

## Psychometric Properties of Farsi Version of the Toronto Alexithymia Scale-20 (FTAS-20)

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### *Abstract*

This study investigated the psychometric properties of Farsi version of the Toronto Alexithymia Scale-20 for 709 undergraduate students (416 females and 293 males) at the University of Tehran. All participants were asked to complete the Farsi version of the Toronto Alexithymia Scale-20 (FTAS-20), the Emotional Intelligence Scale, and the Mental Health Inventory. Findings supported the internal consistency, test-retest reliability, concurrent validity, and three-factor structure of the Farsi version of the TAS-20. The factors found in the Farsi version of the TAS-20 are similar to the three factors found by Bagby, Parker and Taylor (1994) and were accordingly labeled as “Difficulty Identifying Feelings” (DIF), “Difficulty Describing Feelings” (DDF) and “Externally-Oriented Thinking” (EOT). Results of this study provide evidence supporting the cross-cultural validity of the TAS-20 and its applicability in Iran.

**Keywords:** Alexithymia, Toronto Alexithymia Scale, Reliability, Validity, FTAS-20

Sifneos (1973) introduced the term ‘alexithymia’ to describe a cluster of cognitive and affective deficits observed in psychosomatic patients. These are believed to be deficits in the cognitive processing and regulation of emotions (Bagby & Taylor, 1997; Lane, Ahern, Schwartz, & Kaszniak, 1997). Since then, alexithymia has come to be defined as a multifaceted construct characterized by the following main features: difficulty

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identifying feelings and distinguishing between feelings and the bodily sensations of emotional arousal; difficulty describing feelings to others; constricted imaginal processes; and a stimulus bound, externally oriented cognitive style (Bagby & Taylor, 1997; Taylor & Bagby, 2000).

Several studies have demonstrated relationships between alexithymia and various psychological disorders, including posttraumatic stress disorder (Fukunishi, Tsuruta, Hirabayashi, & Asuaki, 2001; Zlotnick, Mattia, & Zimmerman, 2001), eating disorders (Cochrane, Brewerton, Wilson, & Hodges, 1993; Schmidt, Tiwany, & Treasure, 1993), Somatization (Deary, Scott, & Wilson, 1997), panic disorder (Pancer, Taylor, & Bagby, 1993), depression (Culhane & Watson, 2003; Sarijaervi, Salminen, & Toikka, 2001), and substance use disorders (Bagby, Taylor, & Parker, 1994; Handelsman, Stein, Bernstein, Oppenheim, Rosenblum, & Magura, 2000; Haviland, Hendryx, Shaw, & Henry, 1994; Kauhanen, Julkunen, & Salonen, 1992; Ziolkowski, Gruss, & Rybakowski, 1995).

Given its clinical importance, several self-report questionnaires have been developed to measure alexithymia (Apfel & Sifneos, 1979; Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994; Bermond, Vorst, Vingerhoets, & Gerritsen, 1999; Kleiger & Kinsman, 1980). The 20-item Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994), is the most commonly used and studied measure of alexithymia with adequate reliability and validity. Its three-factor structure has been replicated in many languages and cultures (Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994; De Gucht, Fontaine, & Fischler, 2004; Fukunishi, Nakagawa, Nakamura, Kikuchi, & Takubo, 1997; Parker, Taylor, & Bagby, 2003; Taylor, Bagby, & Parker, 2003; Tull, Medaglia, & Roemer, 2005). However, there are several studies in which only a two-factor structure was found (Erni, Lotscher, & Modestin, 1997; Haviland, et al., 1994; Kooiman, Spinhoven, & Trijsburg, 2002; Loas, Otmani, Verrier, Fremaux, & Marchand, 1996). Overall, the first two factors, “Difficulty Identifying Feelings” and “Difficulty Describing Feelings” show good psychometric properties, but the third factor “Externally-Oriented

Thinking” appears to be less reliable (Haviland & Reise, 1996; Kojima, Frasure-Smith, & Lesperance, 2001; Rieffe, Oostervald, & Terwogt, 2006).

The purpose of the present study was to investigate the psychometric properties of a Farsi version of the TAS-20 (FTAS-20) with specific reference to its internal consistency, test-retest reliability, concurrent validity, and factor structure. The present study sought to examine the replicability of TAS-20 factor structure among a sample of Iranian undergraduate students.

## **Method**

### **Participants and Procedure**

Participants were 709 undergraduate students (416 females and 293 males) from the University of Tehran. All students participated as volunteers. The mean age of the sample was 20.17 years (ranging from 18 to 27 years), with a standard deviation of 1.93 years. All participants were asked to complete the Farsi version of the Toronto Alexithymia Scale-20, the Emotional Intelligence Scale-41 and the Mental Health Inventory. Sixty-seven of the 709 participants (38 females and 29 males) completed the Farsi version of the Toronto Alexithymia Scale-20 twice with a four-week interval between measurements.

## **Measures**

### **Toronto Alexithymia Scale**

The Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994) is a 20-item self-report measure devised by Bagby, Parker, and Taylor (1994). Each item is rated on a five-point Likert scale ranging from 1= strongly disagree to 5= strongly agree. Five items (4, 5, 10, 18, 19) are negatively keyed. A total alexithymia score is provided with three subscales called Difficulty Identifying Feelings, Difficulty Describing Feelings, and Externally Oriented Thinking. Difficulty Identifying Feelings measures the extent to which people report difficulty in identifying their own inner emotional states; Difficulty Describing Feelings measures the

extent to which people report difficulty in describing feelings to others; and Externally Oriented Thinking measures the extent to which people report a tendency to focus on the concrete details of external events rather than their own feelings, fantasies, and other aspects of inner experience. An example of the items of Difficulty Identifying Feelings is “I don’t know what’s going on inside me.” An example of Difficulty Describing Feelings is “It is difficult for me to find the right words for my feelings.” Illustrating Externally Oriented Thinking is the item, “I prefer talking to people about their daily activities rather than their feelings.” The Toronto Alexithymia Scale-20 has demonstrated excellent psychometric properties (Pandey, Mandal, Taylor, & Parker, 1996; Taylor, Bagby, & Parker, 1997, 2003; Taylor & Bagby, 2000; Parker, Taylor, & Bagby, 2001, 2003; Palmer, Gignac, Manocha, & Stough, 2004).

#### **Emotional Intelligence Scale-41**

The Emotional Intelligence Scale (EIS-41) is a revised version of the 33-item emotional intelligence scale of Schutte, Malouff, Hall, Haggerty, Cooper, Golden, and Dornheim, (1998), devised by Austin, Saklofske, Huang, and McKenney (2004). Containing a higher proportion of reverse-keyed items, the EIS-41 has been designed mainly to target the Utilisation of Emotions factor, which was previously found to be of lower reliability than the other factors. Respondents use a five-point Likert scale ranging from 1= strongly disagree to 5= strongly agree, to indicate to what extent each item describes them. Adequate psychometric properties of the scale and a three-factor structure including Optimism/Mood Regulation, Utilisation of Emotions and Appraisal of Emotions have been reported (Austin, et al., 2004). Optimism/Mood Regulation measures the extent to which people report being able to regulate emotions in oneself and others; Utilization of Emotions measures the extent to which people report being able to utilize emotions in solving problems; and Appraisal of Emotions measures the extent to which people report being able to identify emotions in oneself and others. Items in the Optimism/Mood Regulation subset are

represented by questions such as “When I experience a positive emotion, I know how to make it last.” An example of Utilisation of Emotions is, “I find it hard to control my emotions.” Illustrating Appraisal of Emotions is the item, “I am aware of the non-verbal messages other people send.” Adequate psychometric properties have been reported for the Farsi version of the Emotiona Intelligence Scale (FEIS-41) given to a sample of Iranian undergraduate students (Besharat, 2007).

### **Mental Health Inventory**

The Mental Health Inventory (MHI) is a 38-item measure that provides two sub-scales of Psychological Well-Being and Psychological Distress (Veit & Ware, 1983). Participants are asked to report how often they feel a variety of affective states on a five-point Likert scale ranging from 1= strongly disagree to 5= strongly agree. Veit and Ware used goodness-of-fit tests to determine the factor structure of the MHI for the general population. Five factors were identified: Anxiety, Depression, Loss of Behavioral/Emotional Control, Positive Affect, and Emotional Ties. Two correlated ( $r = -.75$ ) superordinate factors of mental health are thought to account for the variations in self-reported mental health on the MHI: degree of psychological well-being and degree of psychological distress.

Psychological Well-Being measures the extent to which people report positive mental health state and Psychological Distress measures the extent to which people report negative mental health states. Psychological Well-Being is divided into two factors: General Positive Affect and Emotional Ties. Psychological Distress is divided into three factors: Anxiety, Depression, and Loss of Behavioral and Emotional Control. Items in the Psychological Well-Being subset are represented by questions such as “How much of the time, during the past month, have you felt calm and peaceful?” An example of Psychological Distress is, “How much of the time, during the past month, have you felt difficulty trying to calm down?” Satisfactory psychometric properties of the Mental Health Inventory have been reported (Veit & Ware, 1983; Manne & Schnoll, 2001).

## Results

### Reliability

The means, standard deviations, internal consistency coefficients, and mean inter-item correlations for the FTAS-20 are presented for the entire sample, and separately for men and women, in Table 1.

**Table 1**  
**Means, Standard Deviations, Internal Reliability Coefficients (IRC),**  
**and Mean Inter-Item Correlations (MIC) for the FTAS-20 for**  
**Women, Men, and the Total Sample**

	Factor 1	Factor 2	Factor 3	FTAS-20
Women (n= 416)				
Mean	15.13	10.56	18.68	44.54
SD	4.51	3.18	6.65	12.51
IRC	0.85	0.77	0.74	0.87
MIC	0.38	0.37	0.23	0.24
Men (n= 293)				
Mean	14.65	9.97	17.30	42.10
SD	4.38	3.01	5.58	11.08
IRC	0.84	0.75	0.72	0.85
MIC	0.39	0.36	0.21	0.23
Total (n= 709)				
Mean	14.93	10.32	18.11	43.54
SD	4.46	3.12	6.26	11.99
IRC	0.83	0.76	0.73	0.86
MIC	0.37	0.35	0.22	0.22

FTAS-20= 20-item Farsi version of the Toronto Alexithymia Scale; Factor 1= Difficulty Identifying Feelings; Factor 2= Difficulty Describing Feelings; Factor 3= Externally-Oriented Thinking.

In order to examine the internal consistency for the Farsi version of the TAS-20, Cronbach alpha coefficients were calculated for the entire sample of 709 participants. The alpha coefficients for TAS-20, DIF, DDF, and EOT were .87, .84, .78 and .74 for the total sample; .88, .86, .79 and .75 for women; and .86, .85, .77 and .73 for men, respectively. These findings suggest that the Farsi version of the TAS-20 is internally consistent.

To examine the test-retest reliability of the Farsi version of the TAS-20,

67 students (38 women and 29 men) completed the FTAS-20 four weeks after the first time. Intraclass correlation coefficients (ICC) between the scale scores at time 1 and time 2 were calculated for the entire 67 participants. Test-retest reliability of the DIF, DDF, EOT, and the FTAS-20 total score in this study are presented in Table 2. As shown in Table 2, test-retest coefficient for the FTAS-20 was .87, with test-retest coefficients for its three subscales ranged from .80 to .85.

**Table 2**  
**Test-Retest Reliability of the FTAS-20 and its Subscales**

N= 67	Mean (SD) at test 1	Mean (SD) at test 2	r*
DIF	14.46 (4.65)	15.53 (4.89)	0.85
DDF	10.56 (3.98)	10.59 (3.96)	0.85
EOT	18.26 (7.49)	19.91 (8.12)	0.80
FTAS-20	43.11 (15.10)	46.16 (15.75)	0.87

\* Intraclass Correlation Coefficient, all P values <.001; DIF= Difficulty Identifying Feelings; DDF= Difficulty Describing Feelings; EOT= Externally-Oriented Thinking; FTAS-20= 20-item Farsi version of the Toronto Alexithymia.

## Validity

### Correlations between FTAS-20, EIS and MHI Scores

To examine the relationship between the FTAS-20 (and its subscales), EIS and MHI variables, a series of zero-order correlations were conducted. Table 3 shows correlations of FTAS-20, EIS and MHI scores. FTAS-20 score was negatively correlated with emotional intelligence ( $r = -.82$ ,  $p < .001$ ) and psychological well-being ( $r = -.81$ ,  $p < .001$ ) but positively with psychological distress ( $r = .46$ ,  $p < .001$ ). All three FTAS-20 subscales were also significantly correlated with the EIS and MHI scores in the same directions (see Table 3).

### Factor Analysis of the FTAS-20

To test the construct validity of the Farsi version of the TAS-20, a principal components factor analysis was performed on the item responses

for the entire sample of 709 participants. Subsequently, an oblique rotation indicated that three factors should be retained, accounting for 39.8% of the variance. Table 4 lists the items with large pattern matrix elements. The factors found in the Farsi version of the TAS-20 are similar to the three factors found in previous studies (e.g., Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994; De Gucht, Fontaine, & Fichler, 2004; Fukunishi, Nakagawa, Nakamura, Kikuchi, & Takubo, 1997; Parker, Taylor, & Bagby, 2003; Taylor, Bagby, & Parker, 2003; Tull, Medaglia, & Roemer, 2005) and were accordingly labeled as Difficulty Identifying Feelings (DIF) consisting of seven items, Difficulty Describing Feelings (DDF) consisting of five items, and Externally-Oriented Thinking (EOT) consisting of eight items. The EOT subscale, however, showed four items (5, 16, 18, 20) with factor loadings lower than .40, ranging between .31 and .37.

**Table 3**  
**Pearson Correlations of the FTAS-20 and its Subscales**  
**Scores with EI, PWB, and PD**

	1	2	3	4	5	6	7
1. FTAS-20	1						
2. DIF	0.76	1					
3. DDF	0.96	0.70	1				
4. EOT	0.87	0.36	0.83	1			
5. EI	-0.82	-0.64	-0.77	-0.72	1		
6. PWB	-0.81	-0.65	-0.76	-0.69	0.83	1	
7. PD	0.46	0.35	0.40	0.42	-0.42	-0.53	1

All P values <.001; DIF= Difficulty Identifying Feelings; DDF= Difficulty Describing Feelings; EOT= Externally-Oriented Thinking; FTAS-20= 20-item Farsi version of the Toronto Alexithymia; EIS= Emotional Intelligence Scale; PWB= Psychological Well-Being; PD= Psychological Distress.

### Discussion

The results of the present study provide support for psychometric properties of the Farsi version of the TAS-20. With respect to reliability, the results indicate that FTAS-20 has adequate reliability and internal consistency. The overall alpha value of .85 obtained for FTAS-20 is



similar to those reported for the English version of the scale (Bagby, Parker, & Taylor, 1994; Parker, Bagby, Taylor, Endler, & Schmitz, 1993; Parker, Taylor, & Bagby, 2003). The FTAS-20 subscales also demonstrated adequate internal consistency, and the findings were in line with previously reported research that utilized student samples (see Bagby, Taylor, & Parker, 1994; Kooiman, Spinhoven, & Trijsburg, 2002; Taylor, Bagby, & Parker, 2003). The homogeneity of the full and the factor scales was confirmed by the mean inter-item correlations, which tended to fall within the optimal range of .20 to .40 (Parker, Taylor, & Bagby, 2003). The parameter estimates for the relationships among the three factors provide evidence that the factors reflected three separate, yet empirically related, facets of the alexithymia construct (Parker, Shaughnessy, Wood, Majeski, & Eastabrook, 2005). The results also revealed that test-retest reliability was satisfactory for the FTAS-20 total score and the DIF, DDF, and EOT subscales.

The concurrent validity of the FTAS-20 was investigated by the correlations between the FTAS-20 total, DIF, DDF, and EOT scores with emotional intelligence, psychological well-being, and psychological distress. Findings confirmed that alexithymia is related to lower scores on the emotional intelligence and psychological well-being, and higher scores on psychological distress. The pattern of correlations is consistent with results of previous studies (Dawda & Hart, 2000; Parker et al., 2001; Saklofske, Austin, & Minski, 2003; Schutte, et al., 1998) and suggests that alexithymia, emotional intelligence and mental health measures should be regarded as distinct but related constructs.

Results of the factor analysis provide support for three underlying factors Difficulty Identifying Feelings, Difficulty Describing Feelings, and Externally-Oriented Thinking. This is in accordance with a recent review of results from various cross-cultural studies (Taylor, Bagby, & Parker, 2003). However, several items in the FTAS-20 appeared to function in a less than optimal manner in this study. For example, items 5, 16, 18, and 20 had nontrivial loading on the EOT factor. This may be related to

methodological and cultural issues. Different models of factor analysis are also known to yield different results, as indicated by several studies (e.g., Loas, Otmani, Verrier, Fremaux, & Marchand, 1996; Loas, Parker, Otmani, Verrier, & Fremaux, 1997; Muller, Buhner, Ellgring, 2003).

**Table 4**  
**Factor Loadings from Exploratory Analysis by Item of the Farsi Version of the TAS-20<sup>a</sup>**

Factor 1		Factor 2		Factor 3	
Item	PME	Item	PME	Item	PME
6	0.73	4	0.71	15	0.59
3	0.67	2	0.69	19	0.55
9	0.65	11	0.63	10	0.47
13	0.63	17	0.57	8	0.43
14	0.60	12	0.49	5	0.37
1	0.58			20	0.35
7	0.55			16	0.34
				18	0.31

PME=Pattern matrix element; Factor 1= Difficulty Identifying Feelings; Factor 2= Difficulty Describing Feelings; Factor 3= Externally-Oriented Thinking  
a= The three factors explained 39.8% of the variance. Items 4, 5, 10, 18, and 19 are negatively keyed

Cultural differences in the meanings given to certain TAS-20 items might also be responsible for trivial loadings of these four items. It may be possible to refine or replace some of these items to provide an improved measure of alexithymia for the Iranian population.

The results presented here provide supporting evidence for the reliability, validity, and three-factor structure of the FTAS-20. Moreover, the study provides evidence for applicability of the TAS-20 and its cross-cultural validity. Associations found in this study between alexithymia and emotional intelligence, psychological well-being and psychological distress, raise the possibility that high alexithymia might be a predictive factor for psychopathology.

Limitations such as the type of sample and the measures call for further studies to examine more psychometric properties of the FTAS-20. The results have to be replicated in further studies, especially because the

sample used in this study was restricted to undergraduate students. Psychometric properties of the FTAS-20 and its factor structure in different clinical and nonclinical populations have still to be determined.

Despite good agreement reported between TAS-20 scores and observer ratings of alexithymia (Arimura, Komaki, & Murakami, 2002; Bagby, Taylor, & Parker, 1994; Porcelli & Carne, 2001), a question could be raised about the adequacy of the FTAS-20 to assess alexithymia as long as its criterion validity has not been firmly established. Valid judgment about the ability to identify, monitor, and report emotional state may not be possible, especially for highly alexithymic individuals (e.g., Lane, Sechrest, Riedel, Weldon, Kaszniak, & Schwartz, 1996; Taylor, Bagby, & Parker, 1997).

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