

The relationship between interpersonal cognitive distortions and negative self-image on students' social anxiety

Abstract

The present study evaluated the relationship between interpersonal cognitive distortions and negative self-imageries on the social anxiety of students of Shahid Bahonar University, Kerman. The statistical population of the study included all 17189 students studying in the academic year of 2017-2018. The sample of the study included 376 students selected by cluster random sampling method. They completed Social Phobia Questionnaire, Interpersonal Cognitive Distortions Scale (ICDS), and Negative Self-portrayal Scale. Analysis of Pearson correlation results revealed a significant positive correlation between interpersonal cognitive distortions and social anxiety of students ($r=0.72$). Moreover, a significant positive correlation ($r = 0.68$) was obtained between negative self-imagery and students' social anxiety, which was significant at the level of ($p < 0.05$). Also, to predict the level of students' social anxiety based on interpersonal cognitive distortions and negative self-imagery, regression analysis was performed. The results showed that these two variables predicted 59% of the changes in social anxiety. However, the results revealed that the variable of interpersonal cognitive distortions is a better predictor than negative self-imagery in students' social anxiety.

Keywords: *Social anxiety, Interpersonal cognitive distortions, Negative self-imagery, Kerman*

Tahere Ruzpeikar*

*Master's degree in Psychology,
from Islamic Azad University,
Rafsanjan Branch
tahereh_roozpeikar@yahoo.co
m*

Introduction

Man is a social being. Hence, he or she needs other people to meet his or her needs, especially psychological needs. Being alone and not having any companion is very threatening and can hardly be tolerated for a long time. In other words, there is a need to be acceptable is inherited in humans and the ability to achieve it increases the possibility of their success (Kamberl et al. 2012). Social anxiety and the inability to establish social connections are among the major problems that have an inhibiting effect on the efficiency and dynamism of people. They prevent the flourishing of their talents and intellectual and emotional powers. Social anxiety, as a common and chronic mental disorder, disrupts social relationships. It is caused by the prediction or presence of interpersonal evaluations in real or hypothetical social situations. It is characterized by the experience of stress, distress, and fear in social situations (Bielak and Moskovitch 2013). It affects several aspects of one's life and causes many educational, occupational, and social problems for people (Aderka et al., 2012). The 12-month rate of social anxiety disorder is 7%. Several factors such as genetic factors, environmental factors, past [learning](#), social skills deficiency, and cognitive factors have been proposed in the etiology of social anxiety disorder. However, contemporary theories of social anxiety emphasize the significance of cognitive processes in its persistence (Morrison et al., 2015). Based on this model, social anxiety is a result of bias and cognitive distortions regarding the nature and consequences of social situations (Kuru et al., 2018). These people distort information processing before and after social situations. They also have negative predictions about their future performance by selectively retrieving negative information about themselves and their social performance.

Studies suggest that people with anxiety disorders have more cognitive distortions compared to healthy people (Knappe et al. 2011). The results of a study by Kuru et al. (2018) revealed that people with social anxiety experience more cognitive distortions compared to healthy people. Moreover, these cognitive models have a special emphasis on self-perception as a significant factor in preventing social anxiety disorder. In this regard, negative and distorted self-perceptions play a key role in maintaining and perpetuating this disorder (Ahn and Kwon 2018). Negative self-imageries play a causal role in social anxiety by increasing anxiety and maintaining negative beliefs about appearance characteristics and social function (Makkar & Grisham, 2011). Cognitive and cognitive-behavioral models of social anxiety with different titles implicitly or explicitly emphasize the self as a common component.

1-Worry about social skills and behaviors 2- Worry about observable symptoms of anxiety 3- Worry about physical appearance 4- Worry about personality. However, research on social anxiety has historically focused on people's worries about anxiety skills, behaviors, and symptoms (Atari Fard et al., 2013).

Negative self-imageries interfere with reasoning processes during performing the task and eliminate positive inferences of people with social anxiety during performing the task, and increase their anxiety. The results of a study by Schreiber & Steil (2013) indicate that negative self-imageries predict social anxiety and these concepts have negative impacts on the emotions and social performance of people with social anxiety. Given what was stated above, the problem in establishing social communication is one of the major problems that inhibit the efficiency and dynamism of people and prevents the flourishing of their talents and intellectual and emotional

powers. The most significant issue in trying to solve a problem is correct and comprehensive recognition. Thus, the present study explains the relationship between interpersonal cognitive distortions and negative self-imageries on the social anxiety of Shahid Bahonar University students in Kerman. Accordingly, the present study seeks to answer the question of whether interpersonal cognitive distortions and negative self-imageries are appropriate predictors of students' social anxiety.

Research background

In a study entitled “Examining the role of behavioral inhibition systems and behavioral activation systems (BIS / BAS) in the symptoms of social anxiety disorder given the mediating role of cognitive bias”, Asfour et al. (2017) showed that cognitive bias can play a significant role in the relationship between behavioral brain systems and the social anxiety disorder. In a study entitled “The effect of attention control training on attention bias and anxiety sensitivity of students with a social anxiety disorder”, Abedi et al. (2017) showed that attention control training can reduce attention bias and anxiety sensitivity of students suffering from social anxiety disorder by disrupting cognitive-attention symptoms and strengthening metacognition. In a study entitled “The Role of the Theory of Mind and emotional adequacy in social anxiety symptoms given the mediating role of social competence”, Hashemi, Keshavarz and Khanjani (2017) concluded that not only social anxiety related to deficits in the theory of mind and emotional adequacy but also the effect of these defects are intensified by

affecting social competence. Accordingly, the negative effects of poor functioning of the theory of mind and emotional competence are increased through the defective functioning of social competence and aggravate the symptoms of the disorder. In a study entitled “Cognitive Distortions in Patients with social anxiety disorder: comparison of clinical group and healthy people”, Kuru et al. (2018) research showed that people with social anxiety experience more cognitive distortions compared to healthy people. In a comparative study entitled “Correcting negative self-imageries leads to an increase in the effectiveness of cognitive behavioral therapy for social anxiety”, Jang and Jang (2018) showed that negative and distorted self-imageries play an essential role in maintaining and perpetuating social anxiety disorder.

Theoretical Framework and conceptual model of Research

People with social anxiety disorder primarily focus on their negative aspects when faced with social situations. This problem along with bias and cognitive distortions causes overestimation of negative social consequences, feelings of inability to control emotions, and a negative self-imagery as a social being. Cognitive distortions, along with negative self-imagery, recall a set of cognitive factors and the activation of these factors leads to the intensification of social anxiety and the use of destructive behaviors, such as avoidance behaviors. Then, post-event mental ruminations will recall social anxiety in the future. (Diagram 1)

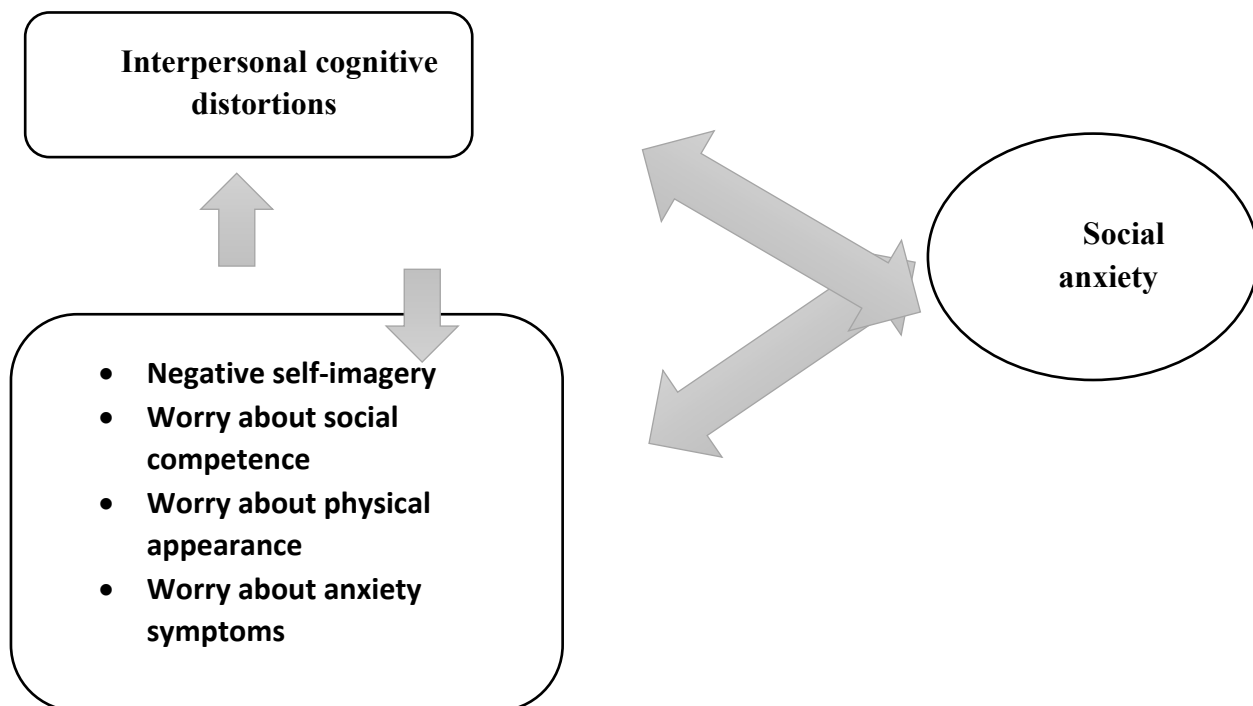


Diagram 1- Conceptual model of the research

Methods

This study was a descriptive correlational design. The statistical population of this study included all 17189 students studying at the Shahid Bahonar University of Kerman. The sample of this study was selected by cluster random sampling method. To obtain the sample size, Cochran's formula was used. The number of samples with an error value of 0.05 was obtained at 376 people. This number is consistent with Krejcie and Morgan's table. In the present study, Connor et al.'s (2000) Social Phobia Questionnaire (2000) was used to measure social anxiety, Hamamci et al.'s (2004) Interpersonal Cognitive Distortions Scale (ICDS) was used to measure cognitive distortions, and Moscovitch and Huyder's (2011) Negative Self-portrayal Scale was used to measure negative self-portrayal.

Research instruments

Social phobia questionnaire: This questionnaire was first developed by Connor et al. (2000) to evaluate social phobia. This questionnaire is a 17-item self-assessment scale that has three subscales: fear (6 items), avoidance (7 items), and physiological discomfort (4 items). Each item or question is scored on a five-point Likert scale (0=not at all, 1=low, 2=moderate, 3=very high, and 4=extremely). Its overall score ranges from 0 to 68. Also, this questionnaire can distinguish the group with a social anxiety disorder from the group without this disorder. Test-retest reliability in groups diagnosed with social anxiety disorder was obtained from 0.78 to 0.89.

Negative Self-Portrayal Scale (NSPS): This scale was developed by Moscovitch and Huyder (2011). It is a 30-item scale in which respondents are asked to answer each item on a scale from 1 to 5. None of the items is scored reversely. The total score is the sum of the scores of all items. Higher scores indicate higher self-portrayal worries. This scale includes three subscales of worry about social competence with 11 questions (24, 23, 21, 20, 19, 18, 17, 14, 12, 10, and 3), worry about physical appearance with 8 questions (27, 26, 22, 13, 11, 9, 5, and 2), and anxiety symptoms with 8 questions (25, 16, 15, 8, 7, 6, 4, and 1). Cronbach's alpha of this whole scale and its

subscales is between 0.85 and 0.93. The test-retest reliability of this whole scale one-week interval was reported at 0.75.

Interpersonal Cognitive Distortions Scale: This scale was developed by Hamamci et al. (2004) to evaluate cognitive distortions in interpersonal relationships based on Aaron T. Beck's cognitive theory. The scale has 19 items, which include three subscales called rejection in interpersonal relationships, unrealistic expectations in relationships, and misunderstanding in interpersonal relationships. Psychometric studies have reported high psychometric quality for this scale. Its reliability has been examined through internal consistency by Cronbach's alpha and test-retest method with a two-week interval. The results showed that Cronbach's alpha coefficient was obtained at 0.67 of the whole scale and its test-retest was obtained at $r=0.74$ and it was reported at 0.7, 0.76, and 0.74 respectively, for its subscales. Its convergent validity was confirmed through correlation with other scales and factor analysis. The correlation of its scores with the irrational beliefs scale, the automatic thoughts scale, and the tendency to conflict scale in interpersonal relationships was obtained as 0.45, 0.53, and 0.53, respectively, which are all significant at the 0.99 confidence level. In Iran, in the study by Azhari and Hashemi et al. (2016), Cronbach's alpha coefficient for the scales of rejection in interpersonal relationships, unrealistic expectations in relationships, and misunderstanding in interpersonal relationships were obtained at 0.83, 0.8, and 0.85, respectively. Finally, to analyze the data, the mean, standard deviation, minimum and maximum scores of the social phobia questionnaire, the interpersonal cognitive bias scale, the negative self-presentation scale and its subscales were proposed using descriptive statistics. Then, using inferential statistics given the measurement variables and the available data for data analysis, the statistical methods of Pearson's correlation coefficient and the scatter diagram were used to determine the relationship between the two variables. Also, the multiple regression method was used to investigate the relationship between the criterion variable and the predictor variables.

Results

Demographic characteristics

Table 1- Demographic characteristics of the subjects

Gender	Sample size	Mean age	Min	Max
Male	166	22	19	25
Female	210	21	19	24

As seen in Table 1, the mean age of males was 22 and the mean age of females was 21 years.

Description of research variables

Table 2: Mean, standard deviation, minimum and maximum score of the scales of research variables

Title	Mean	SD	Min	Max
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Interpersonal cognitive distortions	38.21	12.55	8	58
social anxiety	13.93	9.49	2	42
Negative self-portrayal	49.29	16.78	24	98
Worry about social competence	20.03	7.56	8	45
Worry about physical appearance	14.12	5.56	8	32
Worry about anxiety symptoms	15.5	5.28	5	35

Kolmogorov-Smirnov test

To test the normality of the data distribution, the Kolmogorov-Simonov test was used. For the questionnaire, the Likert scale

for all indicators of decision-making criterion is higher than 0.05, indicating the normality and uniform distribution of the data. Table 3 presents the values of each of these indicators.

Table 3- The results of the Kolmogorov-Smirnov test for the Likert scale

	(p-value) Social anxiety	(p-value) Cognitive distortions	(p-value) Negative self-portrayal
Students	0.764	0.283	0.587

Based on the results obtained from Table 3, Pearson's correlation test was used to examine the correlation between the variables in the research hypotheses, and multivariate regression was used to examine the relationship between the criterion variable and the predictor variables.

Testing the hypotheses

1- There is a significant relationship between cognitive distortions and the social anxiety of students.

2- There is a significant relationship between negative self-imagery and students' social anxiety.

3- There is a significant relationship between negative self-imagery and students' cognitive distortions.

4- There is a significant relationship between worry about social competence and social anxiety.

5- There is a significant relationship between worry about physical appearance and social anxiety.

6- There is a significant relationship between worry about anxiety symptoms and social anxiety.

Table 4 Pearson correlation coefficient of research hypotheses

Hypothesis 1	Cognitive distortions					
Social anxiety	Pearson			Presence of relationship	Type of relationship	R^2
	Correlation coefficient	sig	N	Yes	Direct	0.519
	0.720	0.01	376			
Hypothesis 2	Negative self-imagery					
Social anxiety	Pearson			Presence of relationship	Type of relationship	R^2
	Correlation coefficient	sig	N	Yes	Direct	0.473
	0.688	0.01	376			
Hypothesis 3	Negative self-imagery					
Cognitive distortions	Pearson			Presence of relationship	Type of relationship	R^2
	Correlation coefficient	sig	N	Yes	Direct	0.438

	0.662	0.01	376			
Hypothesis 4	worry about social competence					
social anxiety	Pearson			Presence of relationship	Type of relationship	R^2
	Correlation coefficient	sig	N	Yes	Direct	0.404
	0.636	0.01	376			
Hypothesis 5	worry about physical appearance					
social anxiety	Pearson			Presence of relationship	Type of relationship	R^2
	Correlation coefficient	sig	N	Yes	Direct	0.366
	0.605	0.01	376			
Hypothesis 6	Worry about anxiety symptoms					
social anxiety	Pearson			Presence of relationship	Type of relationship	R^2
	Correlation coefficient	sig	N	Yes	Direct	0.409
	0.639	0.05	376			

Based on Table 4, the Pearson correlation coefficient between the two variables of cognitive distortions and social anxiety of adolescents is 0.72 with a significant value of 0.01, which is smaller than the significance level. Thus, the null hypothesis

H_0 is rejected at this level. Hence, there is a significant relationship between cognitive distortions and the social anxiety of students. Also, the positive correlation coefficient and the slope of the fitted line indicate a direct relationship between these two variables. The coefficient of determination between the two variables is also $R^2=0.519$. In other words, 51% of the changes are common between the two variables (51% of the changes in the social anxiety of adolescents are justified by their cognitive distortions). It means that as the social anxiety scores of the students increase, their scores of cognitive distortions increase, indicating a direct relationship between these two variables.

The Pearson correlation coefficient between the two variables of negative self-imagery and social anxiety of adolescents is 0.688 with a significant value of 0.01, which is smaller than the significance level of $\alpha = 0.05$. Thus, the null hypothesis

H_0 is rejected at this level. Hence, there is a significant relationship between negative self-imagery and the social anxiety of students. Also, the positive correlation coefficient and the slope of the fitted line indicate a direct relationship between these two variables. The coefficient of determination between the two variables is also $R^2=0.473$. In other words,

47% of the changes are common between the two variables (47% of the changes in the social anxiety of adolescents are justified by their negative self-imagery). It means that the negative self-imagery scores of the students increase as their scores of cognitive distortions increase. In other words, people who have more negative self-imagery experience more social anxiety.

The Pearson correlation coefficient between the two variables of cognitive distortions and negative self-imagery of adolescents is 0.662 with a significant value of 0.01, which is smaller than the significance level of $\alpha = 0.05$. Thus, the null

hypothesis H_0 is rejected at this level. Hence, there is a significant relationship between cognitive distortions and negative self-imagery of students. The coefficient of determination between the two variables is also $R^2=0.438$. In other words, 43% of the changes are common between the two variables. Hence, as the negative self-imagery of the students increase, their scores of cognitive distortions increase, indicating a direct relationship between these two variables.

The Pearson correlation coefficient between the two variables of worry about social competence and social anxiety of students is 0.636 with a significant value of 0.01, which is smaller than the significance level of $\alpha = 0.05$. Thus, the null

hypothesis H_0 is rejected at this level. Hence, there is a significant relationship between worry about social

competence and social anxiety. The coefficient of determination between the two variables is also $R^2=0.404$. Hence, as the social competence of the students increases, their social anxiety scores also increase, indicating a direct relationship between these two variables. As seen in Table 4, there is a significant and positive relationship between worry about physical appearance and social anxiety of students.

Hence, the null hypothesis H_0 is rejected. Also, the coefficient of determination between the two variables is ($=0.366$). In other words, 36% of the changes are common

between the two variables. In other words, people who worry more about their physical appearance experience more social anxiety. As seen in Table 4, there is a significant and positive relationship between anxiety symptoms and students' social anxiety, and is rejected. The coefficient of determination between two variables is $R^2=0.409$. In other words, as worry about anxiety symptoms of students increases, their social anxiety scores increase.

Primary hypothesis - Cognitive distortions and negative self-imagery can predict students' social anxiety.

Table 5- Multiple regression of social anxiety based on the variables of cognitive distortions and negative self-imagery

	ss	df	MS	F	P	R	R ²
Regression	7332.77	2	3666.38	99.68	0.000	0.773	0.592
Residual	4928.50	134	36.78				
Total	12261.270	136					

Based on the data in Table 4-10, since the F level was obtained at 99.68 df = 2 and 134 that is less than the significance level of $\alpha = 0.05$ ($0.00 < 0.05$) with 95% confidence (Error 0.05), H_0 is rejected. Thus, it is concluded that the obtained difference is significant. Also, the coefficient of determination

between the two variables is 0.592. It means that the two variables of cognitive distortions and negative self-imagery predicted 59% of the variance (changes) of the social anxiety variable. Determining the prediction power of each of these variables on social anxiety was also considered, which is shown in Table 6.

Table 6- Regression values of social anxiety based on the variables of cognitive distortions and negative self-imagery

Criterion variable	Predictor variable	B	Beta	t	p
Social anxiety	Cognitive distortions	0.357	0.472	6.45	0.000
	Negative self-imagery	0.212	0.375	5.137	0.000

Table 6 shows that the variables of cognitive distortions and negative self-imagery are good predictors of social anxiety. Thus, the variable of cognitive distortions is the strongest predictor for social anxiety, followed by negative self-imagery.

Discussion

The present study investigated the relationship between interpersonal cognitive distortions and negative self-imagery on the social anxiety of Shahid Bahonar University students in Kerman. The results revealed a significant relationship between cognitive distortions and students' social anxiety. According to the results, since the observed significance level ($\text{sig}=0.01$) is smaller than the significance level of 0.05, with 95% confidence (error 0.05), the null hypothesis is rejected. Thus, it is concluded that the obtained correlation is significant. In other words, there is a significant relationship between

cognitive distortions and social anxiety in adolescents. It means that as a person's score increases in the questionnaire of interpersonal cognitive distortions, his or her level of social anxiety increases. These results are in line with those of several studies such as Kuru et al. (2018), Morrison et al. (2015), and Azhari et al. (2016).

According to the results, there is a significant relationship between negative self-imagery and the social anxiety of students. Since the observed significance level ($\text{sig}=0.01$) is smaller than the significance level of 0.05, the null hypothesis is rejected with 95% confidence (0.05 error). Hence, it is concluded that the obtained correlation is significant. In other words, there is a significant relationship between negative self-imagery and adolescent social anxiety. It means that as a person's score on the negative self-imagery scale increases, the level of social anxiety also increases. These results are

consistent with those of several studies such as Ahn et al. (2018), Schreiber and Steil (2013), and Atari Fard et al. (2017). These studies suggest that negative self-images are predictors of social anxiety and that these images negatively affect the emotional and social performance of people with social anxiety. Experimental studies have shown that people with social anxiety feel more anxious and rely on safety behaviors when they think negatively about themselves, resulting in lower social functioning.

The results revealed a significant relationship between negative self-imagery and students' cognitive distortions. Since the observed significance level ($\text{sig}=0.01$) is smaller than the significance level of 0.05, the null hypothesis is rejected with 95% confidence (0.05 error). Thus, it is concluded that the obtained correlation is significant. In other words, there is a significant relationship between negative self-imagery and students' cognitive distortions. In other words, as a person's score on the Interpersonal Cognitive Bias Scale increases, so does their negative self-image. The results are consistent with those of studies by Moskovitch et al. (2013) and Asfour et al. (2016). Negative self-imagery interfere with reasoning processes while performing the task and cause the loss of positive inferences of people with social anxiety while performing the task and increase their anxiety. Negative perceptions in interaction with cognitive distortions expand their harmful consequences.

According to the results, there is a significant relationship between worry about social competence and social anxiety. Since the observed significance level ($\text{sig}=0.01$) is smaller than the significance level of 0.05, the null hypothesis is rejected with 95% confidence (0.05 error). Therefore, we conclude that the obtained correlations are significant. In other words, there is a significant link between social anxiety and concerns about students' social skills. It means that as a person's score on the social phobia questionnaire increases, the worry about social competence also increases. These results are consistent with those of studies by Moskovitch (2009), Moskovitch et al. (2013), Hashemi et al. (2017), and Atari Fard et al. (2017). In social anxiety, distorted self-imagery represent a socially incompetent self. The results indicate that people with social anxiety often evaluate their personality traits and social performance negatively even when they are successful in their social interactions. People with social anxiety disorder consider their performance in social situations too bad compared to healthy people or independent observers who observe their behavior. Focusing on the negative aspects of social situations and the inability to accept the positive aspects of one's social performance probably perpetuate false beliefs in anxious people. Based on the beliefs of these people, social

situations are threatening and dangerous, and their behavior in front of a crowd will probably be wrong and clumsy.

According to these results, there is a significant relationship between worry about physical appearance and social anxiety. Since the observed significance level ($\text{sig}=0.01$) is smaller than the significance level of 0.05, the null hypothesis is rejected with 95% confidence (0.05 error). Thus, it is concluded that the obtained correlation is significant. In other words, there is a significant relationship between worry about physical appearance and social anxiety. In other words, when the person's score on the social anxiety scale increases, their worry about physical appearance also increases. These results are consistent with those of studies conducted by Moskovitch (2009), Moskovitch et al. (2013), and Hashemi et al. (2017). These studies suggest that the mental image created of a person's appearance acts as a filter through which people perceive real mental images about themselves. Some people with social anxiety are not satisfied with their physical appearance and a negative body image can cause social anxiety. A negative body image is associated with more discomfort and worry regarding approval and acceptance in social interactions.

Furthermore, the results showed a significant association between worrying about anxiety symptoms and social anxiety. The observed significance level is $\text{sig}=0.05$ and with 95% confidence (error 0.05), the null hypothesis is rejected. Thus, it is concluded that the obtained correlation is significant. In other words, there is a significant relationship between body image and stress and inhibition in the social encounters of adolescents. In other words, people who scored higher on the social anxiety questionnaire were more worried about their anxiety symptoms. These results are consistent with those of studies conducted by Bilek and Moskovitch (2013), Moskovitch (2009), and Moskovitch et al. (2013). These results suggest that observable signs of anxiety are one of the most significant indicators for realizing social desirability from the viewpoint of people suffering from social anxiety. In other words, when the anxiety symptoms of these people are revealed, they are waiting for unfavorable evaluation and rejection from others. People with social anxiety tend to avoid interacting with others to avoid the humiliation implied in their mental image.

Finally, cognitive distortions and negative self-imagery can predict students' social anxiety. The observed F-value (99.68) is significant at the level of $P<000$. Also, the coefficient of determination between the two variables is $=0.592$, meaning that the two variables of cognitive distortions and negative self-imagery predicted 0.59% of the variance (changes) of the social anxiety variable. The variables of cognitive distortions and negative self-imagery are good predictors of social anxiety. Thus, the variable of cognitive distortions is the

strongest predictor for social anxiety, followed by negative self-imagery.

Conclusion

Given the significance of social communication in students' lives, paying attention to social anxiety and trying to reduce the negative aspects of this disorder can improve students' mental health. It is also recommended to therapists pay attention to cognitive distortions in this disorder along with social skills training. The present study was conducted using a small sample size compared to the statistical population, which limits the generalizability of the results and they cannot be generalized to the statistical population beyond the Kerman city. It is recommended to conduct the study in a wider age range and on adolescents since social anxiety usually starts in adolescence.

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