

Social anxiety prediction pattern with regard to cognitive behavioral factors

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Abstract

Social anxiety is one of the most debilitating anxiety disorders that can negatively affect all aspects of a person's life. Yet, despite the fact that its prevalence rates are relatively high, factors associated with it are still poorly understood. The study aimed at determining the prediction model of social anxiety through investigating variables like: depression, shame, behavioral inhibition, shyness, and anger as predictors of social anxiety. The study applied a correlative method and a Sample of 581 participants (235 males and 346 females) selected through Cluster Sampling from among Shahed University students. Data were collected through Social Fobia Inventory, Revised Check and Buss Shyness Scale, The third Scale of Adult Self-Conscious Affection, Carver and White Behavioral Activation/Inhibition System Scale, Depression Anxiety Stress Scale-21 and the State-Trait Anger Expression Inventory-2. Data were then analyzed using Pearson correlation coefficient and Simultaneous Multiple Regression Analysis in SPSS-16 software. All variables were significantly correlated with social anxiety. Simultaneous multiple regression analysis suggested that with the exception of anger which cannot predict social anxiety, other studied variables (depression, shame, behavioral inhibition, and shyness) can predict social anxiety. Although part of the obtained results are in line with other research findings, the rest should be encountered carefully and more cross-cultural and inter-cultural research can help scrutinize the findings.

Keywords: Anger, Anxiety, Behavioral, Depress, Shame, Shyness

Introduction

Social anxiety disorder or social phobia is recognized by the evident fear of one or more social situations in which sufferers think that their actions and behavior are negatively judged by others, so that, it is accompanied with the fear of being embarrassed in social situations and subsequently avoiding these situations [1]. Moreover, the prevalence of the disorder in the general population during the lifetime has been reported as 2.4-16%.

Therefore, social anxiety disorder is one of the three common psychological disorders after major depression and alcoholism [2]. Given that the human being is considered as a biological, psychological, and social gestalt, the mechanism of the disorder in these areas has been the focus of scholars' attention [3]. In this regard, numerous patterns have been introduced for examining the influential factors and the range of factors correlated

with social anxiety disorder. In 1990 decade, two cognitive behavioral patterns, Clark and Wells [4] and Rapee and Heimberg [5], in the area of social anxiety disorder were developed, which have been considered as the basis for studies examining etiology of social anxiety disorder. However, it seems that cognitive behavioral factors are diverse and complex due to the heterogeneous symptomatic profile and generally, inadequate understanding of the causes of anxiety disorders [6]. Studies have shown that different genetic factors, personality traits, and cognitive behavioral factors are influential in social anxiety disorder and have paid attention to the outcome of these factors in prediction of the incidence and intensity of the disorder [7]. In this respect, social anxiety disorder can be better understood if it is regarded as a continuum of intensity rather than as a discontinuous disorder and based on contract threshold because deficiencies grow with increased frightening situations [7]. With regard to the above view, Rapee and Spence [8] introduced their etiological model considering the continuum view toward social anxiety disorder.

Behavioral inhibition is one of the factors researchers have introduced into etiology of social anxiety disorder that probably has a biological foundation and is considered as a pattern of responding or behaving shown by individuals in unfamiliar situation that they are helpless and distress [9]. This characteristic is rather congenital and is relatively constant during childhood and adolescence as Kimbrel [10] believes that behavioral inhibition is an important risk factor in incidence of social anxiety disorder. Shyness is another variable which indicates the genetic readiness for social anxiety disorder. The exact correlation between shyness and social anxiety disorder leads to similarities between shy people and patients

with social anxiety disorder [11]. Furthermore, studies show a relationship between feeling of anger toward others and perception of this anger as a pathological variable in social anxiety disorder. In those few studies, social anxiety disorder showed a positive correlation with anger and patients had higher levels of anger than those in the control group [12 & 13].

The results of the studies also introduced the major depression disorder (MDD) as the most prevalent mood disorder accompanied with social anxiety disorder [6]. Hence, studies showed that Comorbidity of social anxiety disorder and MDD has been associated with a two-fold increased risk of alcohol dependence, and an increased risk of suicide attempts leading to hospitalization [14]. Moreover, examining the factors affecting social anxiety disorder indicates that shame as a pathological variable also correlates with social anxiety. In this regard, Gilbert and Mills [15] found that feeling of social anxiety correlates with depression and high levels of shame. While expressing chain-like continuity of social anxiety with shame, Michael and Birchwood [16] explained that cognitive factors of shame may be modified by treatments used for social anxiety. The results of the studies show that social anxiety has severe negative impacts on mental, personal, and social health of patients and thus, they demand more medical service and are likely to become dependent on the social service [17].

The present study was conducted considering temperamental and environmental etiologies and emphasizing the quantitative approach toward social phobia. Given that each of the mentioned factors have been examined alone in studies and no study was found to examine all those factors together in relation to social anxiety disorder, the present study tried to determine the weight of each variable in the

model of social anxiety prediction through modeling factors predicting social anxiety. In this respect, this study examined the correlation of depression, shame, behavioral inhibition, shyness, and anger with social anxiety for the purpose of determining the weight of these factors in predicting social anxiety among nonclinical population of students.

Method

In this correlational study, the statistical population involved all the female and male undergraduate students (more than 5735 students) studying in the departments of Humanities, Medicine, Agricultural Sciences, Art, Basic Sciences, and Technical Engineering in Shahed University of Tehran, in the academic year 2009-2010. The correlational studies on social anxiety and the populations similar to that of this study indicated various samples that regarding related studies including Kashdan et al. [17], John et al. [18], and Dalrimple et al. [19], 581 students of the population of this study were invited to complete the questionnaires using cluster sampling method and considering the fallout rate. In each department, three schools were randomly selected and three classes were randomly selected from the departments. The following instruments were used to collect the data of the present study:

1. Social phobia inventory (SPIN): The instrument was first introduced by Kanor et al. [20] to assess the social anxiety. It is a 17-item self-assessment scale which is scored with five-point Likert scale. Hassanvand Amouzadeh et al. [21] found the validity and reliability of the scale suitable for a nonclinical sample in Iran. In the present study, after the final performance on the entire sample (581 students), the Cronbach's alpha for the subscales of the social phobia inventory was obtained as 0.79-0.85 which

showed the favorable internal consistency of the inventory.

2. The revised Cheek and Buss shyness scale (RCBS) [22]: The scale consists of 14 items which are answered based on Likert style. In his study, Vahidi [23] confirmed the psychometric properties of the scale. In the present study, after the final performance on the entire sample (581 students), the Cronbach's alpha for RCBS scale was obtained as 0.86 which shows the favorable internal consistency of the scale.

3. The test of self-conscious affect-3 (TOSCA-3) [24]: The scale involves 16 scenarios which are scored with five-point Likert scale. In Iran, Roshan et al. [25] confirmed the psychometric properties of the scale. In the present study, the subscale of shame was used. After the final performance on the entire sample (581 students), the Cronbach's alpha for the subscale was obtained as 0.76 which shows the favorable internal consistency of the scale.

4. Carver's & White's behavioral activation system/behavioral inhibition system scale (BAS/BIS) [26]: This scale consists of 24 items. Each item of BAS/BIS is scored by a four-point Likert scale. Its psychometric properties have been approved in Iran [27]. In the present study, the subscale of behavioral inhibition (BIS) was used and the Cronbach's alpha for the entire sample (581 students) was obtained as 0.76 which indicated the favorable internal consistency of the scale.

5. The state-trait anger expression inventory-2 (STAXI-2) [28]: This scale includes 57 items in three parts of state anger, trait anger, and anger expression and anger control. In this study, the third part of the STAXI-2 scale, which has 32 items and assesses the anger expression and anger control with the four-point Likert scale, was used. In non-Iranian samples, STAXI-2 showed favorable psychometric properties. In Iranian sample, Asghari et al. [29] confirmed the

psychometric properties of the inventory. The Cronbach's alpha of the third part of the STAXI-2 scale for the entire sample (581 students) was obtained as 0.88 which indicated the favorable internal consistency of the scale.

6. Depression, anxiety, and stress scales (DASS-21) [30]: This scale measures three subscales of depression, anxiety, and stress using the four-point Likert scale. Each subscale has 7 items. Various studies showed that DASS has favorable psychometric properties in Iranian and foreign samples [30 & 31]. In the present study, the subscale of depression was used and the Cronbach's alpha for the sample (581 students) was obtained as 0.92 which indicates the favorable internal consistency of the scale.

In order to perform the study, first, necessary instruments were prepared and then, sampling was done. The selected students were requested to complete the consent form and to participate in the study if they were willing to. The questionnaires were given to the selected samples and some information on how to complete the questionnaires were offered to them. Finally, the required data were analyzed using SPSS16 software. Analysis of the data was performed using descriptive statistics (mean and standard deviation), Pearson correlation coefficient with significance level $P<0.001$, and simultaneous regression analysis.

Results

The results showed that the number of men and women was 236 and 335, respectively. The mean age of men and women was 23.84 (± 3.7) and 23.72 (± 2.3), respectively. Central tendency and dispersion measures of the studied variables are shown in Table 1. Moreover, the correlation between variables is shown in Table 2.

Table 1 The descriptive measure of the variables for all samples

Variable	Mean	Standard deviation
Social anxiety	15.98	10.01
Depression	5.80	4.44
Shame	41.76	9.62
Behavioral inhibition	15.58	4.26
Shyness	29.68	7.89
Anger	73.93	9.03

Table 2 The results of Pearson correlation between variables

Measure	Correlation coefficient	P
Depression	0.354	0.001
Shame	0.357	0.001
Behavioral inhibition	0.376	0.001
Shyness	0.698	0.001
Anger	0.175	0.001

* $P<0.001$

As shown in Table 2, the correlation of social anxiety with depression, shame, behavioral inhibition, shyness, and anger in the samples were obtained as 0.354, 0.357, 0.376, 0.698, and 0.157, respectively, at the significance level $P<0.001$. In this respect, there is a significant positive correlation between social anxiety and the studied variables.

Before examining the variables with the correlation equation, the possibility of multicollinearity between predictor variables was determined. Considering that none of the correlation coefficients was higher than 0.70, there was no possibility of multicollinearity [32].

Therefore, the effect of depression, shame, behavioral inhibition, shyness, and anger as predictor variables and social anxiety as the criterion variable was determined using regression equation and the results are shown in Table 3.

Table 3 shows that the F obtained by ANOVA and regression statistical measures for the five variables of the study was significant compared to the critical values ($F=127.357$, $P<0.001$). Thus, the regression of predictor variable scores (depression, shame, behavioral inhibition, shyness, and anger) toward the criterion variable (social anxiety) was statistically significant ($P<0.001$).

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Table 3 ANOVA related to regression of various variables and social anxiety in all samples

Model	Changes	Degree of freedom	Total square	Mean square	F	R	R ²	R ² Adjust	Significance level
Simultaneous	Regression	5	30561.498	61112.24	127.357	0.725	0.525	0.521	0.001
	Remaining	575	27596.05	47.993					
	Total	580	58157.539						

Furthermore, the R² value showed that the predictor variables in combination can predict 52.5% of the changes in the criterion variable. Moreover, if the results obtained from the studied sample are generalized over the major population, the predictor variables will be able to account for 52.1% of social anxiety variance (R^2 Adjust=0.521). Regarding β coefficients in Table 4, it is evident that if the results are generalized over the studied population, the weight of depression, shame, behavioral inhibition, and shyness would comprise β coefficients 0.112, 0.066, 0.130, and 0.595, respectively, which shows a

significant positive correlation between these variables and social anxiety. However, the anger variable with β coefficient -0.012 has no significant correlation with social anxiety. The participation level of variables in accounting for social anxiety variance was shyness, behavioral inhibition, depression, and shame, respectively. With regard to the foregoing, the formula for predicting social anxiety on the basis of the predictor variables is as follow:

$$0.755 \text{ (shyness)} + 0.306 \text{ (shame)} + 0.251 \text{ (depression)} - 15.081 = \text{social anxiety}$$

Table 4 The results of simultaneous multiple regression for all samples

Variable	B	SEB	B	t	Significance level
Constant value of the model	-15.081	1.758		-8.579	0.001
Depression	0.251	0.072	0.112	3.487	0.001*
Shame	0.069	0.034	0.066	2.034	0.042*
Behavioral inhibition	0.306	0.074	0.130	4.130	0.001*
Shyness	0.755	0.041	0.595	18.244	0.001*
Anger	-0.011	0.029	0.012	-0.385	0.70

Discussion

The results showed that there was a correlation between social anxiety and depression, shame, behavioral inhibition, shyness, and anger. Simultaneous entry of predictor variables into the regression analysis showed that anger had a negative correlation with social anxiety and other predictor variables had a positive correlation with social anxiety. All the variables, except the anger variable, can account for 52.5% of social anxiety variance ($R^2=0.525$). Similar to other studies [14] on the correlation between depression and social anxiety, this study also showed a significant correlation between these two variables ($r=0.35$). Unlike the study

by Waugh et al. (2012), the obtained result indicated a poor correlation between depression and social anxiety [33].

The present study indicated a significant positive correlation between shame and social anxiety, which agrees with the results obtained by Michail and Birchwood (2012) [34]. Studies that dealt with the correlation between shame and social anxiety usually reported a poor correlation between these variables [35]. The present study also showed a poor correlation between shame and social anxiety. Furthermore, the significant correlation between behavioral inhibition and social anxiety was proved in this study. The

result conforms to the results obtained by Kimbrel (2008) [10]. This temperamental component has become the focus of attention as a possible predisposing factor in clinical depression. In this respect, it seems that behavioral inhibition is a serious ground for development of social anxiety disorder.

In conformity to the dominant view about the correlation between shyness and social anxiety [36], the present study showed a significant correlation between these variables ($r=0.698$). Besides this prediction model, the weight of shyness was higher than that of other variables. In this study, the anger variable had a significant positive correlation with social anxiety that agrees to the result obtained by Breen and Kashdan (2011) [37]. Studies that examined the correlation between anger and social anxiety usually reported a poor correlation between these variables [12]. This study also showed a poor correlation between social anxiety and anger.

When putting the prediction model variables of this study alongside each other regarding their own weight in the model, it seems that their order of weight agrees with that of the model introduced by Rapee and Spence [8]. Rapee and Spence's model is the only model for social anxiety disorder that implies the continuum of social anxiety. The foundation of the present study was also established considering the spectral and dimensional view toward social anxiety. Rapee and Spence [8] believe that the social anxiety disorder in most people has an intertwined foundation of two or more genetic factors which, in combination with environmental factors, lead individuals to a certain level of social anxiety. An obtained result which was inconsistent with the results of the previous studies was the lower weight of behavioral inhibition in social anxiety. In accounting for the immediate result and regarding a study by Taherifar et al. [38], it must be mentioned that as the behavioral inhibition increases the risk of having a variety of internalized disorders like anxiety and it is also an underlying factor of many disorders (including social anxiety) [39], it can be argued that behavioral inhibition acts as a general vulnerability factor (not specific) in social anxiety [40].

Conclusion

Regardless of the studies that examined the correlation between other kinds of variables and social anxiety, the present study is noticeable due to the numerous variables examined and the efforts to determine the role of those variables in predicting social anxiety. However, it must be considered that there are variables whose role has not yet been examined in social anxiety regarding the specifications of Iranian culture. The present study focused only on a sample from Shahed University of Tehran, so that, there was a limitation on sample selection due to special group of people, the specific age range, certain education, and so forth. Thus, the generalization of the results over the society would be limited. Moreover, the instruments used in the study, though scientific, might have limitations for assessing the variables, especially the criterion variable, that is, social anxiety, which more includes a type of symptomlogy. Similar studies are recommended in future on clinical groups in order to be able to compare clinical and nonclinical groups. Due to the prevalence of social anxiety among adolescents, examining pathology of the disorder in adolescents seems necessary. Given that social anxiety as a disorder has a diagnostic criterion in DSM-IV-TR [1], further studies are recommended to clarify the probable limitations arising from assessment of social anxiety symptoms by instruments measuring the disorder (especially for clinical groups) through emphasizing on diagnostic interview. Considering the results related to the variables affecting social anxiety and the role they play in incidence of the disorder, clinicians and health authorities can better understand the nature of the disorder and reduce its symptoms through focusing on the variables of the present study.

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Contributions

Study design: HAM

Data collection and analysis HAM, SHMR, A MMA

Manuscript preparation, HAM

Conflict of interest

"The authors declare that they have no competing interests."

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