Preliminary Analysis of Psychometric Properties of Speech Anxiety Thoughts Inventory (SATI)

Ali Rezaeisharif[1]*, Husein Taqavi[2], Sevda Barqi[3]

1. Department of Counseling, Faculty of Educational Sciences and Psychology, University of Mohaghegh Ardabili, Ardabil, Iran (rezaiisharif@yahoo.com) (Corresponding Author).
2. Department of Education, Faculty of Educational Sciences and Psychology, University of Mohaghegh Ardabili, Ardabil, Iran.
3. M. A. in General Psychology, Faculty of Literature and Humanities, Islamic Azad University, Ardabil Branch, Ardabil, Iran.

Abstract

This study aimed to evaluate causal explanation of the relationship between emotional expression and marital maladjustment based on the mediating role of empathy among divorce stage couples. This research conducted through a descriptive method and the study design was correlation in the form of path analysis. The statistical population consisted all couples applied for divorce (aged 30-50) who referred to the counseling centers of the Judiciary in Tehran during 2020-2021. The sample size determined 396 cases and selected through convenience sampling method. In order to collect the information, standard questionnaires of marital maladjustment, couple empathy, and emotional expression were used. Data's analyzed in the SPSS 21 and AMOS 24 software's. Data analysis showed the model fit of emotional expression relationship with marital maladjustment by mediated role of couple's empathy. The model explained about 34% of the variance of marital maladjustment in divorce applicants. Based on these findings, it can be said that the relationship between marital maladjustment and emotional expression is not a direct relationship and factors such as marital empathy can strengthen or weaken this relationship, so in trainings related to emotional expression, it is suggested to consider these variables.

Keywords: Reliability, Speech anxiety, Students, Validity.

Introduction

In our lives, there are times when we should talk about something in the presence of a few people. It may be a meeting or conference that is official and it is also possible to talk to friends or colleagues in a family or work environment. Lecture in the community means that you have several listeners who often listen to every single word. That's why it's important not to make mistakes while you talk, and this may be anxious for people and they prefer to keep away from the attempt to speak (Yaman & Demirtas, 2014; Witt et al., 2006). Many people talk very easily, but when they are called for speech, they are afraid (Brader, Valentino & Suhay, 2008).

Speech has relatively complex aspects that comprised of 4 elements as visual behavior, voice, language and mental strength. On the basis of visual and aural elements, there are mental processes that give meaning to these elements and has cognitive, emotional, physiological, and behavioral dimensions (Yaman & Demirtas, 2014) which is reflected in the physiological changes of the speaker such as having shaky hands, avoiding direct eye contact with the individuals in the audience, rapid and frequent breathing, flushing of the face and neck and reduction of alpha wave activity of the brain (Dincer, ozcelik, ozer & bahcecik, 2020). These changes are indicative of the phenomenon of anxiety, and specifically social anxiety. Social anxiety disorder is characterized by an exaggerated fear of negative social oudgment and involves selective attention concerning social judgment. Research and theories of social anxiety disorder have emphasized the causal, maintenance, and exacerbation roles of the biased attentional processing toward negative social cues. Meanwhile, the attentional avoidance of salient social stimuli is also assumed to be a maladaptive controlled strategy for emotion regulation that may paradoxically maintain anxiety (Lina, Qian, Heb,Wena & Lia, 2019).

Anxiety is an alert and it means that the person is aware that there is a danger in the way that he or she can take action to deal with the danger (Sadock, Sadock, & Ruiz, 2015). Anxiety is a condition that is characterized by a sense of panic and accompanied by physical symptoms indicative of an increase in the activity of the auto nerve system (such as heart palpitations and sweating). Anxiety affects cognitive function and causes perceptual distortions (Sadock, Sadock, & Ruiz, 2015). Anxiety disorders are one of the most common and destructive psychiatric disorders in children and adolescents, which affects different aspects of life, relationships with peers and academic performance (Smith, Flannery-Schroeder, Gorman & Cook, 2014).

Anxiety disorders directly and indirectly affect economic burden and social costs (Moller, Nikolić, Majdandžić, & Bögels, 2016). Also anxiety is a part of every human being's life, in a modest degree in all people and, to that extent, is considered as an agreed response, it can be argued that anxiety at times creates creativity in individuals, enabling situations to be visualized and dominated, or that it provokes them to take seriously an important responsibility such as preparing for a test or accepting a social task (Sadock, Sadock & Ruiz, 2015). In the context of Vygotsky's speech and conversation (Miller & Cohen, 2002), it is believed that language plays a fundamental role in shaping the great processes of mind. According to Vygotsky, the word and thought come from two separate

germinal origins and they will be merged over the course of various paths. Subsequently, thought is expressed verbally, and ideas are formed by the help of words. Vygotsky has proposed three stages for the growth of speech; in the first place, social speech is the function of private speech to control the behavior of others and to express some inaccessible concepts. In the second phase of self-centered speech, the individual tries to regulate and direct his performance through private speech, and finally the third stage, the inner stage of the child's speech through the subtle-inner word, directs his thoughts and behavior (Jones, 2009). Despite the reported evidence about the importance of evaluating the psychological function in speech anxiety, quantitative tools are available to review and evaluate the cognitive properties of speech anxiety related issues and the available tools also have significant limitations (Cho, Smith & Telch, 2004). As Powell and DiMaggio (2012) reported in their review that the fear of talking to the crowd has been used extensively, but there are few items in the person's report of his self-confidence as a speaker that cognitive aspects of anxiety are spoken in sum (McNeil, Ries, & Turk, 1995). However, few instruments are currently available to assess cognitive contents associated with speech anxiety. This study investigates the psychometric properties of Speech Anxiety Inventory (SATI). We know that a combination of genetic vulnerability and certain parenting behaviors increase the risk of developing an anxiety disorder (Murray, Creswell, & Cooper, 2009). Sadataian (2013) in a research in Iran Showed that training anxiety in speech has a negative and significant effect on the learning of foreign languages. Accordingly, it is important to construct and design or standardize the tools that can measure this anxiety in individuals. Subon (2013) explores the gender differences in the use of linguistic forms in the speeches of men and women in Malaysia. The results showed that there is a significant difference between linguistic forms in men's and women's speeches, so that women focus more on talking about doing things, family, home, self, emotions and affiliation with others, and more polite than men they are. Lihui (2016), in a research aimed at reducing the general anxiety disorder by speaking through speech synthesis, the reliability of this questionnaire through Cronbach's alpha for the whole questionnaire was 0.88 and for predictors of poor performance 0.89 and fear of negative evaluation of listeners 80% reported.

Georgi and Rajan (2016) in their research reported the reliability of this questionnaire through Cronbach's alpha for the entire 83.5 questionnaire. Yan and Horwitz (2008) studied the relationship between lecture anxiety and parenting style. The results showed that the correlation between speech anxiety and perfectionism is significant. Among the components of mother's parenting style, only correlation of subscales of dependence with lecture anxiety was significant. The rest of the subscales are not significantly correlated with lecture anxiety. Among the components of parenting style, correlation of distress, dependency, vulnerability to harm or negative subscales were significant with lecture anxiety. The rest of the subscales did not have a significant correlation with lecture anxiety. The results also showed that perfectionism and vulnerability indices against loss or damage, distrust, stubborn standards and abandonment can predict students' speech anxiety and none of the components of parenting style can predict the anxiety of the speech. Due to the lack of appropriate research tools in this field in Iran, it is important to construct and design or standardize the tools that can measure this anxiety in individuals.

Therefore, the high prevalence of this problem shows the importance and necessity of any research in this regard. Therefore, according to the above mentioned issues, the present study was an attempt to answer the basic question of how the psychometric properties of Speech Anxiety Inventory in Iran are. The ability to detect people's speech anxiety thoughts can be a factor for identifying the causes and, therefore, providing solutions to reduce this problem. So, doing any research in this area is important. Finally, considering that such tool has not been considered in our country and has not been validated, this research is very much considered and the results can be used as a guide for future studies. In addition, the results of this study can be used by psychologists, counselors and therapists.

Therefore, the present study was carried out with due regard to the importance and necessities expressed with the aim of evaluating the psychometric properties of speech anxiety inventory. One of the questionnaires designed to investigate speech anxiety is Cho and colleagues' questionnaire (2004). The questionnaire has 23 items and two components of prediction of poor performance and fear of negative evaluation, which was developed in 2004 by Cho and colleagues (2004). Cho et al. (2004) used a self-explanatory scale during the SSPS in assessing the psychometric properties of the questionnaire. This scale has five negative modes and five positive states that include psychological functions related to speaking. Most items come from self-explanatory tests of social interaction (Hoffman & Dibartulo, 2000). The most important limitation of this scale is the inadequate coverage of the entire range of cognitive features related to interaction and interaction with the opposite sex. Additionally, the SAATQ questionnaires, which consisted of 32 items, were obtained from reported thoughts of social anxiety cases and university students who were not anxious. Respondents in this questionnaire ranked the occurrence of these thoughts with a value of 1 (never) to 5 (most often) (Cho, Y. Won, H. & Pyo, K., 2001). However, the use of this tool is limited because it was a Korean version and was not translated into English. Cho et al. (2004) investigated the psychometric properties of Speech Anxiety Inventory. They surveyed this questionnaire in three studies. According to the results of study 1, two factor solutions were identified by factor analysis on the speech anxiety thoughts questionnaire: "poor performance prediction" and "fear of negative evaluation of the audience". In Study 2, the two-factor structure has been replaced. In addition, the results were stable over a four-week period, with a high internal stability and a good reputation. In study 3 (Cho et al., 2004), sensitivity to change after exposure to short-term therapies has been studied. These findings suggest that SATI is a reliable and reliable scale for evaluating the characteristics of individual's psychological performance toward speech anxiety.

Methods

The methodology of this research was Descriptive correlation. The population of this study included all students of Azad University of Ardabil whose statistics were based on the Deputy of the Azad University of Ardabil, about 12,000 people.In order to determine the sample volume, 'the ratio of sample volume to the number of variables' method in factor analysis studies was employed (5 to 10 cases for each variable), which the

respective ratio is within the limits in this study. 300 students (165 females and 135 males) were selected through random sampling and responded to the questionnaire. Data collection in this study was done by Speech Anxiety Thoughts Inventory (SATI).

This scale was prepared and validated by Cho, Smith and Telch (2004). Cho, Smith, and Telch (2004) developed a 34-item questionnaire based on studies by Cho and Kim (1999) on 35 patients with social phobias and Cho (2001) studies on thoughts reported by 140 undergraduate students while imagining a public speaking situation. The articles of this scale assess thoughts related to public speaking. At this scale, respondents are asked to read each phrase carefully and rate their belief in each phrase in a range of 1 to 5.

Cho, Smith, and Telch (2004) collected data from three hundred and sixty-one psychology students in Texas university to evaluate the scale's psychometric properties and judged the validity of the items and the scale as a whole based on factor analysis and internal consistency. The principal axis method was used to factor the 34 elements. Although five factors with more than one eigenvalue were detected, Scree plot and model interpretability revealed that the data best fit a two-factor model. In sum, the first two factors accounted for 49.04% of the total variance. After that, the items underwent oblique rotation (delta = 0), where the final scale was purged of 11 elements with almost equal loads on two factors. The size of obliqueness was determined empirically by considering the correlation between factors. The remaining 23 scale factors were calculated using the principal axis approach with oblique rotation (delta = 0).The two-factor model was repeated with a total of 23 elements. The eigenvalues of factors I and II, respectively, were 9.81 and 1.99, accounting for 51.30% variance. The two factors exhibited a 0.64 correlation coefficient. A "poor performance prediction" was found in 13 of the first factor's elements. The second factor included ten items representing "fear of negative audience evaluation."

The adjusted item-total correlations varied between 0.51 to 0.70 (all PS<0.001), confirming adequate validity. Internal consistency was strong concerning Total scale (α=0.94), along with Subscales 1 and 2 (α=0.91 and 0.89, respectively).

SATI translated into Persian under the supervision of experts who were faculty members of Education and Psychology department at Azad University of Ardabil. Then its content validity was assessed by the professors of the education department of the Islamic Azad University of Ardabil and university of Mohaghegh Ardabili (UMA). Then, with the obtaining of necessary permissions and coordination, university was visited and then students were selected and the research goals were explained to them. Finally, the questionnaires were collected and analyzed by SPSS and LISREL software using methods such as Cronbach's alpha, correlation, t-test, ANOVA and confirmatory factor analysis.

Results

In Table 1, shows the frequency distribution of the subjects is presented.

Table1. Distribution of respondent'sdemographic characteristics

Demographic variables	Male		Female	
	frequency	percentage	frequency	percentage
Age				
<24	64	38.49	72	53.3
24-28	58	15.35	44	32.59
29-33	22	13.33	13	9.62
33<	21	13.07	6	4.46
single	114	69.09	79	58.52
married	51	30.91	56	41.48
BSc/B.A	27	16.36	14	10.37
MSc/M.A	104	63/03	94	69.63
PhD.	34	20.61	27	20
Total	165	55	135	45

According to Table 1, most of the participants in the study, aged 24 to 28, were single and male, and most of them were studying for a master's degree.

Table 2 shows the performance of men and women in the variables of the anxiety scale in speech. Briefly describe the table.

Table2. Performance of men and women in anxiety scale

Subscale	Low performance		Fear of negative evaluation		Total	
Gender	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Variance	21.085	12.57	6.76	4.849	35.22	25.18
Skewness	1.27	1.34	1.75	1.96	2.21	1.84
Kurtesis	1.97	1.24	1.31	1.45	1.43	1.39

According to Table 2, most of the participants in the study, aged 24 to 28, were single and male, and most of them were studying for a master's degree. On the other hand, the kurtosis values for the scale and subscales are between 1.27 and 2.21, and the skewness values are between 1.21 and 1.97. This indicates that the variable distribution is close to symmetrical normal distribution.

Table 3 shows the mean and standard deviation of speech anxiety scale items. Briefly describe the table.

Table 3. Mean and standard deviation of speech anxiety scale

Num	Items	M	S.D
1	I'll get tongue-tied.	1.25	0.438
2	My speech won't impress the audience.	1.37	0.485
3	My speech will be incoherent.	1.53	0.499
4	I won't be able to speak as well as others.	1.59	0.491
5	When others are not paying attention to my speech, I worry that the audience is thinking poorly of me.	1.13	0.693

Num	Items	M	S.D
6	If I perform poorly, then the audience will remember me negatively.	1.75	1.816
7	It would be terrible if my voice will tremble.	1.16	0.373
8	If I make a mistake, the audience will think I'm stupid.	1.68	1.219
9	If I am anxious in this situation, the audience will not like me.	1.53	1.23
10	I won't know what to say when I'm called on to make a speech.	1.22	0.414
11	If I don't speak well, the audience will reject me.	1.58	0.494
12	What I say will sound stupid.	1.58	1.337
13	It would be terrible if others think I'm not intelligent.	1.33	1.339
14	It would be terrible if I make a mistake during my speech.	1.25	0.433
15	I will not be able to control my anxiety.	1.24	0.427
16	It would be terrible if people notice that I'm anxious.	1.22	0.417
17	My behavior will appear awkward to the audience.	1.54	0.499
18	I will be unable to give a good speech.	1.23	0.425
19	I won't be able to complete my speech.	1.28	0.452
20	My mind will go blank.	1.42	0.495
21	I must deliver a good speech in order to gain approval from the audience.	1.12	0.639
22	I worry that I will be asked to give a speech.	1.24	0.427
23	I won'tbe able to answer questions from the audience.	1.20	0.403

In response to the first question of the present research, is the anxiety inventory sufficiently valid or not? Two methods of internal consistency and re-test were used to assess validity. In Table 4, the results are examined. In order to estimate the internal consistency in this study, Cronbach's alpha method was used.

Table 4. The coefficient (Chronbach's Alpha) of scale and subscales

Scale and Subscales	Cronbach's alpha
Scale	0.84
peroormance Low	0.86
Fear of negative evaluatoin	0.81

As shown in Table 4, the coefficient of validity of the test for the whole test was 0.84 and for the poor performance subscale and the fear of negative evaluation, respectively, was 0.86 and 0.81 respectively. Also, in order to verify the reliability of the Scale, the questionnaire was administered to 50 subjects with a one-week interval and the correlation between the two-run scores was calculated. The results are presented in Table 5.

Table5. Pre- and post-treatment means, standard deviations, and r^{xy} value for the treatment outcome measures

Scale and subscales	r	First		Second	
verbal anxiety inventory	0.83	**M**	**SD**	**M**	**SD**
		29.85	5.824	28.13	4.97
Low performance	0.76	17.63	2.269	16.32	1.43
Fear of negative evaluation	0.88	19.73	3.461	17.47	2.69

As shown in Table 5, the openness coefficient for the scale was 0.83 and for the poor performance subscales and the fear for negative evaluation were 0.76 and 0.88, respectively. These coefficients represent the stability of scores of spoken anxiety scales over time. In response to the second question, the research was conducted to determine whether the verbal anxiety inventory had sufficient validity? To determine the functional structure of spoken anxiety scale in Iranian society, confirmatory factor analysis was used. Structural validity of this questionnaire was done through confirmatory factor analysis using LISREL 8/8 software. For fitting the model, these indices were used: Chi square index (χ^2), chi-square / degree of freedom($\chi 2$ /df), goodness of fit index (GFI), adjusted goodness-of-fit index(AGFI), comparative fit index(CFI), root mean square error of approximation (RMSEA) and root mean square residual(RMR). The results are presented in Table 6.

Table 6. Indices for factor analysis

χ^2	χ^2/df	GFI	AGFI	CFI	RMSEA	RMR
361.24	2.12	0.96	0.93	0.94	0.05	0.031

As shown in Table 6, all fitting indices are at a relatively good level. If the Xi square is not statistically significant, this indicates that the model is fit for fit, but this indicator is often significant in samples larger than 100, so it is not a reliable criterion for assessing the fit of the model. The degree of freedom between 1 and 3 represents a good fit of the model. If the GFI, AGFI, CFI indexes greater than 0.90, and the RMSEA and RMR indices are less than 0.05, then the fit is appropriate for the model. In this research, fit indices are at a relatively desirable level and therefore the speech anxiety inventory has a desirable validity. In the following, a standard model of verifiable anxiety inventory verification is verified.

In order to compare the total score of speech anxiety and its subscales among male and female students, independent t-test and one-way analysis of variance were used. The results are presented in Table 7.

Table 7. Level of speech anxiety in men and women

Gender	F	M		SD	df	T	P
Male	165	32.643	.463	5.93	295	2.81	0.00
Female	135	28.296	.335	4/01			

The results of Table 7 indicate that the level of speech anxiety in men (mean = 29.64) was significantly higher than speech anxiety in women (28.29) (p <0.01 and t = 2.81). Table 8 shows the mean of men and women in poor performance and fear of negative evaluation.
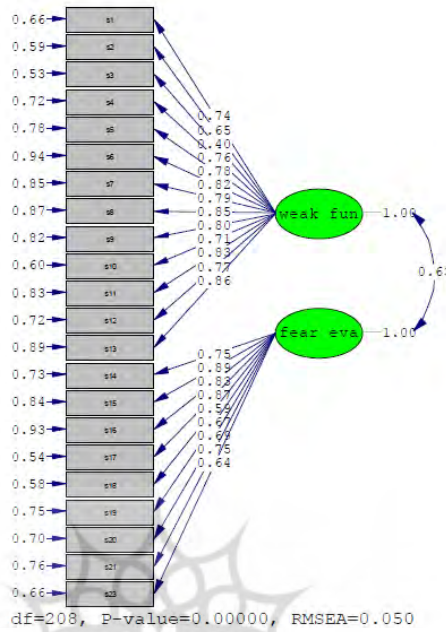
Chi-Square=361.24, df=208, P-value=0.00000, RMSEA=0.050

Figure1. Standard Model of Confirmatory Factor Analysis of Speech Anxiety Questionnaire

Table 8. Mean and standard deviation in men and women in speech anxiety

Subscales	Gender	N	M	SD	F	P
Low perocrmance	Male	165	18.96	4.59	1.295	0.008
	Female	135	18.03	3.54		
Fear of negative evaluaton	Male	165	13.36	2.60	1.295	0.001

As shown in Table 8, men's group has high speech anxiety in comparison with women in poor performance subscale and fear of negative evaluation.

Discussion

The correct diagnosis is the initial stage of the work of every profession. There are various tools available that could be used to perform to identify diagnosis within the capacity of the professional work and treatment; one of the most common and most well-known methods is using questionnaires. Considering Due to the importance of the use of questionnaires in diagnosing and helping treatment, we have decided to translate and standardize one of the important diagnostic tools called Speech Anxiety Thoughts Inventory (SATI) in this article. The aim of this study was to investigate the psychometric properties of the Speech Anxiety Inventory. The findings of this study indicated that this scale generally has internal consistency and validity. The results of these findings are consistent with the previous researches done by Cho et al (2004), Lihui (2016), and Georgi and Rajan (2016). The findings of this study indicated that the Persian version of

this scale has a good standard level of reliability and can be used to test speech anxiety. Furthermore, there was also a difference observed between men and women in speech anxiety. Speech anxiety in men was significantly higher than it is in women, which is consistent with Subon's research (2013). As we know, according to the existing literature on the matter, women are often superior to men verbally in their capacities, and this can be the reason which could account for women's low lower anxiety over men. Such difference could be explained through the difference in the physiological system of men and women. So, that the women's brain cortex is 15 to 20 times larger than the men's brain cortex. This part of the brain is responsible for basic functions such as speech, movement, and inference deduction, and emotion (James & Dracik, 1993).

One of the important limitations of this research was that, given the fact that the scale has taken place was conducted on a group of students in a particular geographic region, it is better to use caution must be taken while using this tool in future researches. In line with this issue, the participants in the present study are mostly from Ardabil and other cities where their native language is Turkish, but Persian is the language they are taught to use in universities and official capacities, this issue itself can create speech anxiety for the students; this is a phenomenon called linguistic distance (Lina, Qian, Heb ,Wena & Lia, 2019). It is better to consider the use of the questionnaire employed by other researchers on samples and other populations and to test it on different regions of our country. Therefore, in order to examine whether the test can be applied in other situations or not, it should be conducted on student groups enjoying different characteristics. Despite such limitations, this test is mostly valid for measuring speech anxiety among students and can help the identifying some speech-related problems. After several studies, If doing further research on different populations and evaluation of the psychometric properties of this tool approved and the test still exhibits its validity of this scale, then it can be relied on as a powerful tool for this scale measuring the aforementioned property. Therefore, it can assist counselors, training leaders, and other individuals in charge for identifying methods, guidelines, and designing effective interventions to reduce this problem among the students.

Conclusion

The findings of the present study indicate the validity and reliability of the questionnaire. Therefore, it can be used for research and practical matters, interventions, and clinics. From a research perspective, it can be used to examine this type of anxiety among different social groups. In addition, it can be used in experimental research and correlation studies in which speech anxiety is considered a moderating and mediating variable, predictor, or criterion. It can also test existing cognitive models of public speech anxiety and help to refine new theories. Practically and clinically, the scale can assist training leaders, counselors, and psychologists for identifying target groups, planning treatment for them, performing treatment interventions, and tracking the recovery of people who have social phobia.

Disclosure Statements

ORCID

Ali Rezaei Sharif: 0000-0003-3502-8575

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