



## The comparison of cognitive insights and problem solving skills between students with and without social anxiety syndrome

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### Abstract

Objective: The purpose of this study was to compare cognitive insights and problem solving skills in students with and without social anxiety syndrome. Method: This study was an applied research and the nature and method of this study was causal-comparative. The statistical population consisted of 152 students with social anxiety disorder and no social anxiety syndrome in south Tehran. The sample consisted of 80 students (40 students with social anxiety and 40 students without social anxiety syndrome). In addition, the available purposive sampling method was used. Research tools were Watson and Freund's Social Anxiety Questionnaire (1969), Hepner's Problem Solving Questionnaire (1988) and Denis & Wenderval's Cognitive Flexibility Questionnaire (2010). Results: Findings showed that there is a significant difference between cognitive insight and problem solving skills in students with social anxiety syndrome and without social anxiety syndrome. Conclusion: Students with social anxiety have less problem solving skills and cognitive flexibility than students without social anxiety syndrome.

### Keywords:

Cognitive Insight, Problem Solving Skills, Social Anxiety.

### 1. Introduction

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Students' experience of anxiety has negative effects on their academic performance and insight and understanding of various issues during their studies. This anxiety can also affect their mental health and future job performance.

The main name of social anxiety disorder is social phobia and its sub name is social anxiety disorder. But the DSM-5 is named after the disorder as a disorder of social anxiety, because the problems they cause are usually more widespread than other phobias and cause more disruption in one's normal activities. People with social anxiety disorder are afraid of any social situation that they think may be embarrassing or that they think they are being negatively evaluated by others and trying to avoid it. In social situations, their anxiety is so pervasive that the DSM-5 has given it a more general name for social anxiety disorder because it can predict some other crippling problems such as depression and drug addiction.

The prevalence rate of this disorder in the American population is about 2%. The 6-month prevalence rate in children and adolescents is approximately similar to the prevalence rate in adults. The prevalence rate in all age groups decreases with age. For older adults, the 6-month prevalence rate is between 2% and 5% (Karlsen et al., 2014). One of the possible approaches to the development of cognitive and psychological schemes of the processes of scientific and technical creativity of students is given on the example of the faculty of technological training of pedagogical institutes (Ismoilov, 2020). The disorder is more common in women than in men (1.5 to 2.2 times), and in adolescents and youth there is a greater gender difference in prevalence rates (Kaplan & Sadock, 2015).

People with this disorder often develop fear and anxiety in the community and in solving problems. One of the problems that comes with fear is the inability to make decisions and solve problems. This means that they are not capable of solving the problem under different conditions (Zalinski et al., 2013). The role of thinking skills, such as problem solving, in academic achievement is very prominent and attention to thinking skills in academic achievement seems necessary (Shokhi et al., 2010). An investigation was intended to develop bits of knowledge on whether word-issue (WP) settling is a type of text perception (TC) and on the job of language in WPs (Fuchs et al., 2018). It is proposed that merged reasoning is a higher priority than different suspecting in critical thinking (Webb et al., 2017). An exploration uncovered proportional relations among control and interest and control and disappointment. No equal impacts were found for esteem (Munzar et al., 2020).

In fact, in people with high levels of social anxiety, the likelihood of risks in social situations is overly natural (Goldin et al., 2013). One of the most common treatments for social anxiety disorder is cognitive-behavioral therapy, which is one of the most important cognitive-behavioral abilities discussed. The effectiveness of problem solving on anxiety problems has been studied so far in various studies.

People with social anxiety disorder due to anxiety and stress at any time, are unable to solve problems and therefore do not have a rational view of different issues and situations. For this reason, another cognitive factor related to stressors, stress and anxiety can be named cognitive insight. Cognitive insight is provided by considering both stressful conditions and individuals' inherent ability to respond, survive, and grow normally in the presence of stressful conditions (Seifzadeh, 2013). In fact, researchers have been paying particular attention to the cognitive variable of cognition for nearly four decades. It can be said that this insight is a set of cognitive modes capable of adapting to changing environmental stimuli and can adapt thinking and behavior in response to changing environmental conditions. People who do not have good cognitive insight tend to ruminate when they feel sad. Beck et al. (2014) argue that cognition can be used to understand past and present events. It provides a perceptual framework for understanding past and present events that shape people's expectations of the future. Typical cognitive insights can include evaluating, correcting dysfunctional and distorted beliefs, and

misinterpreting events (Cooke et al., 2010). An examination analyzed whether gamification can improve understudy commitment in a flipped course. An examination study was directed, including two classes of college understudies in an Information Management course (Huang et al., 2019).

Problem-solving and cognitive insights are cognitive-behavioral processes in which an individual or group strives to provide appropriate solutions to the problems of everyday life. Since the prevalence of social anxiety in students will have detrimental personal and social consequences, it requires the attention of universities and research to reduce it, so this study is considered important in doing so. Research and its results can be compared by comparing this disorder in those without and with the disorder to their ability to solve problems and increase cognitive insight as well as its complications. Therefore, in this study we seek to answer this question. Are students' cognitive insight and problem-solving skills the same as those with social anxiety syndrome and those without social anxiety syndrome, or are there significant differences?

## **2. Methodology**

The present study is an applied research and in terms of nature and method, the present study is a comparative causal one. The statistical population of this study included a number of students with social anxiety and no social anxiety syndrome in Payam Noor South Tehran with a total of 152 students. In this study 80 students including 40 students with social anxiety and social anxiety were selected. (40 students without social anxiety syndrome) and available sampling method was used. The students were selected by the method of social anxiety questionnaire distributed by Watson and Freund (1969) and students with social anxiety questionnaire score above 12 were included as students with social anxiety syndrome. The mean age of the students was 22.70 and 17 males and 23 females respectively. Inclusion criteria included voluntary participation in the study, absence of obvious physical, sensory or motor disorders and exclusion criteria. Watson and Freund's Social Anxiety Questionnaire was first administered to the study samples and after collecting, the questionnaire was scored and then any student who scored high on the questionnaire was identified as having Social Anxiety Disorders. After this step, the Hepner Problem Solving Questionnaire and the Dennis Cognitive Flexibility Questionnaire are administered and collected after answering the questionnaires and analyzing them. The following tools were used to conduct this study:

The Social Anxiety Questionnaire was developed by Watson and Freund (1969) to diagnose and evaluate social anxiety. This 58-item instrument has two subscales of social avoidance and fear of negative evaluation. The social avoidance subscale is 28 items and the fear subscale of negative evaluation is 30 items. The scoring is that half of the questions are answered in the affirmative and the other half are in the negative, with a score range between zero and 28, a score of 12 indicates a high level of social anxiety and a score of less than 4 indicates a high level of social anxiety. Down. In Watson and Freund's study, its test-retest reliability coefficient was 0.68 and its concurrent validity was 0.54.

The Hepner Problem Solving Questionnaire (1988) contains 35 questions based on the 6-point Likert scale. In this questionnaire, people were asked questions on a Likert scale that rated them as follows: Strongly agree, agree, slightly agree, slightly disagree, disagree, strongly disagree with each phrase, and the level at which you agree with each phrase. Specify or disagree and use these options. 1-Strongly agree 2- Strongly agree 3- Slightly agree 4- Slightly disagree 5- Disagree 6- Strongly disagree. The Problem Solving Questionnaire based on Factor Analysis Rotation has three distinct sub-scales: Trust to solve PSC problems with 11 items, AA style avoidance with 16

phrases, PC personal control with 5 phrases. Reliability of the questionnaire total score retest within two weeks It is reported from 0.83 to 0.89 that indicates that problem solving questionnaire is a reliable tool for measuring problem solving ability.

This questionnaire was introduced in 2010 by Dennis and Wenderval. A short 20-question self-report tool that is used to measure the kind of cognitive flexibility needed to successfully challenge one's ability to replace inadequate thoughts. It is scored on a 7-point Likert scale. Three sub-scales for this questionnaire have been obtained in Iran and in the research of Shearer et al., Which are alternatives, controls, and alternatives to human behavior. Concurrent validity of this questionnaire with Beck Depression Inventory was -39.0 and its convergent validity with Martin and Robin Cognitive Flexibility Scale was 75.0. In the present study, descriptive methods of frequency distribution tables, graphs were used to describe the data and observations, and in the inferential statistics section the analysis of variance was used. The present study attempted to inform the participants about the subject and method of conducting the study before starting the work (volunteer), and the participation in the research would not cause any financial burden to the participants. The candidates' private and personal information was also protected and the results can be interpreted as desired.

### 3. Results

**Table 1.** Mean and standard deviation scores of social anxiety, cognitive insights, and problem-solving skills in groups with and without anxiety syndrome

| Variable                             | People without anxiety syndrome |         | People with anxiety syndrome |         |
|--------------------------------------|---------------------------------|---------|------------------------------|---------|
|                                      | Standard deviation              | Average | Standard deviation           | Average |
| Social Shunting                      | 0.84                            | 5.07    | 4.51                         | 10.12   |
| Fear of negative evaluation          | 0.52                            | 4.77    | 3.76                         | 13.60   |
| Social anxiety (total score)         | 1.74                            | 9.84    | 5.90                         | 23.72   |
| Belief in problem solving            | 11.57                           | 38.57   | 11.62                        | 29.50   |
| Orientation style                    | 13.12                           | 47.30   | 13.88                        | 38.75   |
| Personal control                     | 5.45                            | 19.75   | 4.16                         | 22.60   |
| Problem Solving Skills (Total Score) | 27.69                           | 105.62  | 25.68                        | 90.85   |
| Alternatives                         | 10.31                           | 34.45   | 9.97                         | 27.42   |
| Control                              | 8.99                            | 37.12   | 10.50                        | 25.45   |
| Alternatives to human behavior       | 10.93                           | 30.57   | 8.89                         | 25.20   |
| Cognitive insight (total score)      | 29.34                           | 102.15  | 27.53                        | 78.07   |

The results of Table 1 show that the mean scores of social anxiety, cognitive and problem solving skills subscales, as well as their subscales, were significantly different between the two groups of students with and without social anxiety syndrome. Social in the group with anxiety syndrome was 23.72 and in the group without anxiety syndrome was 9.84. Problem solving skills score in the group with anxiety syndrome was 90/85 and in the group without anxiety syndrome was 105.62. The cognitive insight score was 78.07 in the group with anxiety syndrome and 102.15 in the group without anxiety syndrome.

**Table 2.** Kolmogorov-Smirnov test results assuming normal distribution of statistical population based on social anxiety, cognitive and problem solving scales

| The dependent variable         | The significance level | Statistics |
|--------------------------------|------------------------|------------|
| Social Shunting                | 0.093                  | 1.238      |
| Fear of negative evaluation    | 0.276                  | 0.995      |
| social anxiety                 | 0.452                  | 0.859      |
| Alternatives                   | 0.637                  | 0.744      |
| Control                        | 0.516                  | 0.817      |
| Alternatives to human behavior | 0.469                  | 0.847      |
| Cognitive insight              | 0.857                  | 0.605      |
| Belief in problem solving      | 0.971                  | 0.488      |
| Orientation style              | 0.964                  | 0.500      |
| Personal control               | 0.740                  | 0.683      |
| Problem-solving skills         | 0.899                  | 0.572      |

As can be seen in Table 2, since the value of the Kolmogorov-Smirnov test on social anxiety scores, cognitive and problem-solving skills, and its subscales ranged between +1.96 and -1.96 It was not significant, therefore, with 95% confidence that the normal distribution of the statistical population can be assumed.

**Table 3.** Results of the M-Box test to test the variance-covariance matrix assumption

| Variable                       | Significance level | M box value | Degree of Freedom 1 | F value |
|--------------------------------|--------------------|-------------|---------------------|---------|
| Alternatives                   | 0.658              | 0.198       | 1                   | 0.196   |
| Control                        | 0.428              | 0.638       | 1                   | 0.629   |
| Alternatives to human behavior | 0.161              | 1.987       | 1                   | 1.962   |
| Cognitive insight              | 0.759              | 0.0945      | 1                   | 0.096   |
| Belief in problem solving      | 0.588              | 0.298       | 1                   | 0.294   |
| Orientation style              | 0.372              | 0.807       | 1                   | 0.797   |
| Personal control               | 0.130              | 2.328       | 1                   | 2.299   |
| Problem-solving skills         | 0.552              | 0.359       | 1                   | 0.355   |

According to Table 3, it is observed that the M box test is not significant for the group variable. Therefore, the matrix-covariance homogeneity condition for this assumption is properly observed. Multivariate analysis of variance can therefore be used.

**Table 4.** Levin test results, assumption of variance homogeneity

| Variable                       | Significance level | Degree of freedom 2 | Degree of Freedom 1 | F value |
|--------------------------------|--------------------|---------------------|---------------------|---------|
| Belief in problem solving      | 0.59               | 78                  | 1                   | 0.292   |
| Orientation style              | 0.36               | 78                  | 1                   | 0.836   |
| Personal control               | 0.11               | 78                  | 1                   | 2.493   |
| Problem-solving skills         | 0.220              | 78                  | 1                   | 1.526   |
| Alternatives                   | 0.52               | 78                  | 1                   | 0.41    |
| Control                        | 0.31               | 78                  | 1                   | 1.00    |
| Alternatives to human behavior | 014                | 78                  | 1                   | 2.14    |
| Cognitive insight              | 0.60               | 78                  | 1                   | 0.27    |

According to the findings of Table 4 and with respect to the F value obtained from the Levine test, no significant difference was observed at the level, so the null hypothesis of the assumption of homogeneity of variances is accepted.

**Table 5.** Multivariate Analysis of Variance Analysis of Social Anxiety, Cognitive Insights, and Problem Solving Skills in Students with Social Anxiety Syndrome and No Anxiety Syndrome

| title of test         | Eta squared | Significance level | F       | value  |
|-----------------------|-------------|--------------------|---------|--------|
| Regularity test       | 0.829       | 0.001              | 251.829 | 0.674  |
| Lambda Wilks test     | 0.829       | 0.001              | 251.829 | 0.447  |
| Hotelling effect test | 0.829       | 0.001              | 251.829 | 62.434 |
| Test the biggest root | 0.829       | 0.001              | 251.829 | 62.434 |

The results of Table 5 show that there is a statistically significant difference between the two groups of students with social anxiety syndrome and without social anxiety syndrome in terms of the combined dependent variables (social anxiety, cognitive and problem solving skills) (Wilks, Lambda= 0.447 and  $P < 0.001$  and  $(F 11,69)=251/829$ . Since the results of the multivariate test were significant, it is possible to examine the variables separately. In Table 6, the results of multivariate analysis of variance for the variables of social anxiety, cognitive insight and problem solving skills in the group of students with social anxiety syndrome and without anxiety syndrome Social provided.

**Table 6.** Results of Multivariate Analysis of Variance of Social Anxiety, Cognitive Insights, and Problem Solving Skills in Two Groups of Students with and without Social Anxiety Syndrome

| Variables                      | Effect size | Significance level | F     | Mean sum of squares | Degrees of freedom | The sum of the squares |
|--------------------------------|-------------|--------------------|-------|---------------------|--------------------|------------------------|
| Belief in problem solving      | 0.362       | 0.001              | 77.34 | 76.276              | 1                  | 76.276                 |
| Orientation style              | 0.334       | 0.001              | 24.69 | 48.27               | 1                  | 48.27                  |
| Personal control               | 0.571       | 0.001              | 7.33  | 75.80               | 1                  | 75.80                  |
| Problem-solving skills         | 0.405       | 0.001              | 13.22 | 86.04               | 1                  | 86.04                  |
| Alternatives                   | 0.425       | 0.001              | 8.88  | 121.67              | 1                  | 121.67                 |
| Control                        | 0.482       | 0.001              | 11.13 | 161.92              | 1                  | 161.92                 |
| Alternatives to human behavior | 0.443       | 0.001              | 5.38  | 129.24              | 1                  | 129.24                 |
| Cognitive insight              | 0.548       | 0.001              | 6.54  | 146.15              | 1                  | 146.15                 |

As can be seen in Table 6, when the results of the dependent variables were considered separately, the variables of social anxiety, cognitive insight, and problem-solving skills were significantly different between the two groups of students with and without social anxiety syndrome. Significance exists at the 0.01 level.

#### 4. Discussion

Social anxiety disorder often resembles a panic in that the fear of something is so strong that it is impossible for the other person to approach the goal. Social anxiety has many effects on individual life components. One of the components is problem solving skills, a cognitive and behavioral process resulting from the application of knowledge and skills to achieve a goal that has many functions in the psychological and social domains. Some of the functions of problem-solving skills include reducing depression, increasing self-efficacy, reducing social anxiety, and increasing life satisfaction. It also affects one's flexibility and reduces adaptability to changing environmental stimuli and can be incompatible with thinking and behavior in response to changing environmental conditions.

The results showed that there was a significant difference in the mean cognitive insight between the two groups of students with social anxiety and without social anxiety, whereas in the group of students with social anxiety was significantly lower than the group without social anxiety. The results of Keskin et al., (2016), which showed that cognitive insight and flexibility

are not correlated with anxiety, are inconsistent. In scientific literature, cognitive insight and awareness of the disease and its consequences have always been given poor insight as a symptom of psychotic states, but research has not reported the same results. Despite the variety of etiological theories of insight and its consequences, what is noteworthy is that poor cognitive insights can affect interpersonal relationships, the social capabilities of treatment acceptance, and general awareness. Amador and Beck (2004) describe insight as a multidimensional construct with sub-factors on a continuum. Many studies, however, often point to the negative consequences of poor vision. While severe impairments in consciousness and vision can be problematic for the patient, it has been suggested that some degrees of insight as normal functioning should be considered, as some pathological states, especially anxiety, are associated with high vision.

## 5. conclusion

The results showed that there was a significant difference in the mean score of problem solving skills between the two groups of students with social anxiety and without social anxiety, whereas in the group of students with social anxiety was significantly lower than the group of students without social anxiety. In explaining this relationship, it can be said that problem-solving skills as a cognitive-behavioral strategy emphasize both cognitive and behavioral aspects as well as defending negative events. When a student is worried about his performance and mental ability in stressful situations and under stress, this feeling will diminish his performance and deprive him of energy. In students without anxiety syndrome, they face an issue, giving them the opportunity to make mistakes, apply their knowledge and enjoy the excitement of discovery, and give them the opportunity to hypothesize on various topics. And test and apply their hypotheses. The first limitation of the present study was to disregard students' personality factors. Then, the lack of responsiveness and cooperation of the subjects, as well as the way in which the subjects responded to the questionnaire questions, often caused the subjects to become fatigued and fatigued, thus reducing the accuracy of the subject, so this should be taken into account when interpreting the results. Given the importance of the topic of reducing social anxiety, it is suggested that researchers investigate changes and comparisons of subjects through interviews and clinical observations in future studies.

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