- Bernard, R., Hofslundengen, H., & Frazier Norbury, C. (2022). Anxiety and depression symptoms in children and adolescents who stutter: A systematic review and meta-analysis. *Journal of Speech, Language, and Hearing Research, 65*(2), 624–644.
- Bernard, R. F. L., & Norbury, C. F. (2023). Factors associated with symptoms of anxiety and depression in children who stutter. *Language, Speech, and Hearing Services in schools, 54*(2), 535–549.
- Blumgart, E., Tran, Y., & Craig, A. (2010). Social anxiety disorder in adults who stutter. *Depression and Anxiety, 27*(7), 687–692.
- Blumgart, E., Tran, Y., Yaruss, J. S., & Craig, A. (2012). Australian normative data for the overall assessment of the Speaker's experience of stuttering. *Journal of Fluency Disorders, 37*(2), 83–90.
- Boyle, M. P. (2015). Identifying correlates of self-stigma in adults who stutter: Further establishing the construct validity of the Self-Stigma of Stuttering Scale (4S). *Journal of Fluency Disorders, 43*, 17–27.
- Bricker-Katz, G., Lincoln, M., & McCabe, P. (2010). Older people who stutter: barriers to communication and perceptions of treatment needs. *International Journal of Language Communication Disorders, 45*(1), 15–30.
- Bullinger, M., Alonso, J., Apolone, G., Leplège, A., Sullivan, M., Wood-Dauphinee, S., & Bech, P. (1998). Translating health status questionnaires and evaluating their quality: the IQOLA project approach. *Journal of Clinical Epidemiology, 51*(11), 913–923.

- Caballo, V. E., Salazar, I. C., Irturia, M. J., Arias, B., Hofmann, S. G., & Team, C. I. S. O.-A. Research (2008). Social anxiety in 18 nations: Sex and age differences. *Behavioral Psychology/Psicología Conductual*, 16(2), 163–187.
- Chu, S. Y., Sakai, N., Mori, K., & Iverach, L. (2017). Japanese normative data for the unhelpful thoughts and beliefs about stuttering (UTBAS) Scales for adults who stutter. *Journal of Fluency Disorders*, 51, 1–7.
- Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment and treatment* (pp. 69–93). Guilford Press.
- Clark, D. M. (2001). A cognitive perspective on social phobia. In W. R. Crozier, & L. E. Alden (Eds.), *International Handbook of Social Anxiety: Concepts, Research And Interventions Relating To The Self And Shyness* (pp. 405–430). New York: Wiley.
- Costa, P. T., & McCrae, R. R. (1992). *Neo personality inventory-revised (NEO PI-R)*. Odessa, FL: Psychological Assessment Resources.
- Craig, A. (1998). Relapse following treatment for stuttering: A critical review and correlative data. *Journal of Fluency Disorders*, 23(1), 1–30.
- Eggers, K., Millard, S. K., & Kelman, E. (2022). Temperament, anxiety, and depression in school-age children who stutter. *Journal of Communication Disorders*, 97, Article 106218.
- Farhane-Medina, N. Z., Luque, B., Taberner, C., & Castillo-Mayén, R. (2022). Factors associated with gender and sex differences in anxiety prevalence and comorbidity: a systematic review. *Science Progress*, 105(4), 00368504221135469.
- Fathi Ashtiani, A., & Dastani, M. (2009). Psychological tests: personality and mental health Persian. *Tehran: Be'Satama*, 35–70.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A. G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41(4), 1149–1160.
- Garousi, F. M., Mehryar, A., & Ghazi, T. M. (2001). *Application of the neop ir test and analytic evaluation of it*.
- Ghassemzadeh, H., Mojtahabi, R., Karamghadiri, N., & Ebrahimkhani, N. (2005). Psychometric properties of a Persian-language version of the beck depression inventory-second edition: BDI-II-PERSIAN. *Depression and Anxiety*, 21(4), 185–192.
- Helgadóttir, F. D., Menzies, R. G., Onslow, M., Packman, A., & O'Brian, S. (2009). Online CBT II: A Phase I trial of a standalone, online CBT treatment program for social anxiety in stuttering. *Behaviour Change*, 26(4), 254–270.
- Helgadóttir, F. D., Menzies, R. G., Onslow, M., Packman, A., & O'Brian, S. (2014). A standalone Internet cognitive behavior therapy treatment for social anxiety in adults who stutter: CBTpsych. *Journal of Fluency Disorders*, 41, 47–54.
- Hofmann, S. G., Anu Asnaani, M., & Hinton, D. E. (2010). Cultural aspects in social anxiety and social anxiety disorder. *Depression and Anxiety*, 27(12), 1117–1127.
- Hsu, L., & Alden, L. E. (2008). Cultural influences on willingness to seek treatment for social anxiety in Chinese-and European-heritage students. *Cultural Diversity and Ethnic Minority Psychology*, 14(3), 215.
- Ilkhani, Z., Karimi, H., Farazi, M., O'Brian, S., & Onslow, M. (2021). Validity of telephone calls to assess percentage of syllables stuttered with adolescents in clinical research. *Journal of Communication Disorders*, 91, Article 106103.
- Iverach, L., Jones, M., O'Brian, S., Lincoln, M., Harrison, E., Hewat, S., Cream, A., Menzies, R. G., Packman, A., & Onslow, M. (2009). The relationship between mental health disorders and treatment outcomes among adults who stutter. *Journal of Fluency Disorders*, 34(1), 29–43. <https://doi.org/10.1016/j.jfludis.2008.10.001>
- Iverach, L., O'Brian, S., Jones, M., Block, S., Lincoln, M., Harrison, E., Hewat, S., Menzies, R. G., Packman, A., & Onslow, M. (2009). Prevalence of anxiety disorders among adults seeking speech therapy for stuttering. *Journal of Anxiety Disorders*, 23(7), 928–934. <https://doi.org/10.1016/j.janxdis.2009.03.005>
- 2023 IBM. (2023). IBM SPSS Statistics (Version 28) [Computer software]. IBM.
- Iverach, L., Menzies, R. G., O'Brian, S., Packman, A., & Onslow, M. (2011). Anxiety and stuttering: Continuing to explore a complex relationship.
- Iverach, L., Menzies, R., Jones, M., O'Brian, S., Packman, A., & Onslow, M. (2015). Further development and validation of the unhelpful thoughts and beliefs about stuttering (UTBAS) scales: relationship to anxiety and social phobia among adults who stutter. *International Journal of Language Communication Disorders*, 1–14.
- Iverach, L., Heard, R., Menzies, R., Lowe, R., O'Brian, S., Packman, A., & Onslow, M. (2016). A brief version of the unhelpful thoughts and beliefs about stuttering scales: The UTBAS-6. *Journal of Speech, Language, and Hearing Research*, 59(5), 964–972.
- Iverach, L., Jones, M., McLellan, L. F., Lyneham, H. J., Menzies, R. G., Onslow, M., & Rapee, R. M. (2016). Prevalence of anxiety disorders among children who stutter. *Journal of Fluency Disorders*, 49, 13–28.
- Iverach, L., Jones, M., Lowe, R., O'Brian, S., Menzies, R. G., Packman, A., & Onslow, M. (2018). Comparison of adults who stutter with and without social anxiety disorder. *Journal of Fluency Disorders*, 56, 55–68.
- Jalnapurkar, I., Allen, M., & Pigott, T. (2018). Sex differences in anxiety disorders: a review. *J Psychiatry Depress Anxiety*, 4(12), 3–16.
- Javidan, M., & Dastmalchian, A. (2003). Culture and leadership in Iran: the land of individual achievers, strong family ties, and powerful elite. *Academy of Management Perspectives*, 17(4), 127–142.
- Jylhä, P., & Isometsä, E. (2006). The relationship of neuroticism and extraversion to symptoms of anxiety and depression in the general population. *Depression and Anxiety*, 23(5), 281–289.
- Karimi, H., & Nilipour. (2011). Characteristics of developmental stuttering in Iran. In P. Howell, & J. Van Borsel (Eds.), *Multilingual aspects of fluency disorders*. Bristol, Blue Ridge Summit: Multilingual Matters.
- Karimi, H., Nilipour, R., Shafiei, B., & Howell, P. (2011). Translation, assessment and deployment of stuttering instruments into different languages: comments arising from Bakhtiar et al., investigation of the reliability of the SSI-3 for preschool Persian-speaking children who stutter *Fluency Disord.* 35 (2010) 87–91. *Journal of Fluency Disorders*, 36(3), 246–248. author reply 249.
- Karimi, H., O'Brian, S., Onslow, M., Jones, M., Menzies, R., & Packman, A. (2013). Unscheduled telephone calls to measure percent syllables stuttered during clinical trials. *Journal of Speech, Language, and Hearing Research*, 56(5), 1455–1461. [https://doi.org/10.1044/1092-4388\(2013\)12-0264](https://doi.org/10.1044/1092-4388(2013)12-0264)
- Kashima, Y., Yamaguchi, S., Kim, U., Choi, S.-C., Gelfand, M. J., & Yuki, M. (1995). Culture, gender, and self: A perspective from individualism-collectivism research. *J Pers Soc Psychol*, 69(5), 925.
- Kaviani, H., & Mousavi, A. (2008). Psychometric properties of the Persian version of Beck Anxiety Inventory (BAI). *Tehran University Medical Journal*.
- Kılıç, A. (2010). Gender, family and children at the crossroads of social policy reform in Turkey: Alternating between familialism and individualism *Children. Gender and Families in Mediterranean welfare states* (pp. 165–179). Springer.
- Kotera, Y., & Taylor, E. (2022). Defining the diagnostic criteria of TKS: Unique culture-bound syndrome or sub-categories of existing conditions. *Asian J Psychiatry*, 81, Kraaimaat, F. W., Vanryckeghem, M., & Van Dam-Baggen, R. (2002). Stuttering and social anxiety. *Journal of Fluency Disorders*, 27(4), 319–331.
- Lankman, R. S., Yaruss, J. S., & Franken, M. C. (2015). Validation and evaluation of the Dutch translation of the Overall Assessment of the Speaker's Experience of Stuttering for School-age children (OASES-SD). *Journal of Fluency Disorders*, 45, 27–37.
- Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, 28, 563–575. <https://doi.org/10.1111/j.1744-6570.1975.tb01393.x>
- Leary, M. R. (1983). A brief version of the Fear of Negative Evaluation Scale. *Personality and Social Psychology Bulletin*, 9(3), 371–375.
- Lindström, E., Nilsson, E., Nilsson, J., Schödin, I., Strömberg, N., Österberg, S., Yaruss, J. S., & Samson, I. (2020). Swedish outcomes of the Overall Assessment of the Speaker's Experience of Stuttering in an international perspective. *Logopedics Phoniatrics Vocology*, 45(4), 181–189. <https://doi.org/10.1080/14015439.2020.1791423>
- Lowe, R., Menzies, R., Onslow, M., Packman, A., & O'Brian, S. (2021). Speech and anxiety management with persistent stuttering: Current status and essential research. *Journal of Speech, Language, and Hearing Research*, 64(1), 59–74.
- Ma, Y., Oxley, J. D., Yaruss, J. S., & Tetnowski, J. A. (2023). Stuttering experience of people in China: A cross-cultural perspective. *Journal of Fluency Disorders*, 77, Article 105994.
- Menzies, R. G., O'Brian, S., Onslow, M., Packman, A., St Clare, T., & Block, S. (2008). An experimental clinical trial of a cognitive-behavior therapy package for chronic stuttering.
- Menzies, R. G., Onslow, M., Packman, A., & O'Brian, S. (2009). Cognitive behavior therapy for adults who stutter: A tutorial for speech-language pathologists. *Journal of Fluency Disorders*, 34(3), 187–200.

- Menzies, R., O'Brian, S., Packman, A., Jones, M., Helgadóttir, F. D., & Onslow, M. (2019). Supplementing stuttering treatment with online cognitive behavior therapy: An experimental trial. *Journal of Communication Disorders*, *80*, 81–91.
- Messenger, M., Onslow, M., Packman, A., & Menzies, R. (2004). Social anxiety in stuttering: Measuring negative social expectancies. *Journal of Fluency Disorders*, *29*(3), 201–212.
- Nazarboland, K. (2001). *Normalization of Social Phobia Anxiety Inventory (SPAI) between the students of Mashhad Ferdousi University. (M.S)*. Mashhad: Mashhad Ferdousi University.
- Okazaki, S., Liu, J. F., Longworth, S. L., & Minn, J. Y. (2002). Asian American-white American differences in expressions of social anxiety: a replication and extension. *Cultural Diversity and Ethnic Minority Psychology*, *8*(3), 234.
- Onslow, M. (2006). Connecting stuttering management and measurement: V. Deduction and induction in the development of stuttering treatment outcome measures and stuttering treatments. *International Journal of Language Communication Disorders*, *41*(4), 407–421.
- Ratner, N. B. (2005). Evidence-based practice in stuttering: Some questions to consider. *Journal of Fluency Disorders*, *30*(3), 163–188.
- Rocha, M., Caldas, J., Margarido, E., Morgado, M., Morgado, M. J., Rato, J. R., & Yaruss, J. S. (2019). *Overall Assessment of the Speaker's States Experience of Stuttering-School-age-Portuguese Version (OASES-States-PT)*.
- Sakai, N., Chu, S. Y., Mori, K., & Yaruss, J. S. (2017). The Japanese version of the overall assessment of the speaker's experience of stuttering for adults (OASES-AJ): Translation and psychometric evaluation. *Journal of Fluency Disorders*, *51*, 50–59.
- Sartorius, N., Üstün, T. B., Lecrubier, Y., & Wittchen, H.-U. (1996). Depression comorbid with anxiety: results from the WHO study on psychological disorders in primary health care. *The British Journal of Psychiatry*, *168*(S30), 38–43.
- Shokri, O., Geravand, F., Naghsh, Z., Ali Tarkhan, R., & Paezi, M. (2008). The psychometric properties of the brief fear of negative evaluation scale. *Iranian Journal of Psychiatry and Clinical Psychology*, *14*(3), 316–325.
- Spielberger, C. D. (1984). *Trait-state anxiety inventory: A comprehensive bibliography*. Consulting Psychologists Press.
- St Clare, T., Menzies, R. G., Onslow, M., Packman, A., Thompson, R., & Block, S. (2009). Unhelpful thoughts and beliefs linked to social anxiety in stuttering: Development of a measure. *International Journal of Language Communication Disorders*, *44*(3), 338–351.
- Stein, D. J., Ruscio, A. M., Lee, S., Petukhova, M., Alonso, J., Andrade, L. H. S., Benjet, C., Bromet, E., Demyttenaere, K., Florescu, S., de Girolamo, G., de Graaf, R., Gureje, O., He, Y., Hinkov, H., Hu, C., Iwata, N., Karam, E. G., Lepine, J.-P., ... Kessler, R. C. (2010). Subtyping social anxiety disorder in developed and developing countries. *Depression and Anxiety*, *27*(4), 390–403. <https://doi.org/10.1002/da.20631>
- Susca, M. (2006). Connecting stuttering measurement and management: II. Measures of cognition and affect. *International Journal of Language Communication Disorders*, *41*(4), 365–377.
- Tahmasebi, N., Shafie, B., Karimi, H., & Mazaheri, M. (2018). A Persian-version of the stuttering severity instrument-version four (SSI-4): How the new additions to SSI-4 complement its stuttering severity score? *Journal of Communication Disorders*, *74*, 1–9.
- Tichenor, S. E., & Yaruss, J. S. (2019). Stuttering as defined by adults who stutter. *Journal of Speech, Language, and Hearing Research*, *62*(12), 4356–4369.
- Tomisato, S., Yada, Y., & Wasano, K. (2022). Relationship between social anxiety and coping profile in adults who stutter. *Journal of Communication Disorders*, *95*, Article 106167.
- Turner, S. M., Beidel, D. C., Dancu, C. V., & Stanley, M. (1996). *Social phobia and anxiety inventory: Manual*. North Tonawanda, NY: Multihealth Systems.
- Yaruss, J. S., & Quesal, R. W. (2006). Overall Assessment of the Speaker's Experience of Stuttering (OASES): Documenting multiple outcomes in stuttering treatment. *Journal of Fluency Disorders*, *31*(2), 90–115.
- Węsierska, K., Yaruss, J. S., Kosacka, K., Kowalczyk, Ł., & Boroń, A. (2023). The experience of Polish individuals who stutter based on the OASES outcomes. *Journal of Fluency Disorders*, *77*, Article 105991.
- Willoughby, F. W., & Edens, J. F. (1996). Construct validity and predictive utility of the stages of change scale for alcoholics. *Journal of substance abuse*, *8*(3), 275–291.
- World Health Organization. (2011). Management of substance abuse: Process of translation and adaptation of instruments. (http://www.who.int/substance_abuse/research_tools/translation/en/index.html) [Online].
- Wynd, C. A., Schmidt, B., & Schaefer, M. A. (2003). Two quantitative approaches for estimating content validity. *Western Journal of Nursing Research*, *25*(5), 508–518.

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