

Psychometric Properties of Farsi version of the Spielberger's State-Trait Anger Expression Inventory-2 (FSTAXI-2)

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Abstract

The present study was designed to examine the psychometric properties of the Farsi adaptation of Spielberger's (1988) State-Trait Anger Expression Inventory (STAXI-2) for university students in Iran. 1140 subjects were selected from among Tehran University students and They were asked to respond to Spielberger's State-Trait Anger Expression Inventory-2 and to one of the five instruments consisting of: Multi-dimensional Anger Inventory (MAI; Siegel 1986), Over-controlled Hostility Scale (O-H; Megargee, Cook, & Mendelson Bortner 1976) Oxford Happiness Inventory (OHI; Argyle 1998), Emotional Intelligence (FEIS- 41; Besharat 2007) and NEO-Five Factor Inventory (NEO- PI; Mc Cera & Costa 1999). Data analysis showed a significant relation between STAXI-2 and its subscales, and the majority of scores on parallel instruments. Factor analysis demonstrated the existence of multi factors consistent with the original form in every section of the Anger Inventory. According to the findings, STAXI-2 possesses reliability, internal consistency, and construct, content, concurrent, convergent, divergent and discriminant validity. The instrument can therefore be used for assessing state-trait anger in clinical sets and researches.

Key words: State-Trait Anger, Anger Expression, Anger Control, FSTAXI-2, reliability, validity.

Introduction

Anger is a strong emotion which can be triggered in many ways and may affect various mental and physical dimensions. Assessing this emotion and providing timely and meaningful feedback will also enhance awareness and understanding of a person's feelings, and help individuals to recognize and cope more effectively with their emotion (Spielberger & Reheiser, 2009). In other hand, measuring this psychological sign is of critical importance in diagnosis, and can facilitate treatment by directly linking intense emotions to the events that give rise to them. Therefore careful assessment of the experience, expression, and control of anger is essential in psychological diagnosis and treatment planning (Crane, 1981).

One of the rationales for studying anger is its relationship with different aspects of mental and physical health, communications and the quality of life. Furthermore, many people suffer from anger-related problems (Dahlen, & Deffenbacher, 2001), so much that based on clinical evidence, many researchers find these as severe as anxiety-related disorders. On the other hand, anger plays a role in the etiology of numerous major mental and physical disorders (Siegel, 1986). Finally, the last reason might be that psychological researches have paid less attention to anger and its repercussions than to other negative emotions, such as anxiety and depression (Dahlen, & Deffenbacher, 2001). According to Novako (1975), anger, as an emotion, is an over-discussed and under-researched. Therefore, nowadays many experts believe that multiple reasons exist to justify research into this topic.

A review of the background indicates that no comprehensive research has been conducted in Iran to develop and standardize an instrument capable of measuring state-trait anger expression and control. The need to develop a test with appropriate psychometric properties paved the ground for conducting the present research.

One of the few detailed studies of anger and its aspects was carried out by Spielberger et al (2003). The State-Trait Anger Expression Inventory – Second Edition (STAXI-2) was used for standardization and normalization, since it is considered a modern, valid, and empirically supported instrument with various applications (in diagnosing, counseling, and controlling the treatment and counseling methods).

Method

Subjects

The sample group consisted of 1140 male and female students in Tehran University ($M=21.92$ and $Sd=2.89$). Of these, 554 were female (48.6 percent), 586 were male (51.40), 1080 (94.7 percent) were single. Most of the respondents were undergraduate students, totaling to 844 (74 percent)

Measures

Multidimensional Anger Inventory (MAI): This is a 30-item test developed by Siegel (1986) to measure anger. The questions measure 5 dimensions of anger, i.e. anger arousal, anger-eliciting situations, hostile outlook, anger-in and anger-out, on a 5-point Likert scale from 1 = "absolutely wrong" to 5 = "absolutely correct". The psychometric properties of MAI scale have been confirmed by international and Iranian researches (Siegel, 1986; Besharat, 2006)

Over-controlled Hostility Scale (O-H): The O-H scale has 30 items. They are scored in such a way that higher scores identify more violent individuals, who are over-controlled (Megargee, Cook, & Mendelson, 1976). Moreland (1958) reported the test-retest coefficients for male and female students to be respectively 0.72 and 0.56. In the MMPI-2 norm sample the test-retest coefficients for the male and female groups were respectively 0.68 and 0.69 (Graham, 2000).

Oxford Happiness Inventory (OHI): The instrument, developed by Argyle, et al. (1989) consists of 29 items. The Cronbach Alpha and Half-Split Coefficient for the Farsi form administered to the student sample were 0.93 and 0.91 respectively. The formal validity and construct validity of the test were also confirmed (Alipour et al. 1999).

Emotional Intelligence Inventory (EI): This is a 33-item test developed by Schutte et al. (1998) based on the emotional intelligence model by Salouvi & Meyer. The internal consistency of the test questions calculated through Cronbach Alpha coefficient was reported to range from 0.84 to 0.90 (Schutte et al. 1998). In the Farsi form of the scale (Besharat, 2007) the Cronbach Alpha for the scale questions in a 442 student sample ranged from 0.88 to 0.91. The test-retest coefficient for the entire inventory was 0.75 and the subtests for regulation of emotions, unification of emotions, and appraisal of emotions were reported to be 0.72, 0.69, and 0.71.

NEO-AC Personality Inventory (Short Form – 60 items): The short-form of NEO which consists of 60 items, is used for the five major elements of personality (Neuroticism, Extraversion, Agreeableness, Conscientiousness, and Openness). The validity of the scale has been confirmed in other studies. In the Iranian sample, the test-retest reliability of the revised questionnaire for the five elements was found to be 0.53 to 0.71 (Garoosi Farshi, 2005).

Results

Validity

In order to investigate the construct validity through factor analysis, the three sections (the first, second, and third) were separately analyzed. The factor analysis, which used the principle component method and Varimax rotation, showed that there existed three factors with an eigenvalue of over 1. These factors explained 64.43 percent of the variance of this section. Of the ten items in this section, the number of loaded items in components 1, 2, and 3 are respectively 3, 4, and 3.

The factor analysis of the third section, which used the main components method, led to extraction of four components with eigenvalues of over 1, which explained 48.51 percent of the variance. Of the 31 items in this section, the loaded items in components 1, 2, 3, and 4 were respectively 16, 7, 4, and 5.

In order to investigate the criterion validity, convergent validity, divergent validity, and the anger expression construct, correlation coefficients were calculated between the subscales of this instrument and the parallel instruments, the results of which are given in Table 1.

Table 1. Pearson correlations of SXTI-2 and its subscales with subscales of MAI, O- H, OHI and NEO-PI

Measure	Subscale	Group	S- ang	T- ang	AX-I	AX-O	AC-I	AC-O
MAI	Anger Arousal	Female	0.35*	0.68*	0.52*	0.44*	-0.41*	-0.42*
		Male	0.46*	0.61*	0.29*	0.46*	-0.44*	-0.48*
	Anger-Eliciting Situations	Female	0.19	0.30*	0.01	0.09	-0.28*	-0.35*
		Male	0.21	0.39*	0.34*	0.09	-0.27*	-0.29*
	Hostile outlook	female	0.29*	0.51*	0.47*	0.26*	-0.12	-0.02
		Male	0.397*	0.42*	0.33*	0.24*	0.347*	0.29*
	Anger- out	female	0.07	0.34*	0.31*	0.27*	-0.06	0.01
		Male	0.08	0.01	0.14	0.05	-0.03	0.07
	Anger- in	female	0.07	0.27*	0.56*	-0.02	-0.01	0.16
		Male	0.10	0.26*	0.31*	0.01	0.13	-0.08
	o- H	female	0.34*	0.31*	0.22*	0.24*	-0.05	-0.02
		Male	-0.21*	-0.03	-0.23*	0.01	-0.16	-0.05
	OHI	female	0.39*	-0.35*	-0.41*	-0.32*	0.497*	0.36*
		Male	-0.54*	-0.44*	-0.19	0.27*	0.54*	0.48*
NEO-PI	Neuroticism	female	0.23*	0.06	0.24*	0.06	0.24*	0.07
		Male	-0.04	0.09	0.08	-0.05	0.23*	0.01
	Extroversion	female	0.06	-0.08	0.05	0.01	-0.03	0.05
		Male	-0.15	-0.12	0.07	-0.05	0.26*	0.28*
	Openness	female	-0.04	0.27*	0.01	-0.29*	0.33*	0.35*
		male	0.08	-0.24*	-0.01	-0.03	0.02	0.02
	Agreeableness	female	0.15	-0.04	0.19	-0.12	0.170	0.01
		male	-0.10	-0.090	0.19	0.11	0.27*	0.29*
	Conscientiousness	female	-0.26*	-0.02	0.080	0.18	-0.35*	-0.23*
		Male	-0.29*	-0.06	0.13	-0.08	0.25*	0.25*

Comparison of groups which are high and low in EI based on SXTI-2 Subscales: To assess the discriminant validity of the Anger Inventory, the subjects in the sample group were first sorted on the basis of their score on the Emotional Inventory. Results showed that in both high and low Emotional Intelligence groups there is a significant difference on each of the subscales of State-Trait Inventory. The difference is such that the mean for the four subscales of State Anger, Trait Anger, Expression of Internal Anger, and Expression of

External Anger in the low group is greater than the high group. Also, the mean is greater for the high Emotional Intelligence Group in the two subscales of Control of Internal Anger and Control of external anger.

Reliability

In order to calculate the correlation coefficient for each of the subscales, three methods were used: Cronbach Alpha, Split-Half and test-retest (within a two week interval, and N=60). The results are given in Table 2.

Table 2. Alpha, Split- half and test- retest coefficient for Female and male groups

	Group	Alpha	Split-Half	test-retest
S- ang	Female	0.93	0.89	0.93
	Male	0.92	0.89	0.92
T- ang	Female & Male	0.83	0.76	0.82
AX-I	Female & Male	0.60	0.57	0.58
AX-O	Female & Male	0.73	0.70	0.72
AC-I	Female & Male	0.89	0.84	0.89
AC-O	Female	0.87	0.84	0.87
	Male	0.87	0.88	0.87

Discussion

The purpose of the present research was to investigate the psychometric properties of State-Trait Anger Expression Inventory. The results indicated sufficient validity of the Anger Inventory and its subscales in both sexes, except for the Expression of Internal Anger, which had relatively low validity in both sex groups. The relatively low validity of the subscale is reported in the study by Mokhtari (2001) and Ramazani and Abdollahi (2006) as well.

The convergent validity evidence shows that the test measures the same characteristics that similar tests evaluate. In order to secure the validity of the State-Trait Anger Inventory, the scale for Over-Controlled Hostility was used. According to theoretical discussions and previous research findings there is a direct relationship between State-Trait Anger Inventory and hostility (Spielberger & London, 1982). The divergent validity evidence shows that the test assesses something different from other tests. It was necessary in this research to make sure that the Anger Inventory assesses anger only and not anything else. Therefore the Happiness Inventory (Argyle et. al. 1989) was used to investigate the divergent validity of State-Trait Anger Inventory. The research findings showed that in both sexes state anger, trait anger, and expression of external anger have reverse relation with happiness and that expression of internal anger has reverse relation with happiness in the female group. These findings are in line with the tenets the of the Happiness Theory as well as with the findings by Van Kleef et. al. (2004) and Denier (2000).

In order to investigate discriminant validity, the Emotional Intelligence Inventory was used. The results show that individuals with low emotional intelligence experience higher state anger and trait anger as compared to individuals with high emotional intelligence, and that they have greater tendency to express internal and external anger. However, individuals with higher emotional intelligence are more successful in controlling their anger, either internal or external, and are more adaptive. These findings are in line with those obtained by Braak Kot, Mayer & Varner (2004), Ramazani & Abdollahi (2006).

The five factor personality inventory was used to obtain further evidence of the construct validity. According to previous findings, some of the elements such as conscientiousness,

agreeableness and openness hold a reverse relationship with anger, whereas other elements such as neuroticism have a direct relation with it (Schmithz & Boesk, 2007). As for the relationship between anger and neuroticism, the findings of the present study are in line with those of previous ones, meaning that a direct relationship is observed between state anger and expression of internal anger, and neuroticism in the female group. This did not however apply to the male group. The findings also showed significant relationship between openness, agreeableness, conscientiousness, and anger. State anger, trait anger, and expression of internal and external anger stand in a reverse relationship with the three elements, namely openness, agreeableness, and conscientiousness, and yet have a direct relationship with controlling internal and external anger.

Another way to check construct validity is factor analysis. In the present study, the results of factor analysis showed that in each section of the State-Trait Anger Inventory the number of extracted factors was equal to the number of specified subscales identified by the test developer. These results were in line with Spielberger's (2009).

A review of all the analyses shows that in most cases the research findings confirm the adequacy of the State-Trait Anger Inventory for assessing anger. Therefore, based on this, it can be concluded that, firstly, Spielberger's State-Trait Anger Inventory has high internal consistency, and accordingly adequate validity, and that secondly, the inventory possesses adequate content, criterion, convergent, divergent, discriminant and construct validity. The Inventory can therefore be used as a reliable and valid instrument for assessing experience, expression, and control of anger in clinical researches and activities.

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