

Comparison of Facial Expressions and Spontaneous Negative Thoughts in Individuals with and without Social Anxiety Symptoms

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Abstract

Introduction: The aim of this study was to compare facial emotional manifestations and negative spontaneous thoughts in people with social anxiety and normal people.

Method: This research was descriptive and comparative causal. The statistical population included all people with social anxiety disorder who referred to Mehregan Counseling Center in Mashhad. The normal population included people who did not receive a diagnosis of social anxiety disorder. According to the size of the population and the available sampling method, the sample included 30 individuals with social anxiety disorder and 30 normal individuals who did not receive any symptoms based on the scale of social anxiety disorder and the diagnosis of clinical psychologist. In order to evaluate this research, the questionnaire of negative spontaneous thoughts, social anxiety and the Ekman facial emotion manifestation test were used. Independent t-test was used to analyze the data.

Results: The findings revealed that there was a significant difference between facial emotion manifestations and negative spontaneous thoughts in both groups. Also, the difference between the means in the component of negative spontaneous thoughts was 31.50 and the difference between the means in the component of facial emotions was 21.73 ($p < 0.05$).

Conclusion: According to the findings, it can be said that people with symptoms of social anxiety have problems with facial expressions and negative spontaneous thoughts.

Keywords: Social Anxiety, Normal, Negative Spontaneous Thoughts, Facial Emotional Manifestations

Introduction

One of the anxiety disorders that has attracted a lot of attention is social anxiety disorder [1]. In the last two decades, there has been a significant increase in clinical trials aimed at investigating the underlying mechanisms of social anxiety disorder [2]. Social anxiety disorder is one of the most common psychiatric disorders and its prevalence during life is 7 to 12% of the general population [3]. This disorder is equally prevalent in men and women. Social anxiety disorder often begins in mid-adolescence. One of the cognitive processes that affects the anxiety of adolescents and young people is negative spontaneous thoughts [4].

Beck et al. argue that negative spontaneous thoughts are the result of stressful life events and involve bias in the processing of personal information [5]. Negative spontaneous thoughts include sentences and phrases that occur during consciousness and usually quickly after an event. These thoughts are caused by failure and responding to life stresses that lead to reduced empathy and guilt [6]. For example, Kord et al. (2019) predict student anxiety based on negative spontaneous thoughts [7] and Iancu et al. (2015) investigated the role of negative spontaneous thoughts in social anxiety disorder [8]. As negative spontaneous thoughts come to mind spontaneously and involuntarily when a person is in a negative mental frame, they can be triggered by external or internal events, and ultimately,

emotional and stressful reactions in [9] which in such situations makes a person prone to anxiety and other emotional disorders [7].

Emotions affect different aspects of life, shape our relationships, and motivate our activities. Therefore, it is important to learn how to identify them and how people hide and express them. The ability to change and interpret emotions in facial expressions is vital to social functioning throughout life and is constantly changing. The six main emotions (happiness, sadness, anger, fear, surprise and hatred) are similar in recognizing and expressing a face in different cultures. For example, Demenescu et al. stated that people with social anxiety disorder are significantly weaker in recognizing emotion facial expression than normal individuals and have a general deficit in emotion facial recognition [10]. Schaefer et al. showed in a study that patients with depression and bipolar disorder were less sensitive and accurate than normal individuals in recognizing and naming emotions and were slower in processing emotion than normal individuals [11]. Therefore, the purpose of this study is to compare facial emotional manifestations and negative spontaneous thoughts in patients with social anxiety disorder and normal people.

In general, impairment in emotional function is one of the problems of people with social anxiety disorder, which leads to impairment and inability to recognize the facial expression of emotion in these people. In other words, emotions based on cognitive-behavioral theory refer to the negative spontaneous thoughts that a person experiences. There are no published studies today on the prevalence of social anxiety disorder in Iran. However, clinical observations speak for an increase in the prevalence rate of this disorder in the Iranian society. Over the past few decades, several theoretical models have been proposed to explain the underlying mechanisms of social anxiety disorder, some of which emphasize cognitive processes. Due to the lack of such research in Iran, this study seeks to answer the question of whether there is a significant difference between negative spontaneous thoughts and facial emotions of normal individuals with social anxiety disorder?

Method

The present study was a descriptive cross-sectional post-event study. The statistical population included all people with social anxiety disorder who referred to Mehregan Counseling Center in Mashhad, who received this diagnosis based on a clinical interview by a psychologist and the Social Anxiety Disorder Scale. The normal population included people for whom the diagnosis of social anxiety disorder based on clinical interview and social anxiety questionnaire was rejected. According to the size of the population and the available sampling method, the sample included 30 individuals with social anxiety disorder and 30 normal individuals who had no symptoms based on the scale of social anxiety disorder and clinical psychologist diagnosis. The inclusion criteria included: 1) having social anxiety disorder 2) being in the age range of 18-48 years and 3) having an informed

consent to participate in the research. The exclusion criteria included: 1) having a case other than social anxiety disorder and 2) not willing to participate in the study.

The research tools are as follows:

Automatic Thoughts Questionnaire (ATQ): This scale was developed in 1980 to assess the cognitive component of depression from an individual perspective. This test is a 30-type tool that measures the amount of negative inner self-talk. The Spontaneous Thoughts Questionnaire examines four dimensions of these thoughts: individual incompatibility and tendency to change; my self-concept and negative expectations and low self-esteem, and helplessness.

In Hollon and Kendall's [12] research, the internal consistency of this questionnaire was reported by calculating Cronbach's alpha coefficient of 0.97. The validity of this questionnaire has been investigated in various studies, all of which are due to positive and significant results. In the research of Baba Miri et al. [13], the validity of this tool by Cronbach's alpha was 0.92 for the rate of negative spontaneous thoughts and 0.95 for believing in negative spontaneous thoughts. Kazemi et al. [14] also obtained a reliability coefficient of 0.87 for beliefs and a coefficient of 0.85 for the frequency of beliefs by re-running this test in 30 weeks in 30 high school students. In the present study, the validity of this scale was obtained by Cronbach's alpha method for 0.90 negative spontaneous thoughts and 0.92 for believing in negative spontaneous thoughts.

Connor's Social Phobia Questionnaire: The Social Phobia Scale was used to assess social anxiety disorder. It is a questionnaire developed by Connor et al. [15] to screen and assess the severity of social anxiety disorder. This questionnaire was first designed by Connor et al. in 2003. This self-assessment scale consists of 17 items that cover the main spectrum of social phobia such as fear, avoidance, and physiological symptoms. Statements of Psychometric properties of the Social Phobia Inventory (SPIN) cases indicate signs of social phobia. In response to a person's statements, it should be determined how much each sentence applies to him or her. The questionnaire measures the three clinical domains of social phobia: fear, avoidance, and the physiological symptoms of the disorder. One of the advantages of this questionnaire is its shortness and simplicity of scoring, which makes it easy to use in large populations. One of the uses of this questionnaire is to test the response to treatment in patients with social anxiety disorder. The SPIN questionnaire is similar to a customer service survey.

Each SPIN statement can be measured by selecting five responses based on the scale of social phobia singular ranging from "absolutely" to "extraordinary". Each answer is then assigned on a numerical value ranging from mild to severe. Overall assessment is done with a total score, and a total score above 19 indicates the likelihood of developing social anxiety disorder. SPIN is considered as a valid assessment scale for screening social anxiety disorder as well as measuring the severity of social anxiety and the outcomes after treatment.

Ekman Facial Emotion Demonstration Test: The Eckman Facial Emotion Demonstration Test consists of 36 black-and-white photographs of facial emotion taken and collected in 2003 by Eckman and Freison [17]. These photos are face images of two men and women that show six main emotions including: anger, hatred, fear, joy, sadness and surprise, and the subject should be able to recognize the desired emotion by looking at each image and answer. The reliability coefficient of the retest method of this test was reported to be 0.85 at one week intervals. To evaluate the validity of the above test in Iran, Amiri et al. [18] evaluated the validity of the test criterion through simultaneous validity of the test with Wechsler memory test, Information Processing Questionnaire and Stroop test in patients with schizophrenia who were hospitalized in Tabriz. The criterion validity of this test was 0.4 with Wechsler Memory Test and 0.32 with Information Processing Questionnaire and 0.25 with the Inhibition of Response, which were measured by the Stroop test. Also, internal consistency coefficient (alpha test coefficient in patients) with schizophrenia was 0.64. These results indicate the simultaneous validity of the criterion and good reliability of the test in the clinical community of Iran. The reliability of the above test in the present study was 0.71 using Cronbach's alpha test. This test is performed manually and is graded to zero and 1. The subjects' performance was evaluated by the number of correct answers.

To perform the test, six basic emotions were assigned to six colors according to the set program. The colors were as follows:

Happiness = green / sadness = yellow / surprise = gray / anger = orange / fear = red / hate = blue /

First, for each experimenter, the process of performing the test individually was explained as follows: To perform the Ekman test, they will see a set of 36 black and white images of male and female images on the wrench blade with different emotional states. After presenting each experimental image in the shortest possible time (maximum viewing and responding time to each image was considered six seconds), by observing the image, determine the first emotional state that you see in the person's face by selecting the desired card. For example,

if he sees anger or rage in the image, select the orange color card and thus continue how to respond to all images. Finally, an overall score was obtained based on the equality of facial expressions, and in the meantime, the number of correct answers was recorded by the researcher. Independent t-test and SPSS-16 software were used to analyze the data.

Results

The aim of this study was to compare facial emotional manifestations and negative spontaneous thoughts in people with social anxiety and normal people. Demographic findings indicated that in the group of social anxiety disorder (50% between 20-30 years, 20% between 30-40 years, and 30% in the age range between 40-50 years) and in the group of normal people (60% between 20-30 years, 30% between 30-40 years, and 10% between 40-50 years). The mean age of the group with symptoms of social anxiety disorder was 38.12 ± 12.32 and the group without symptoms of social anxiety disorder was 41.32 ± 13.11 . In the group of social anxiety disorder, 76% were female and 24% were male) and in the group of normal people, 83% were female and 17% were male. Table 1 shows the subjects' tendency toward center of scores index in the components of social anxiety, negative spontaneous thoughts, and facial emotion manifestations.

As it can be seen in Table 1 in the difference between the mean scores of the two groups in different research variables, to determine the significance of these differences, the independent t-test was used, the results of which will be continued. After checking the normality of the data using the elongation and skewness index, the scores of the mentioned variables were in yields 2 and -2, and the data had a normal level.

According to Table 2, it can be said that there is a significant difference between facial expressions and negative spontaneous thoughts in the two groups at the level of (0.05) ($p < 0.05$). It can be said that with 95% confidence, normal people had a lower average in self-negative thoughts and a higher average in emotional manifestations of people with social anxiety disorder.

Table 1. Descriptive Indicators of Subjects by Groups

Group		Mean	SD	N
Social Anxiety	Negative spontaneous thoughts	63.31	0.73	30
	Social anxiety	21.26	1.33	30
	Facial emotional	23.90	2.30	30
Normal	Negative spontaneous thoughts	31.80	0.80	30
	Social anxiety	8.43	1.99	30
	Facial emotional	45.63	3.23	30

Table 2. Independent T-test Results to Compare Facial Emotional Manifestations and Negative Spontaneous Thoughts in People with Symptoms of Social Anxiety and Normal People.

Variable	MD	SD Difference	T	df	P
Negative spontaneous thoughts	31.50	0.19	-158.16	58	0.0001
Facial emotional	21.73	0.72	29.96	58	0.0001

Discussion

The aim of this study was to compare the emotional manifestations of dynamic facial expressions and negative self-thoughts in individuals with symptoms of social anxiety and normal individuals. The results showed that there was a significant difference between the two groups in terms of facial emotional manifestations and negative spontaneous thoughts. The findings of this study are consistent with previous research [19-23].

Emotional facial expressions can play a significant role in the onset, maintenance, and persistence of anxiety, but they have not answered the question of how and through what process a person can control his or her behaviors as a result of emotional facial expressions. Examination of positive facial manifestations shows that people with social anxiety disorder are less successful in using positive facial manifestations and positive facial manifestations are negatively associated with symptoms of social anxiety disorder. People with anxiety disorders are less able to accept their emotions than people in the normal group.

High emotional perception, proper use of emotions and positive emotional experience have a significant negative relationship with the severity of social anxiety in people with social anxiety [17]. This result is in line with Barlow's [24] model of social anxiety disorder. According to this model, the perception of control over anxiety determines the amount of control that people believe they have over their anxious responses during social stress. People with social anxiety disorder experience unexpected and consecutive emotional experiences. Consecutive warnings in people with social anxiety and vulnerability cause them to find their physical and emotional reactions uncontrollable. Hence, people with social anxiety disorder believe in avoiding social situations and use less positive facial expressions in these situations because they lack internal control over their emotional responses when confronted with the situation.

Various variables are associated with anxiety disorders. One of these variables is facial expressions. The ability to regulate facial expressions begins in childhood and constantly evolves throughout life. It is a mechanism that plays an important role in the development and maintenance of these disorders. Organizing facial expressions of emotion involves a range of conscious or unconscious cognitive and behavioral strategies used to reduce, maintain, or increase a facial expression of emotion and what emotions a person has at what times and how. Experiences and expressing them, impresses. Thus, facial emotional manifestations are defined as the capacity to influence the experience and expression of one's emotions and is a complex skill that evolves throughout the action. Evidence suggests that people with anxiety disorders are less able to control their anxiety, sadness, and anger than normal people. People with anxiety disorders are less likely to control anxiety, sadness, and anger than normal people. People with anxiety disorders have

difficulty applying emotion management strategies when dealing with negative emotions and are less effective at re-creating negative moods. In general, emotional dimensions have a significant effect on anxiety disorders, and maladaptive regulation of facial expressions plays an important mediating role in the relationship between anxiety and psychological distress. As a result, emotion regulation deficits may be common among people with anxiety disorders and represent a meta-diagnostic phenomenon that includes anxiety disorders.

Inability to control emotions, in addition to leading to the experience of negative emotions, also disrupts the process of adjustment and mental health of individuals and seriously threatens them. Explaining this finding, we can say that these people are constantly judged and prejudiced in relation to the upcoming events and are strongly involved in the anxious content of their thoughts, which prevents re-evaluating the situation from positive or harmless perspectives. Hence, these traits will lead to high levels of anxiety and worry. Findings show that people who use dysfunctional strategies and self-negative thoughts are usually more vulnerable to emotional problems and experience anxiety disorders. Hence, these traits will lead to high levels of anxiety and worry.

It can also be said that people who have more negative spontaneous thoughts are more likely to experience depression and anxiety. This is because negative perceptions and attitudes that contain helplessness and self-destruction lead to negative assumptions and biases. Negative spontaneous thoughts are caused by stressful life events and involve negative biases in the processing personal information. For example, he regularly blames himself (he is a loser) or (he will never be able to do anything). These interpretations lead to feelings of guilt and anxiety about oneself. Considering that negative spontaneous thoughts, when a person is in a negative mental framework, usually automatically and involuntarily accompany the stress and in such a situation make the person prone to anxiety and other psychological disorders.

The mere use of a questionnaire to collect data, and the socioeconomic heterogeneity of groups and the number of family members can be limitations that may negatively affect the results. It is suggested that this study be done by examining the socio-economic status and number of family members and to compare the results.

Conclusion

Based on the findings of the present study and the literature discussed above, it can be stated that the interpretation of facial expressions is vital in social communication and interpersonal relationships. Facial expressions are used as empirical stimuli to understand biases in the processing of social information in social anxiety, and facial expressions are related to emotional experience and are essential for adapting to one's social environment because they provide clues about how to interact with others.

Spontaneous negative thoughts are conscious or unconscious thoughts that occur in response to everyday

events. These irrational thoughts are self-destructive and may contribute to social anxiety disorder, and recognizing spontaneous negative thoughts is a fundamental step in managing social anxiety.

The limitations of the present study were the inability of researchers to control important socio-economic variables involved in research variables and limited and heterogeneous samples in order to control effective nuisances' variables.

According to the findings of the present study, it can be recommended that therapists increasing their knowledge and pay more attention to the facial expressions and spontaneous negative thoughts and use this knowledge in working with clients with social anxiety disorder to be more effective in treatment.

Conflict of Interest

The authors declare that they have no conflicts of interest and no financial benefits from this study.

Ethical Approval

Participants willingly completed the questionnaires and signed an informed written consent. This research has been taken from the first author's master's thesis.

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